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Impact of Over-The-Top Content Services on the Media System

Public Consultation

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1. Purpose of the consultation

After having revolutionalised communication between people (and increasingly often, machines) and access to information, the driving force of our accelerated world — the Internet — is about to transform the media market, and it affects not only market players, but also the regulatory environment and legislation must adjust to this process. In the United States, online content provision and the so-called over-the-top (OTT) content providers have unmistakably left their mark on the media and electronic communications markets already. This trend has reached Western Europe as well, and even in Hungary, some market participants and a handful of trailblazer OTT service providers have launched this new type of online services already.

Over the long run, online content consumption may transform the media system fundamentally and with that in mind, the National Media and Infocommunications Authority (Authority, NMHH) wishes to address the phenomenon proactively. The evolution of the new system is expected to be a lengthy process, but it has started already, and the fact that more and more OTT content providers have emerged in the domestic market is a clear indication of this fact. This analysis is intended to provide an overview of the market of OTT content provision, the technological background, anticipated market trends and the arising regulatory issues. The scope of this analysis cannot cover all details due to the complexity of the subject; indeed, this paper is the result of preparatory work aimed at identifying the areas where legislators and the Authority responsible for the implementation of the law may have certain tasks to tackle in the near future.

The new market participants, the expansion of the media market value chain and the conflicts inevitably arising in relation to the rearrangement have increasingly become the focus of attention inside the professional community, from content creators through media service providers to electronic communications operators. Accordingly, in consideration of the increasing popularity of OTT content provision and its (expected) impact on the media and broadcasting market, the Authority is initiating a dialogue with market participants and stakeholders. All market participants have a vested interest in the currently evolving and soon-to-be implemented media system and its smooth functioning; this is a matter that equally concerns all players. It is a key priority of the Authority to ensure that the responses given to any regulatory questions and challenges are well-founded and, as far as possible, consensual. Rather than offering unequivocal statements, we intend to formulate questions in order to facilitate a multilateral discourse about this important subject.[1]

[1] Pursuant to the relevant constitutional principles (the applicable permanent practice of the Constitutional Court), solely in individual administrative cases and procedures commenced in accordance with Act C of 2003 on Electronic Communications (Electronic Communications Act), Act CLXXXV of 2010 on Media Services and Mass Media (Media Act) and Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (Administrative Proceedings Act), in the context of the statement of facts established upon the thorough inspection of the circumstances of the case, the NMHH may apply and interpret the relevant legislative provisions, and shall be entitled to incorporate thereof in administrative decisions. Pursuant to the constitutional principle of being subject to the Administrative Proceedings Act, in respect of legal issues arising outside of the legal relationship entailed by the administrative procedure, within its administrative competence the NMHH shall not be entitled to adopt a definitive resolution containing legal interpretations or affecting, in any manner, the substance of future administrative proceedings as, by doing so it would circumvent the provisions, guarantees and remedy procedures defined by the Administrative Proceedings Act. In the lack of a thorough inspection of

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This document is divided into three main parts. In the first part we describe the visible trends of developments affecting the media system; the second part presents an overview of the market of online content providers, market participants, trends and service provider strategies. The main emphasis, however, is placed on the third part, which is dedicated to regulatory challenges. In this part we collected the questions that may affect *(i)* consumers, viewers *(ii)* media content providers, *(iii)* electronic communications operators and *(iv)* OTT service providers.

Please provide your answers to the questions asked in this document (in the blue textbox) and send any comments you may have about this subject to ottkonzultacio@nmhh.hu by no later than 31 January 2015. Please note that we will protect your anonymity while processing and publishing the replies and comments received.

the details of the case, therefore, the competence of the NMHH shall be limited to the provision of general information regarding the legislative provisions related to the specific issues. Consequently, the contents of this documents may not be considered as the official position of the NMHH.

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2. The media system in transition

Mass media exerted a fundamental impact on the social development of the 20th century. Rather than fostering interaction between persons (point-to-point communication), the media facilitated the widespread dissemination of individual opinions (point-to-multipoint communication). While this type of one-way communication had already characterised the print media, with the emergence of audio-visual content media content gained an enormous persuasive power and has become more influential than ever. The opinion-forming capacity of the media and hence, its role in the democratic operation of the society is understood and experienced by all players. This has led directly to the formulation of the existing media regulation framework, which prescribes adequate guarantees to ensure that no one can abuse this power of influence (e.g. regulation on the concentration of media ownership), that media consumer audiences have guaranteed access to certain content of public interest (the so-called *must-carry* rules) and that citizens benefit from balanced and diverse information dissemination. To a certain degree, these classical media regulation tools restrict the media's rights to the freedom of speech and the free disposal over property. This restriction, however, is warranted by the concept of the media's opinion-forming power, which calls for guarantees in order to protect public interest. As a matter of course, this power of influence increases in line with viewership and listener rating.

Initially, when only public service television and a couple of commercial TV channels were available to households, viewership and attention were divided between a mere handful of players, which boosted the influential power of certain media (persons controlling the media, the government) even further. For media services the limited capacity of the transmission infrastructure was a significant barrier to market entry at the time. In order to appear on analogue terrestrial broadcasting platforms, media service providers had to bid for spectrum rights at tenders and, compared to the current supply, the gradually implemented cable networks could ensure access only to a limited number of linear media services.

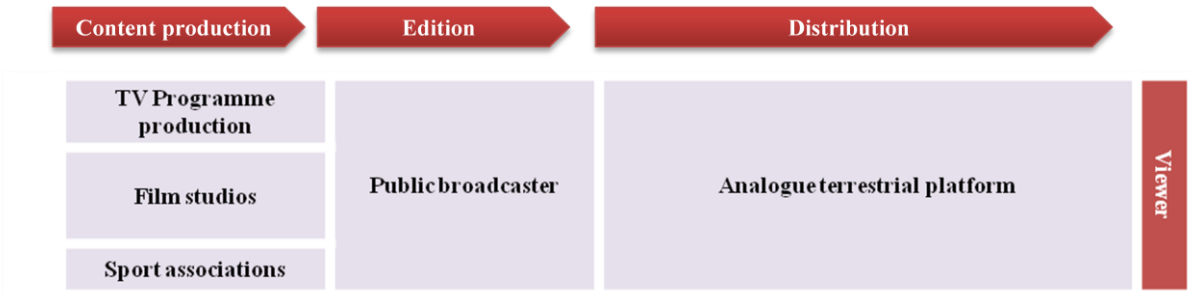

Chart 1: Content distribution value chain of the *past*

Owing to technological development, access to transmission systems improved spectacularly, primarily thanks to the development of certain technologies (digitalisation),[2] and to the appearance of alternative broadcasting methods (e.g. IPTV). By now, hundreds of media services are within the reach of consumers, which obviously exceed the 'absorption capacity' of the average viewer. As a result, from the scarcity of resources and transmission capacities the emphasis gradually shifted to a

[2] Terrestrial broadcasting and the digitalisation of cable and satellite programme distribution multiplied the transmittable content volume.

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new bottleneck, namely, the limited ability of viewers to pay attention. In other words, while media providers competed for transmission capacity in the past, today they fight for the attention of the audience[3]. It should be noted, however, that the obstacles to entry to the broadcasting market still persist due to the existence of entry barriers and the materialisation of sunk costs.

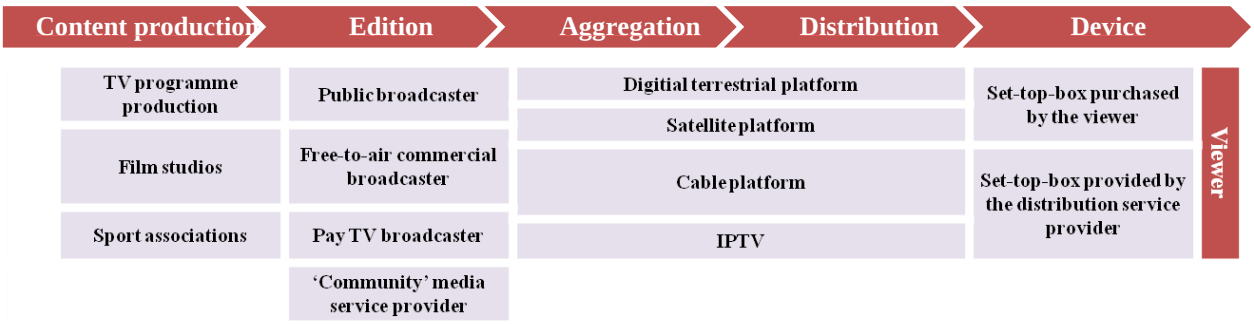

Chart 2: Content distribution value chain of the *present*

The statements above characterise the present. What does the future hold? We do not have to be fortune tellers to see that television, more precisely, content consumption and communication are about to undergo a revolution and that major changes are held in store for supply and consequently, demand, the signs of which are already perceivable. The driving force behind these changes — as is the case in numerous other areas — is the Internet. In our opinion, the biggest change will not be elicited by the number of available TV channels and other media services that grow rapidly in line with the surge in Internet content. If the change would be limited to this, it would merely be a continuation of the process that started in the 1990s. The use of the word "revolution" is justified by the following trends: *(i)* changes in the content distribution ecosystem; *(ii)* transformation of the role of "traditional media" and its potential decline in democratic public life; *(iii)* a drastic transformation of content consumption methods. Obviously, these processes are interrelated, the essence of which can be summed up as follows:

(i) The most important change in the ecosystem of digital content distribution is the replacement of the previously prevailing "digital fortress" or "walled garden" model with an open model, where content and transmission services can be distinctly separated; indeed, they should be separated. In the previous system the content provider could reach the consumer only by making arrangements with the service provider transmitting the signal through its network. Consequently, the broadcaster exercised control over which media service could have access to its network, and transmitted the signal to the end-user through a dedicated, managed network. This restriction is eliminated by the fact that subscribers can access the services of media providers and independent content aggregators through their Internet access service, without the involvement of the content distribution provider. These services — i.e. those made available online, outside of the broadcaster's closed system — are called over-the-top (OTT) content services.

[3] Of course, media providers were always competing for the attention of viewers, but the few media operators gaining access to the scarce transmission capacity were almost guaranteed to grab viewers' attention as well, given the limited number of competitors.

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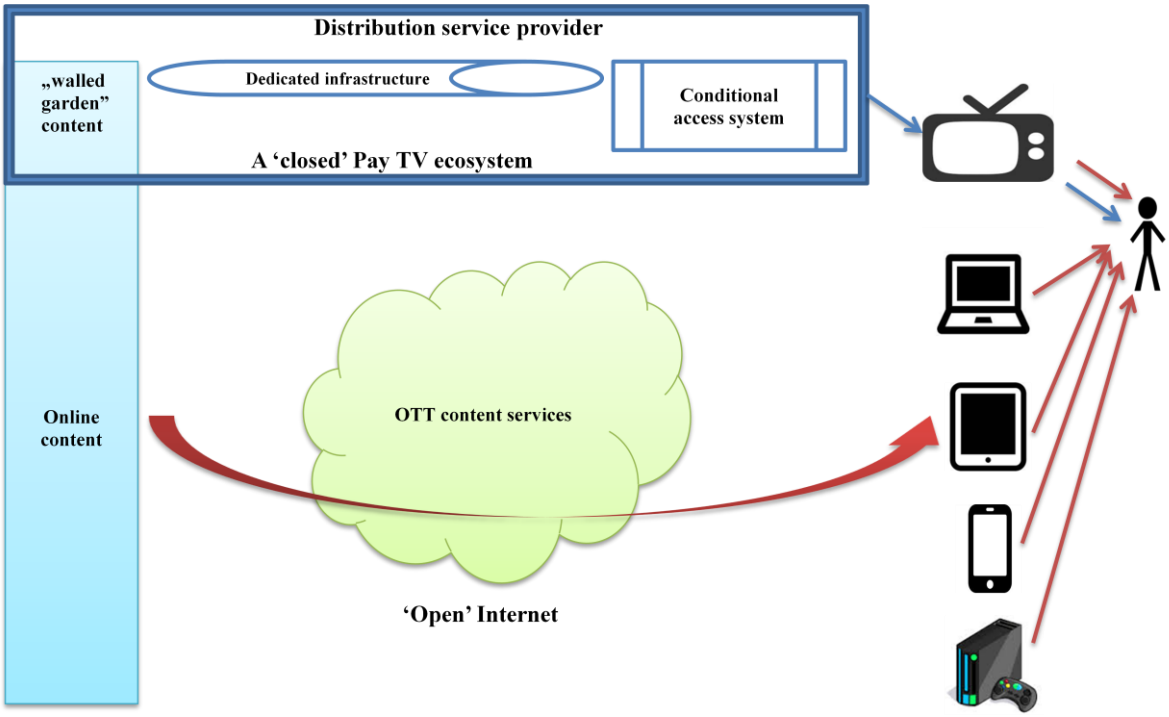

Chart 3: The closed system of content distribution vs. OTT content transmission

(ii) Mobility and flexibility are becoming basic expectations in respect of infocommunications technologies, and this aspect plays an increasingly important role in the way we consume content. While in the past we exclusively consumed linear (real time) media services where, to put it simply, the media provider decided what we can watch and listen to and when, in our days we see a proliferation of on-demand media services. Practically, the viewer took over control over when and where to watch the content being offered. On the long run, this process may reduce the role of certain media services in the democratic discourse, given that consumers do not encounter any unwanted content. This trend had been also observed in the past, when increased capacities provided an opportunity to offer a separate television channel for specific communities sharing the same (political) views. The ample channel supply already allows viewers to skip commercials and watch only movies, for instance. The trend, however, may become even stronger in such an on-demand media environment where viewers are even less exposed to service providers: they can choose the time and place of content consumption, as well as the intended content itself. This phenomenon calls into question the legitimacy of the effective media regulation tools that were intended to ensure that the media has an exceptional role in the social debate, and the question arises whether these regulations should be revised in order to enforce their underlying objective, public interest.

(iii) As regards the tools of content consumption, up until recently, audiovisual content was consumed exclusively through the television set, while radio sets were used for the consumption of radio media services. Such device concepts are slowly losing their significance. We can predict that fairly soon the only difference between the "smart" devices

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connected to the Internet (smartphone, tablet, phablet, PC, television) will be screen size, and this can be viewed as an important consequence of the converge that started in the 1980s. As a result, we now have access to any content on any device at any time, provided that we have a suitable Internet connection. Presumably, there will be an operation system running on each device, supplemented with applications, and only a part of them will be linked to media content. In all practicality, even the subscriber package or the content of the media provider will be just one among many apps beside the already accustomed widgets (networking sights, torrent sites, weather reports, etc.).

Accordingly, new players will appear in the value chain of content distribution which, as the case may be, may prove to be a bottleneck in users' access to content. Starting from the upstream markets, competing with the on-demand media services traditionally provided by broadcasters (videotheque), an increasing number of online on-demand media services have become available. Some of them (such as Netflix) have acquired a large subscriber base, that could jeopardise the viewership and market share — and therefore, revenues — of the rest of the media providers offering off-line on-demand services. The operators of application platforms and "app stores" or "app marketplaces"[4] already familiar from mobile markets, are to enter the media system as new players, providing space, among other things, to the applications of media providers within the menu system operated by them (optionally on multiple devices). Meanwhile, as has been mentioned above, the range of products suitable for media consumption is growing continuously.

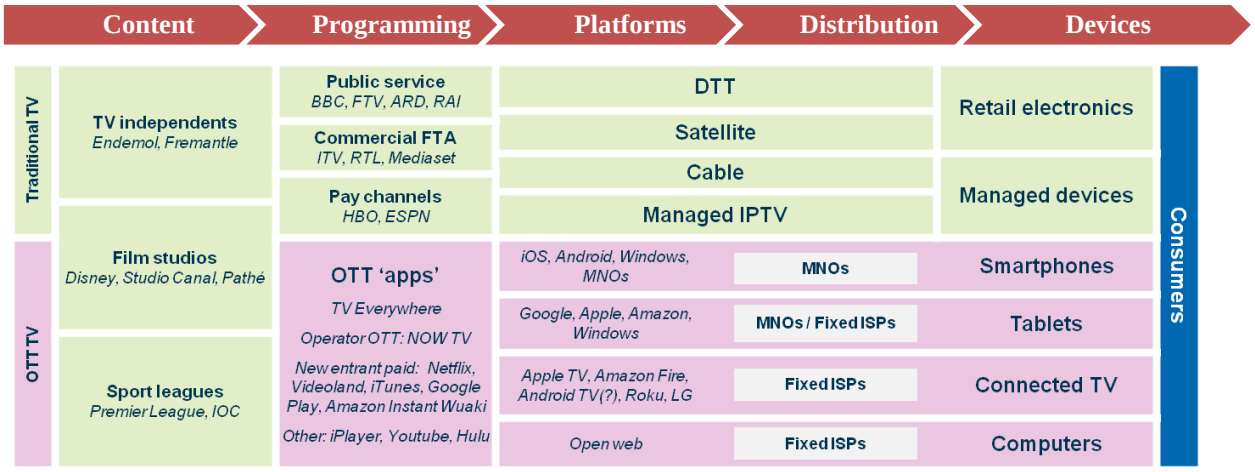

Chart 4: Content distribution value chain of the *future* (source: Analysys Mason)[5]

Online content consumption, including the consumption of online content via television, is enabled by the recently appearing and increasingly popular Smart TVs. The concept of intelligent television, Smart TV or Connected TV marks a milestone in the new "process" which leads to the integration and convergence of the Internet and modern television sets or digital set-top-boxes. Compared to the TV sets and set-top-boxes used in the past, the capabilities offered by the online interactive media may get into the limelight to a much larger degree and they no longer focus exclusively on traditional, linear

[4] Apple Store, Google Play, etc.

[5] Analysy Mason: OTT video presentation for NMHH, June 2014.

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media content. This phenomenon is similar to the way in which the Internet integrated into modern smartphones through various software applications.

Thanks to the television sets connected to the Internet (*Connected TV*), online media content has entered the living room of families, directly competing with the media services provided by "traditional" broadcasting platforms. Thanks to the Internet, the heretofore "passive" TV set that used to provide access to a limited number of channels is becoming an interactive communication tool offering nearly unlimited content, countless applications and social networking sites. Smart TV can be viewed as a television set with integrated information technology features, empowering users to install and run additional applications on a single platform.[6]

Connected TV refers to all television sets that provide direct access to the Internet through an integrated "Ethernet" network connection or are linked to the Internet via a separate indoor unit. Compared to "traditional" televisions, connected TV has an extra information source, namely, online content.[7] The platform operator, therefore, may be the manufacturer of the device itself (e.g. Samsung, LG, Sony), an independent service provider (e.g. Apple, Google, Roku), or even the broadcaster itself (e.g. the horizon gateway service of UPC). Among the television sets connected to the Internet, then, we can distinguish between "smart" and "Internet enabled" devices. In this comparison, smart Tvs are TV sets with direct connection to the Internet, where the platform operator is the device manufacturer itself. By contrast, Internet enabled TV sets cover a far broader range of devices, including all devices that are linked to the Internet through the services of an intermediary player, which could be an integrated receiver (Google TV, Apple TV or any suitable digital decoders provided by the broadcaster), a laptop, video game console or blue-ray reader connected to the Internet through HDMI cable, etc.[8]

Consumers now benefit from enjoying the services that used to be only available on the computer or possibly on mobile phones (e.g. YouTube) on their television screens. In addition, consumers are being provided with broader access to on-demand media services. As the Internet conquers the last "fortress", the television screen, the barriers to reaching audiences are all but broken down.

[6] http://hu.wikipedia.org/wiki/Okost%C3%A9v%C3%A9, [05/08/2014]

[7] CSA Régulation: La télévision connectée à internet – des changements structurants pour l'audiovisuel, vol. 46, 2010, p. 24

[8] BARTÓKI-GÖNCZY, Balázs: Connected TV – átalakuló piaci értéklánc és új szabályozási kihívások a horizonton (Transforming market value chain and new challenges for regulators envisaged). *Infokommunikáció & Jog*, 2012/5-6., HVG-Orac, p. 184

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3. Definition and classification of over-the-top services

In defining OTT, we need to state, first and foremost, that the term signifies *the method and technology* of delivering content and services. More precisely, we should refer to the services provided in this way as "*services provided through OTT method*". For the sake of simplicity, however, for the purposes of this paper we will refer to them uniformly as "*OTT services*" or "*OTT content provision services*". Generally speaking, we can define OTT services as serviced delivered over the Internet by a service provider that is not responsible for the transmission of the signals to the end-user; users access the OTT service via the "public Internet". As such, the OTT service provider is an entity separate from, and not contracted to, the Internet service provider.[9]

The "classical" OTT service provider is not involved in transmitting the content; all this takes place on the public Internet. Lately, however — precisely for the sake of adequate quality — more and more OTT service providers are contracted to a CDN (*Content Delivery Network*) service provider, entrusting it with a part of the transmission. At the same time, however, the contractual relationship does not cover the phase between the CDN provider and the subscriber. This method of service provision is also called OTT service. Subscribers arrange for their own Internet access themselves, typically by signing a contract with an Internet service provider. However, some other options are also available to obtain a connection. Therefore, the true criterion of the OTT service is not really the existence of the two subscriber contracts, but the partial or comprehensive wholesale contract covering the transmission of the full content (signal) and the lack of responsibility for signal transmission toward the subscriber (content consumer).[10] OTT services can be divided into two large groups.

[9] In principle, the OTT service does not need to be delivered via an IP-based network; in practice, however, either in full or in part, the transmission takes place, almost exclusively, on the public internet.

[10] The difference between the similarly IP-based IPTV and OTT streaming is the fact that, while the service provider transmits the signal stream of the IPTV through its dedicated network supervised by the management system, the OTT service provider delivers the content to the end-user device via broadband internet connection without any quality guarantee. In the case of IPTV, the provider is responsible for the full transportation of media content, including quality requirements. It is precisely because of this that the OTT provider is significantly exposed to the internet provider, as it has no real control either over availability, or the quality of the delivery.

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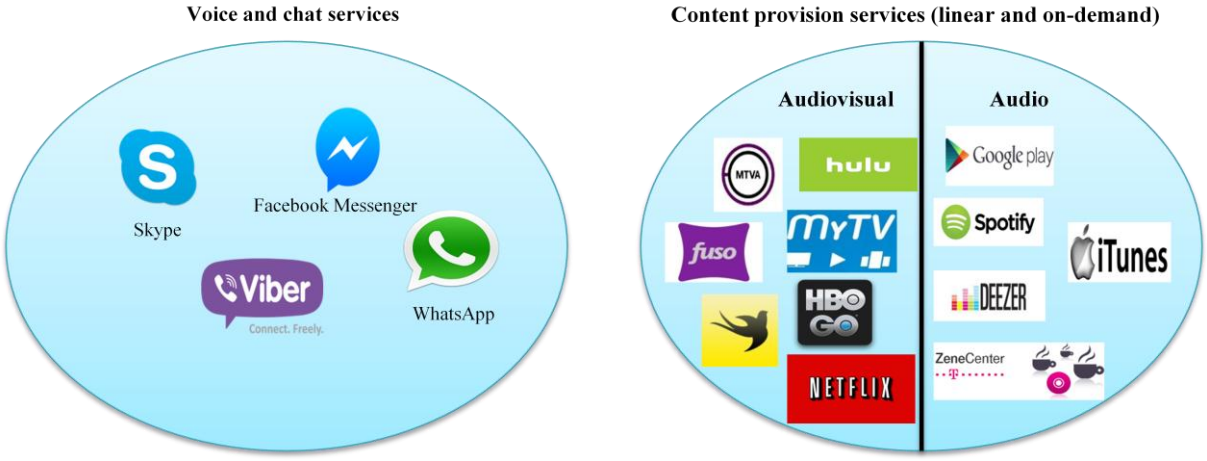

Chart 5: Classification of OTT services

The appearance of OTT service providers offering audio and text messaging services hits the mobile electronic communications market particularly hard as, besides Internet access services, mobile operators offer audio and text messaging services as well, which, to this date, accounts for a substantial chunk of their revenues. Mobile operators' market positions and sources of income are threatened by the new services emerging on the Internet which, taking advantage of the network capacity of mobile operators, "depreciate" the revenues they collect from the audio and SMS markets. Moreover, given that OTT providers do not transmit signals, their services are not considered as electronic communications services. Consequently, the regulatory burden associated with the audio and SMS services of mobile operators is far more substantial than that of the OTT providers providing substitute services. It is no coincidence, then, that mobile operators are lobbying for the extension of the regulation to OTT services across the European Union.[11]

This study, however, is focused on OTT service providers offering (media) content services, as they have a fundamental impact on the future of the media system. The proliferation of these services and their impact on the media system are intensified by the rapid propagation of Internet-enabled television sets that empower users to consume online content on television. The merging of the Internet and "traditional" television is yet another milestone in the irrepressible process of convergence, calling for — as in its previous phases — the reconsideration of business models, the rearrangement and expansion of the value chain, and the appearance of new bottlenecks (e.g. application platforms).

Question 1

Do you agree with the definition of OTT services specified in point 3?

[11] (See: Serentschy, Georg: *The Virtuous Circle – New Regulations, Innovation and Investment, How to Bring Europe Back to the Top*, 2013, https://www.rtr.at/en/komp/SchriftenreiheNr12013/The_Virtuous_Circle.pdf, [19/08/2014]; and The Boston Consulting Group: Reforming Europe's Telecoms Regulation to Enable the Digital Single Market, (no. 43.) and GSMA Mobile Economy Europe 2013, http://gsmamobileeconomyeurope.com/GSMA_Mobile%20Economy%20Europe_v9_WEB.pdf, [19/08/2014]

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4. Overview of the Hungarian OTT content provision market

4.1 OTT video use

This chapter primarily gives an overview of OTT players in Hungary. In order to place their activities into context, we will briefly summarise the key processes playing out on the market. The broadcasting market is fundamentally divided into the *free-to-air* and *pay TV* market. The pay TV market is characterised by fierce competition that has prompted "traditional" broadcasters to expand their offering of on-demand content services, but typically only for their own subscribers for a small subscription or one-time fee. In addition, as multiple-screen television viewing is on the rise worldwide, broadcasters have targeted the subscriber segments by offering their media content on notebooks, tablets and smartphones, alongside television screens.

This puts pure OTT players[12], such as Netflix and Amazon Prime Instant Video and the Hungarian Fuso Premium, in competition against increasingly diverse paid services offered by "traditional" Pay TV operators over cable, pay DTT, satellite or IPTV transmission systems. Due to the service's novel nature, it is still not entirely clear whether a substitutive or complementary relationship with traditional paid television services will emerge. The situation is further complicated by the fact that the substitutive or complementary relationship may vary from region to region (or even from consumer to consumer), as the content available on the different platforms and the regionally diverging demand may create different competitive situations. Substitutability determines whether the paid television market will be a victim of this technological shift and whether the two types of service will jeopardise each other's market share. It is important to note that substitutability will essentially boil down to the content side of the service, if we disregard technological limits. It will determine whether the content generated by OTT players will crowd out traditional paid television or whether it will merely be and "extra" product alongside traditional services. The answer to this question will ultimately shape the relationship between traditional broadcasters and OTT players in the long run.

Although accurate data is not available, it should be established in advance that the sales revenue-based share of OTT media services of the pay TV market — estimated at USD 171 billion in 2012 — is around 2 to 3% globally, and is set to rise to 6% by 2017.[13] The following figure shows Analysys Mason's estimate for spending on pay TV and OTT video service in Europe.

[12] "pure OTT players" refers to ones entirely independent of transmission network operators.
[13] statista.com, "Global pay TV revenue from 2012 to 2017", and "OTT share of total pay TV revenue worldwide from 2012 to 2017", http://www.statista.com/statistics/251543/global-pay-tv-revenue/, [21 Aug 2014]

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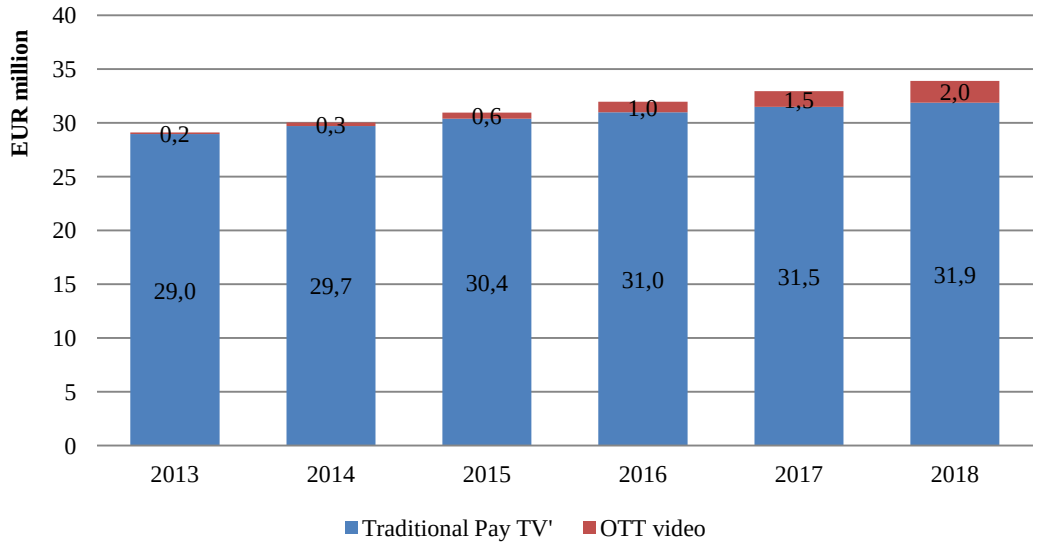
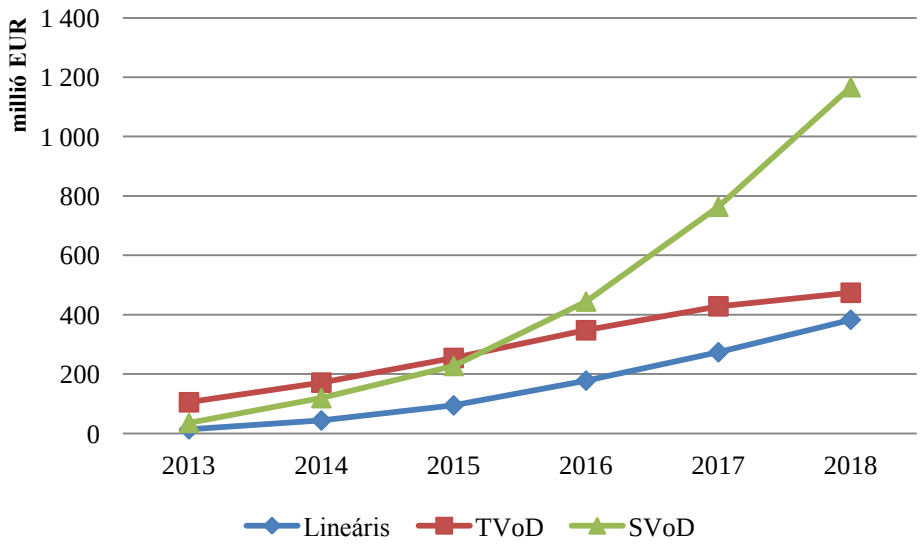


Figure 6: Spending on traditional pay TV and OTT video content in Western Europe (source: Analysys Mason)

This concurs with other expert prognoses[14], forecasting the fastest growth for the OTT online video rental/video streaming segment among consumer electronic communications services, its compound annual growth rate (CAGR)[15] potentially reaching 28%. Overall, compared to the traditional pay TV market affected by the market's transformation, spend on OTT services remain marginal for the time being, but they hold great potential for growth. The following figure illustrates that, at least for Western Europe, the growth will primarily be driven by subscription-based on-demand OTT video content.



[14] Outlook insights: An analysis of the global entertainment and media outlook 2014–2018
[15] Compound Annual Growth Rate

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Figure 7: Spend on OTT video services according to service type[16] (source: Analysys Mason)[17]

With the appearance of OTT services such as the American Netflix, one of the greatest fears that has emerged among traditional pay-TV operators is that some of their subscribers will cancel their subscription and switch to OTT video services (cord cutting) or will replace some of their pay-TV viewing with OTT video services (cord shaving).

The latest forecasts, however, do not substantiate these fears. According to the Analysys Mason forecast, by 2018, only 1,8 % of households in Central and Eastern Europe will use OTT video as a primary pay-TV service (i.e. will use OTT video services as their only means of getting paid-for video content on their TV set).[18] This ratio (of OTT video as a primary pay-TV service) will likely not be much higher in Western Europe (4,9%) compared to other European regions.[19]

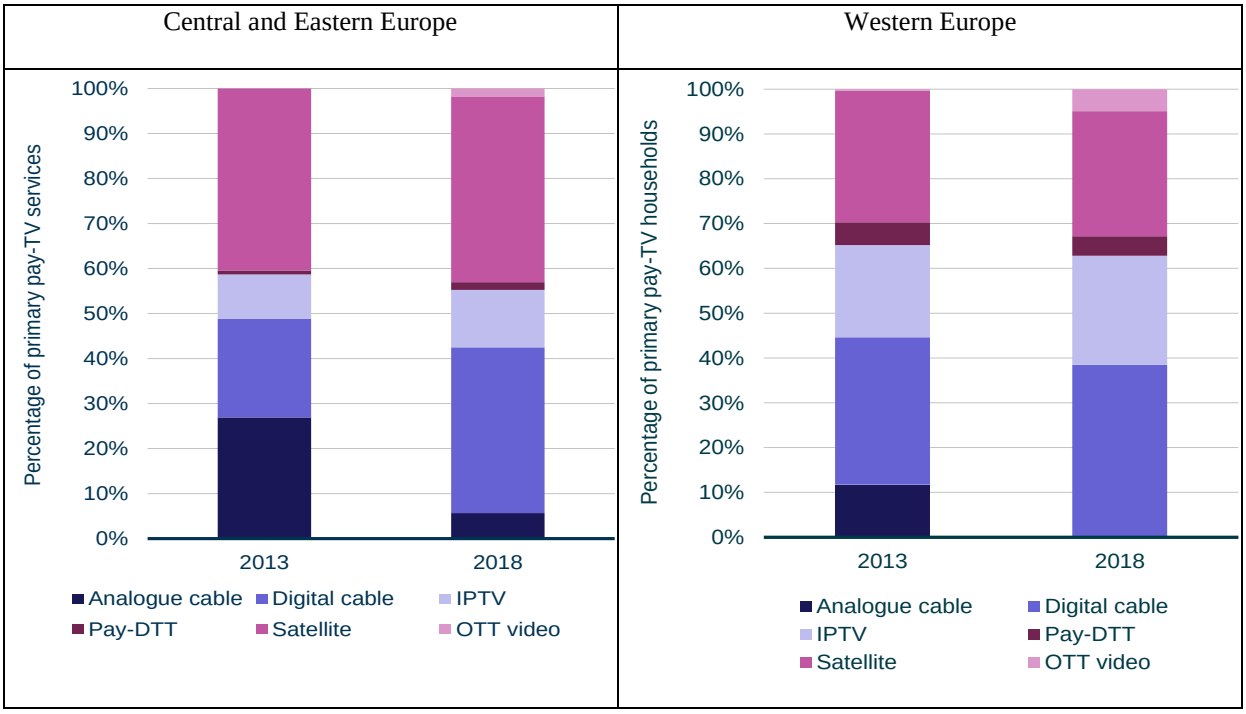

Figure 8: The market share of OTT video services in 2013 and 2018 as the primary subscription TV service (Analysys Mason, 2013)[20]

Several factors support this prognosis. First of all, Hungary is also characterised by strong infrastructure-based competition on the broadcasting market, which creates diverse supply and

[16] Transactional video on demand (TVoD) consists of the consumer paying for each individual video on demand, while subscription video on demand (SVoD) consists of the consumer paying a subscription for on-demand media content.
[17] Analysys Mason:Pay-TV and OTT video services in Western Europe: forecasts and analysis 2013-2018, August 2013, slide 27.
[18] Analysys Mason: Pay-TV and OTT video services in Central and Eastern Europe: forecasts and analysis 2013–2018, September 2013., slide 7.
[19] Idem.
[20] Idem and Pay-TV and OTT video services in Western Europe: forecasts and analysis 2013–2018.

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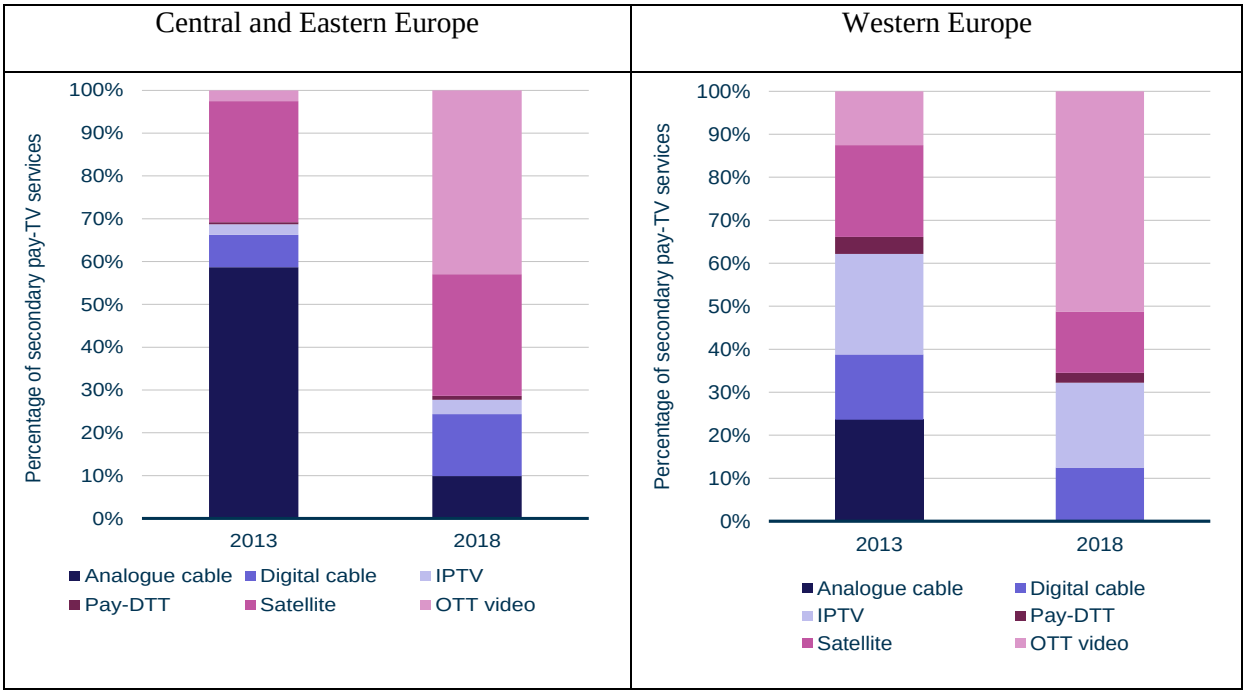
competing rates. In the United States, for instance — where OTT services are wildly popular — market deregulation[21] has created a duopoly in terms of market structure, where subscription fees are quite elevated. On the other hand, the spread of smart TV sets, needed to access OTT content, is expected to be lower in the CEE region. Thirdly, market acquisition by OTT players (in terms of the first television set) is hindered by the spread of *bundled* services, as a subscriber will be less inclined to cancel their pay TV service if the contract with the traditional broadcaster also includes their telephone, Internet (possibly even mobile telephone) service. Finally, the "average consumer" is traditionally loath to switch to new technology and to change from their "reliable", familiar service provider or technology to a service provided by a new market entrant.

However, this does not mean that OTT video services will not have a strong impact on the television market in the near future. According to the referenced Analysys Mason analysis, nearly half of households (CEE: 43%, Western Europe: 51,2%) will use OTT video services as their *secondary* subscription service.[22] This is partially because while subscriptions to analogue cable services enable access through multiple television sets, in digital broadcasting, each additional television set requires an extra set-top-box for an additional cost. As analogue cable services decline, subscribers will more likely switch to OTT video services, not in the least because it does not entail a "minimum contract period" as part of the terms and conditions.



[21] For more, see: BALÁZS BARTÓKI-GÖNCZY : Attempts at the Regulation of Network Neutrality in the United States and in the European Union: The Route Towards the 'Two-speed' Internet. In: András KOLTAY (ed.): *Media Freedom and Regulation in the New Media World*. Budapest, Wolters Kluwer, 2014

[22] See footnote 14 for the definition of secondary subscription service.

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Figure 9: The market share of OTT video services in 2018 as the primary subscription TV service (Analysys Mason, 2013)[23]

The following figure shows the expected predominance of OTT video services as a secondary pay TV service in the upcoming years, in an annual breakdown.

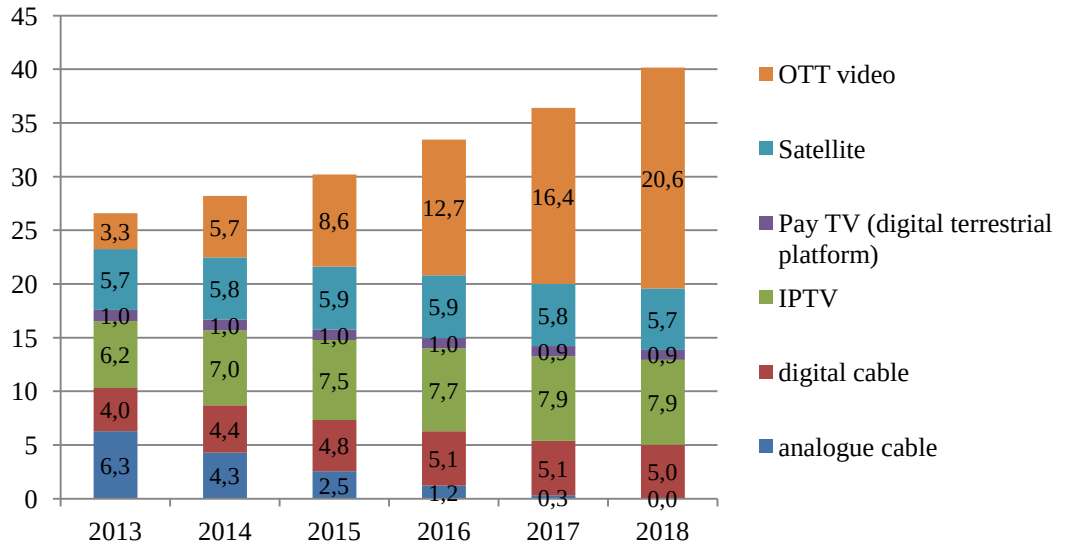

Figure 10: Developments in secondary pay TV platforms in Western Europe, millions of subscribers (Analysys Mason, 2013)[24]

OTT content provision is still in a relatively early stage of its life cycle, therefore both communications service providers and pure OTT players are still trying to find suitable business models viable in the new competitive environment and market. International experience shows that pure OTT players are most successful if all of the following factors are concurrently present:

- high quality broadband network access, high broadband Internet penetration within the region;
- multi screen OTT services;
- low-cost, pay-per-view (TVoD) or daily/monthly subscriptions (SVoD) instead of long-term contracts with minimum contract periods;
- broad access and easy use;
- effective marketing to convince users to pay for the service;[25]
- creation of content, premium or niche content;
- provision of local content to overcome language barriers;[26]

[23] Analysys Mason: Pay-TV and OTT video services in Western Europe: forecasts and analysis 2013–2018. and Pay-TV and OTT video services in Central and Eastern Europe: forecasts and analysis 2013–2018, September 2013, slide 8.

[24] Analysys Mason: Pay-TV and OTT video services in Western Europe: forecasts and analysis 2013-2018, August 2013, slide 21.

[25] In Central and Eastern Europe, on-demand media service providers typically sustain from business on advertising revenue; willingness to pay for such services is typically low.

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- low prevalence of illegal content downloading among the population.

Question 2

Do you think that the relationship among "traditional" broadcasters and OTT players in Hungary over the upcoming five to ten years will be one of substitution or complementary?

4.2 The spread of OTT-capable devices in Hungary

A key condition for the spread of OTT services besides broadband Internet needed for video applications is the widespread prevalence of devices capable of hosting the service and connected to the Internet. The range of OTT-capable devices available today is already very broad (desktop and laptop computers, smartphones, tablets, smart TVs, desktop and mobile video games, gaming consoles, portable video players, etc.). The average Hungarian Internet user today has 2.85 Internet-capable devices in average; it should also be noted that only 19% of the Hungarian population that uses the Internet possesses a mobile device connected to the Internet. Desktop PCs are the most commonly used device to access the Internet (used by 82%), alongside laptops (used by 53%).[27]

Consumers also use a wide range of other devices to access OTT content, including smart TVs and traditional TV sets incapable of connecting to the Internet "upgraded" with a smartbox. Currently 10% of households possess such devices, and this figure is set to increase substantially, as similarly to mobile telephones, there is an increasing trend for "connected" TVs on the market in stores, from the medium-range category upwards.

Smartphones and tablets also play an increasingly important role in OTT content consumption, driven by their falling prices. The price of tablets has fallen substantially over recent years, with 7" screen, OTT-capable tablets priced at HUF 100,000 on average in 2010 compared to just HUF 20,000 today. Five percent of Hungarian households currently have a tablet[28], but rapid growth is expected in this area, corroborated by an EU average[29] now standing at 23%.

There is also a rapid rise in the number and usage intensity of smartphones. While intranet use using mobile phones was only 54% among smartphone users in 2011, by late 2013 73% of smartphone users using the Internet in some shape or form used their phones for this purpose.[30] This includes WiFi Internet use. OTT content will expectedly be consumed on smartphones through WiFi rather than mobile Internet subscriptions, as Internet subscription packages are ill-suited for the unlimited

[26] For instance Netflix has been successful in countries where English was either the population's native language or traditionally well spoken among natives, such as in Scandinavia and the Netherlands.
[27] Retail Internet use 2013, market survey conducted for the NMHH
[28] Special Eurobarometer 414: E-Communications and Telecom Single Market Household Survey
[29] Idem
[30] Communication services used by residential customers in 2010–2013, market surveys conducted for the NMHH

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consumption of OTT content due to the size of large video files.[31] The following figure illustrates the spread of smartphones capable of connecting to the Internet and displaying OTT content.

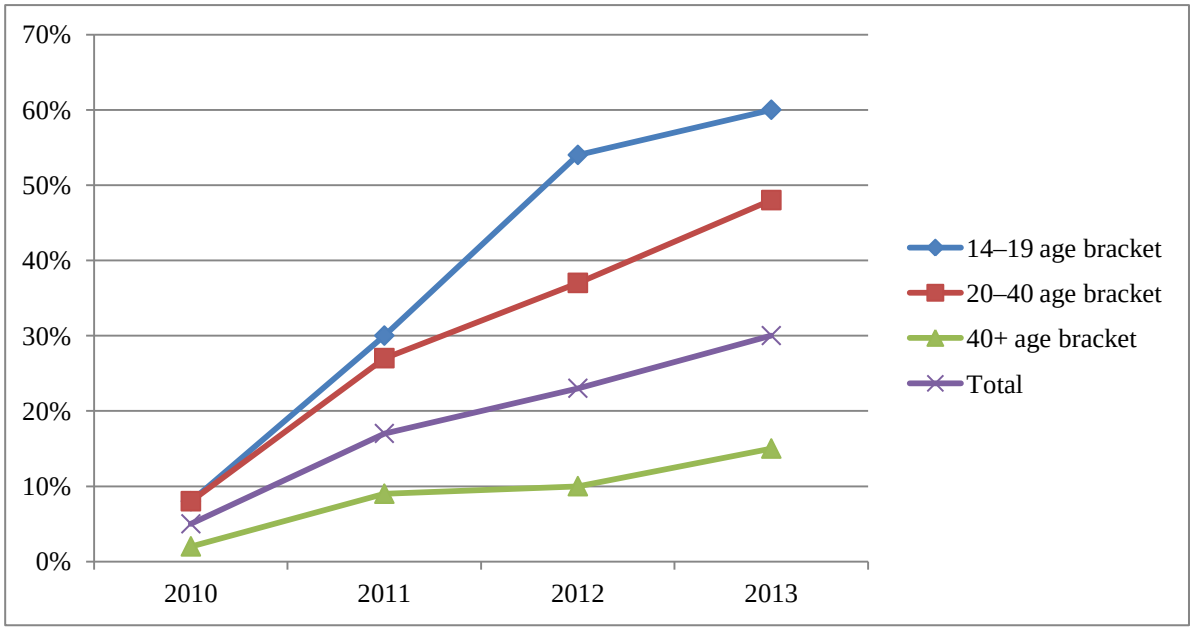

Figure 11: Smartphone use in Hungary (source: Use of electronic communications services among retail users, 2010, 2011, 2012, market surveys conducted for the NMHH)

According to an NMHH survey conducted in late 2013, 30% of the population has a smartphone compared to just 5% in late 2010. The current EU average is 42%.[32] There is even greater growth in the younger age brackets, more open to the use of OTT services. In the 14-19 age bracket, the device penetration went from 8% in 2010 to 60% by late 2013. The 20-40 age group, still open to innovation and with greater purchasing power, is also seeing a substantial rise in the prevalence of smartphones, going from 8% in 2010 to 48% by late 2013.[33]

4.3 Innovative services offered by major Hungarian electronic communications service providers

Traditional broadcasters and other electronic communications service providers in Hungarian have realised the need for development. They need to meet changing consumer needs, the changes in subscribers' consumer habits and the resolve to acquire new subscribers by introducing innovative services. As of now, three service providers have launched new, innovative services: Magyar

[31] Here, it should be noted that Magyar Telekom launched its service offering "unlimited thematic adaptation" in October 2014, which provides unlimited access to the online content included in the package for subscribers, over and above their "classic" mobile Internet data package.
[32] Special Eurobarometer 414: E-Communications and Telecom Single Market Household Survey
[33] The values presented do not include 2013 year-end purchases.

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Telekom, UPC Magyarország and Telenor. In addition, "classic" or "pure" OTT content providers have also entered the market (e.g. Fuso Premium, ITT/OTT TV).

4.3.1 Magyar Telekom

Launched in the Spring of 2014, Magyar Telekom's *TV Go* service is available to customers with existing TV subscriptions. Therefore, TV Go cannot be considered a classic OTT service because transmission is provided by Magyar Telekom while using its own (mobile or fixed) network. The only exception to this is online viewing of films using the TV GO service, which is available to subscribers of other service providers as well (although access to streamed TV channels is only available to customers with subscriptions to Magyar Telekom's Internet service). Mobility is in the focus of this service: subscription packages so far available only on TV (linear channel offering and Videotheque service) can now be accessed from laptop computers, smartphones and tablets (*multi screen* content consumption). Access for laptop computers is provided via the tvgo.hu website while mobile phones use the downloadable IoS (Apple) and Android apps. Other information (e.g. feature columns and news) is added to the television content displayed on other devices.

Figure 12: TV Go focuses on mobility (source: Magyar Telekom)

4.3.2 Telenor

Launched also in the first half of 2014, Telenor's *MyTV* service resembles Magyar Telekom's TV Go to a large extent because it also focuses on multi-screen content consumption and mobility. Note, however, that Telenor is a newcomer to the media service market, at least in Hungary. There is a visible trend that market players strive to extend their business activities to the other levels of the value chain by leveraging the synergies offered by vertical integration. Telenor offers linear and on-demand media services as well as a range of associated services (e.g. TV promotions and electronic programme guide).

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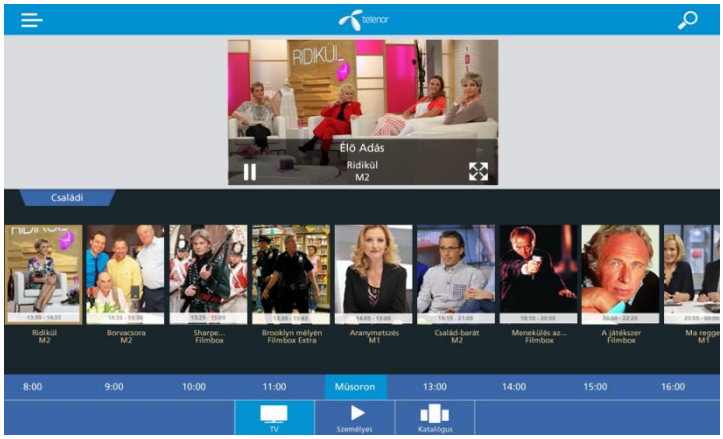

Figure 13: Telenor's My TV service (source: Telenor)

4.3.3 UPC Magyarország Kft.

Launched in May 2014, UPC's *TV Apps* service is based on a different approach than the services offered by Magyar Telekom and Telenor. UPC did not focus on mobility but rather on improving content consumption experience on the TV device by providing access to popular Internet services (e.g. YouTube) to its customers using HD digital set-top boxes. The service is only available on TV because UPC does not offer any mobile service. However, once the provider launches the virtual mobile service announced earlier, this might change.

Figure 14: UPC's TV Apps service improves content consumption on TV using web applications (Source: UPC.hu)

4.3.4 Antenna Hungária

Antenna Hungária's innovative solution offers HbbTV service over the digital terrestrial platform. The service offers expanded EPG[34] functions, news, weather forecasts, on-demand content

[34] Electronic Programme Guide

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and the extra channels of MTVA and Fix TV in *stream* format. In addition, a large number of radio stations are available in stream format.

HbbTV (*Hybrid broadcast broadband TV*) is one of the most promising solutions combining broadcasting and broadband interactive communication: due to this convergence, the screens of TV sets supporting reception of broadcaster signals can also be used to select broadband interactive (Internet-based) communication in addition to the channels offered by the broadcaster. The content displayed on the TV screen can be additional information by the broadcaster's channel or any information unrelated to broadcasting, on-demand and linear media content. The concept of HbbTV does not limit interactive communication to Internet connection and in some rare cases may even offer other solutions. A number of solutions have been developed to combine the two networks on the TV screen such as YouView in the U.K. (previously known as Project Canvas), MHEG-5 and MHP (*Multimedia Home Platform*). In the process of developing HbbTV, successful elements of these systems were integrated in the standard; however, the old approach designed to expand the system fundamentally operating on a broadcasting basis with broadband interactive communication was abandoned. Instead, the HbbTV standard primarily uses web based solutions and attempts to combine two different technologies.

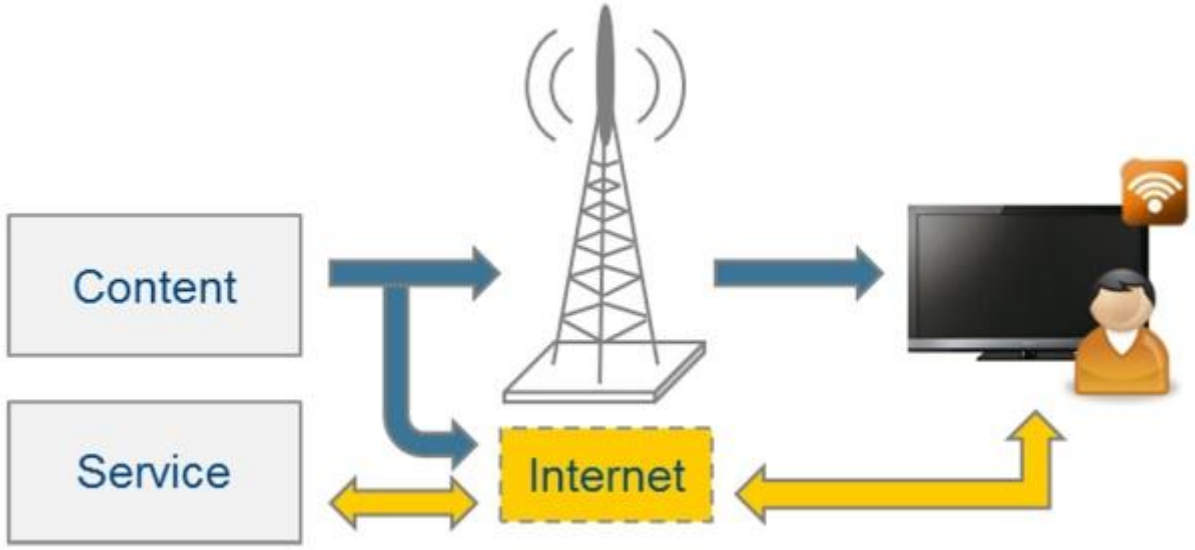

Figure 15: HbbTV topology (source: hwsw.hu)

4.3.5 Options available for smaller broadcasters

Smaller broadcasters lack the capacity to launch their own innovative services. They are more likely to contract with OTT service providers already on the market or purchase ready-to-use technological solutions to improve their services. There is a business model typical in the market of small and medium broadcasters where the broadcaster and the OTT service provider are not competitors but partners in that the OTT service provider does not sell content directly to the consumer but only to the broadcaster, which markets the OTT content to subscribers of its own network and as part of its own content service. This cooperation may prove beneficial to both parties. Typically, small and medium

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broadcaster businesses cannot offer the same content quality as their market leading competitors. They may even be unable to offer on-demand media services (videotheque) because content creators do not contract with them due to their smaller reach in terms of subscribers. In addition, there is increased pressure from the competition with the launch of the OTT services of large broadcasters (Magyar Telekom, UPC, Telenor).

Therefore, it is practical for these market players to contract with an OTT video service provider for the reselling of their services to be able to offer content in appropriate quantities and qualities to their subscribers. Broadcasters may even take the position that they are better off entering into partnerships with entities that could otherwise appear on its network independently as an OTT service provider only. This partnership may also prove beneficial to OTT service providers because they do not have to make heavy investments in the marketing campaign, market acquisition and retail networking.

This model is expected to gain ground in Hungary. This is evidenced by the fact that a number of OTT service providers recommended this sort of cooperation to the small and medium cable service providers attending the day for professionals of the Hungarian Cable Communications Association held on 4 June 2014. In addition, a number of businesses have appeared on the market that offer ready-to-use *white label* OTT services customized to the broadcaster's profile (logo, content, etc.). All of the above facts support the argument that OTT video services create not only risks but also opportunities to broadcasters. Such agreements have already been concluded on on-demand audio media services when the marketing of the OTT music store services of Spotify[35] and Deezer[36] to subscribers began by Magyar Telekom and Telenor, respectively.

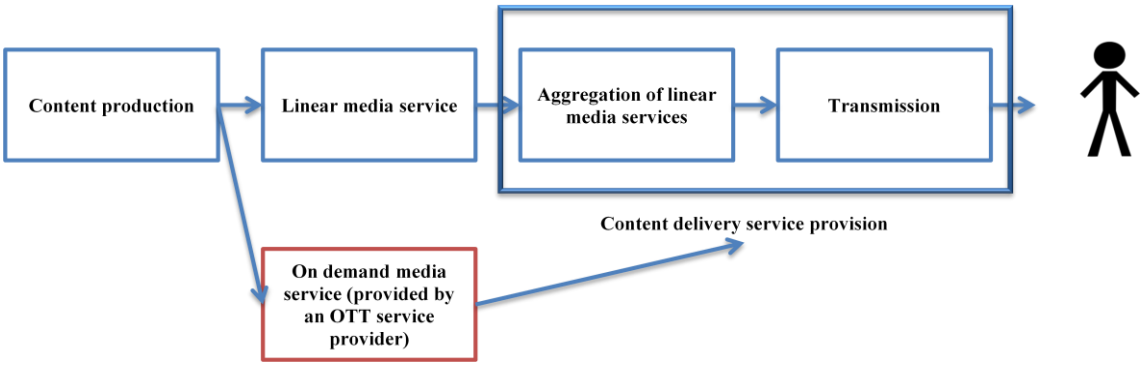

Figure 16: Partnership between the OTT service provider and the broadcaster

Question 3

What market entry limitations are there in Hungary for OTT content providers?

[35] Spotify is an OTT based music store founded in Sweden in 2006 https://www.spotify.com/hu/, [02.07.2014].
[36] Deezer is a French OTT based music store http://www.deezer.com/hu/ [02.07.2014].

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5. Potential regulatory challenges

This chapter covers six topics that have the potential to become regulatory issues in the future. These topics may only be analyzed in their wider context as they typically affect consumers (viewers), content providers (OTT and traditional) and Internet service providers at the same time, although not always with the same effect. The list is not exhaustive. We know some of those missing from the list as market failures but no separate chapter is devoted to them as they are outside the competence of the NMHH. They include copyright issues such as the limitations to the cross-border distribution of video content and the licensing procedure for content owners linked to terminal equipment or transmission technology.[37] However, there may be some other issues the Authority is currently unaware of. As pointed out in the introductory part, this consultation is designed to allow stakeholders to express their opinions and start a dialogue with a purpose to provide optimum market and regulatory conditions.

5.1 The difficulty of classifying certain OTT content providers

The Hungarian market has already seen the introduction of a new type of OTT service that is very similar to content distribution service except that the OTT service provider offers the service no on its own or leased network but via the open Internet, i.e. the service provider is not responsible for transmission of signals to the end user. The following section investigates the topic of how these services can be integrated into the current (Hungarian) legislative environment.

Content distribution has often been portrayed as a walled garden ecosystem where the media service distribution service provider operating the electronic communications network determines the range of content viewers will have on TV. After contracting with linear media service providers, these service providers create, aggregate, integrate and distribute (transmit to subscribers) linear media service packages into standardized streams on their own. The selection and transmission of media services are fundamentally different activities as the former is of primary importance in establishing a pluralistic media system while the other is a classic electronic communications service. The regulatory framework in Hungary, and in Europe in general, does not reflect this dualism because the two activities are carried out together by broadcasters in a classic broadcasting scheme (vertical integration). This approach is visible in the definition of media service distribution service as presented in the Electronic Communications Act (as well as in the Media Act and in Act LXXXIV of 2007 on the Rules of Media Service Distribution and Digital Switchover [hereinafter: Digital Switchover Act]):

"(...) An electronic communications service implemented using any type of transmission system, in the course of which the analogue or digital programme provision signals generated by the programme provider are forwarded from the programme provider to the receiving apparatus of the subscriber or user, independently of what transmission system or technology is applied. (...)"

[37] For more details, please see the following thought-provoking study published by the European Commission in July 2014: Fragmentation of the Single Market for on-line video-on-demand services: point of view of content providers, https://ec.europa.eu/digital-agenda/en/news/fragmentation-single-market-line-video-demand-services-point-view-content-providers, [12.09.2014]

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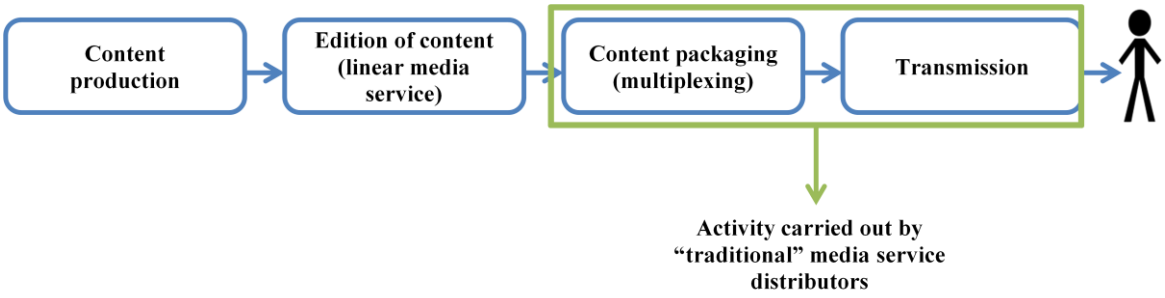

Figure 17: "Traditional" broadcaster activity

Providing content services over the Internet, however, helps certain service providers operating on an OTT basis enter the market and offer packages of linear media services without having their own electronic communication network, without performing transmission and, therefore, without assuming any responsibility for it. The signal is transmitted to the consumer via the open Internet and thus transmission is the responsibility of the subscriber's Internet service provider.

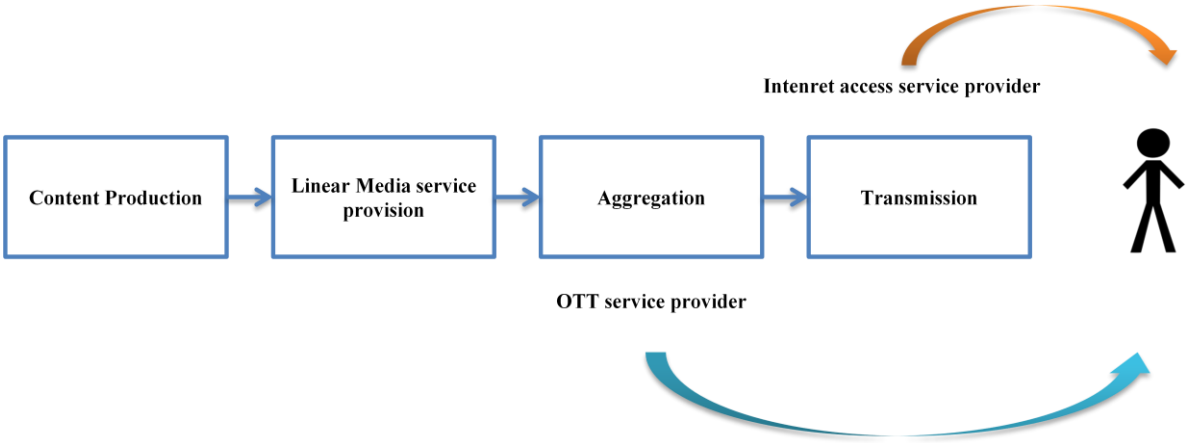

Figure 18: Alternative value chain of media content distribution

In addition to on-demand feature film and TV series catalogue, these OTT content providers often offer streaming of linear media services. In this service model, the OTT service provider concludes an agreement with linear audiovisual media service providers (TV channels) much like a traditional media service distributor would to determine which TV channels to include in the programme package. This activity is called content aggregation.

The fundamental difference from the traditional media service distributor's activity is that the OTT content provider assumes no responsibility and does not transmit the signals to the viewer's digital receiver or set-top box. This is so because the media service distributor under the traditional business model not only selects the channels (thus acting as a bottleneck in content access) but also uses its own or leased capacity[38] to transmit the signals multiplexed as a standard digital stream to the consumer.

[38]An example is satellite communication where the service provider in contractual relationship with the consumer does not operate the satellite but only leases certain satellite capacities (transponders) from a

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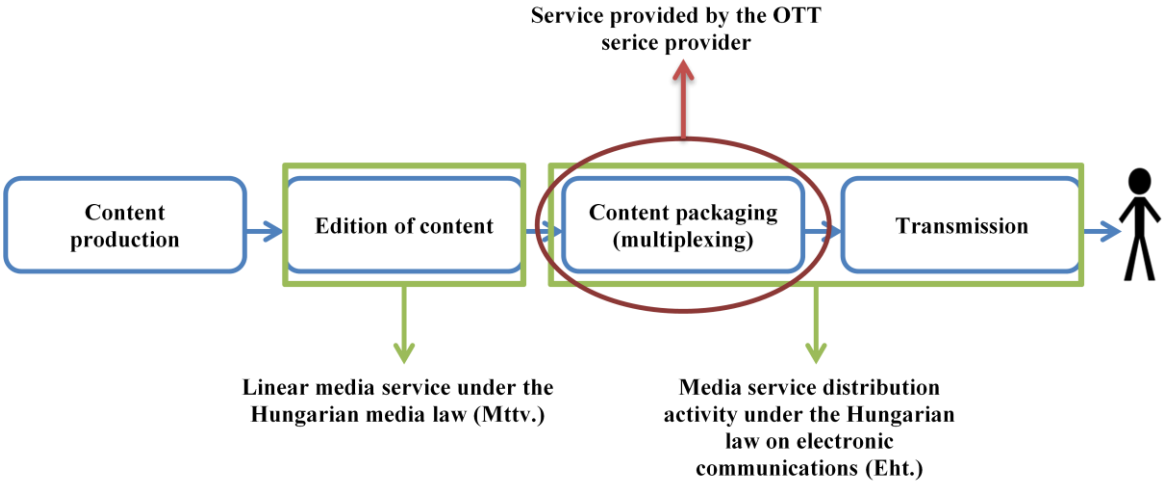

Figure 19: OTT service provider packaging and marketing linear media services

Based on the properties of the service described above, one may ask what legal category the service provided by OTT service providers fits in.

Media service

As referenced above, Article 203 (41) of the Media Act stipulates that a media service provider *"shall mean the natural or legal person who or which has editorial responsibility over the composition of the media services and determines their contents. Editorial responsibility shall mean the responsibility for the actual control over the selection and composition of the media content and shall not necessarily result in legal responsibility in connection with the media service."* Although this concept has a number of important aspects, from our point of view the key issue is the editorial responsibility "over the composition of the media services and determination of their contents". Namely, it is highly questionable whether the OTT service provider under scrutiny bears any such responsibility over the content of the media services it composes.

specialized business. This satellite service is fundamentally different from the OTT type service in that the subscriber is only in contact with the broadcaster, which ensures availability of the transmission capacity on its own, whereas in the case of OTT content distribution the consumer has to provide for the "downlink" element by purchasing an electronic communications service subscription from the Internet service provider.

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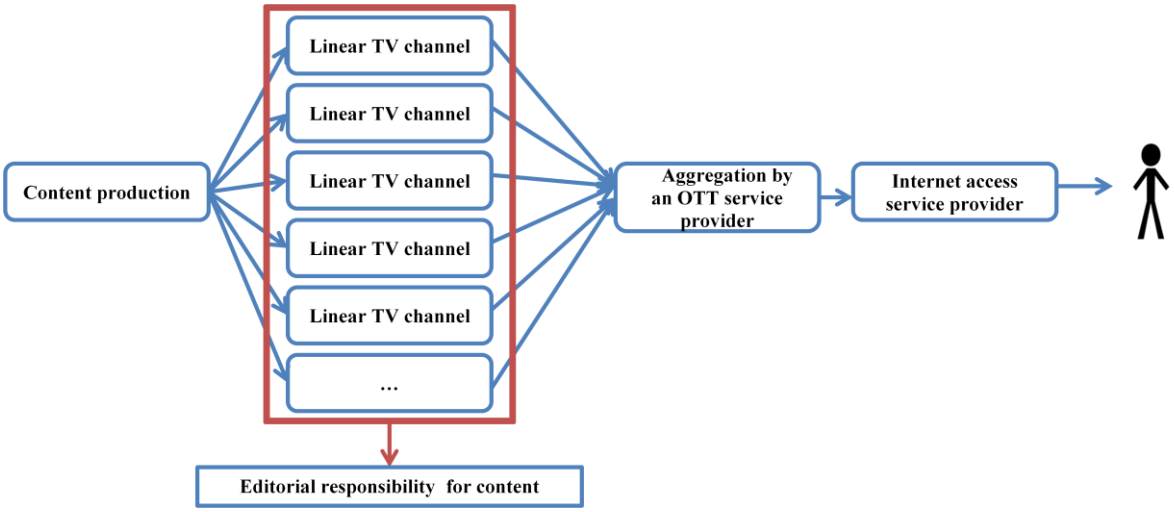

Figure 20: The question of editorial responsibility

Media service distribution activity

Article 188 (77) of the Electronic Communications Act stipulates that media service distribution activity as per Article 188 (5/a) thereof is "an *electronic communications service* implemented using any type of transmission system, in the course of which the analogue or digital programme provision signals generated by the programme provider are forwarded from the programme provider to the *receiving apparatus of the subscriber or user*, independently of what transmission system or technology is applied. In particular, the following shall be regarded broadcasting: free-to-air broadcasting, satellite broadcasting, broadcasting via a hybrid fibre-coax transmission system, as well as broadcasting a program by a transmission network using an Internet Protocol, if the type or conditions of the service are equivalent to those of broadcasting or this method substitutes broadcasting performed in another way. Broadcasting shall also mean broadcasting to which the subscriber can access for a special fee or for a fee paid for a package that also contains some other electronic communications service. However, transmission via a network suitable for connecting less than 10 receiving devices shall not classify as broadcasting." The provisions of the Media Act and the Digital Switchover Act use similar definitions.

"*Electronic communications service means a service normally provided for remuneration which consists wholly or mainly in the conveyance and, where applicable, switching or routing of signals on electronic communications networks, but excludes services providing, or exercising editorial control over, content transmitted using electronic communications networks and electronic communications services; furthermore, it does not include information society services, as defined in specific other legislation, which do not consist wholly or mainly in the conveyance of signals on electronic communications networks.*"[39]

It must be noted, though, that not all media service distributor perform transmission on its own network. In the case of broadcasting over satellite systems for example, broadcasters do not own or

[39] Article 188 (13) of the Electronic Communications Act

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operate the satellite system used for transmission as these are operated by a third party service provider. In that regard, the Court of the European Union pointed out in its judgement in the case UPC Dth. v. NMHH that[40] *"that the transmission of signals is by means of an infrastructure that does not belong to [the service provider]is of no relevance to the classification of the nature of the service. All that matters in that regard is that [the service provider] is responsible vis-à-vis the end-users for transmission of the signal which ensures that they are supplied with the service to which they have subscribed*[41]*."* As a reason, the Court specified that *"Any other interpretation would considerably reduce the scope of the NRF, undermine the effectiveness of its provisions and therefore compromise the achievement of the objectives pursued by that framework. Since the purpose of the NRF, as is apparent from recital 5 in the preamble to Directive 2009/140, is to establish a genuine internal market for electronic communications, in which those communications are ultimately to be governed by competition law only, the exclusion of the activities of an undertaking such as UPC from its scope, on the pretext that it is not the owner of the satellite infrastructure which enables signals to be transmitted, would deprive the NRF of much of its meaning*[42]*."*

Consequently, a service is not qualified as an electronic communications service because the service provider *de facto* transmits signals over its own infrastructure but because the service provider (under the terms of a contract) is responsible towards the end user for the conveyance of the signals. A classic, *pure* OTT content provider, however, does not necessarily assumes any responsibility for the consumer's Internet access.

Conditional access systems operation

The Framework Directive (2002/21/EC) specifies the operation of the conditional access system carried out by most OTT content providers. Article 2 (f) of the Framework Directive stipulates that

"'conditional access system' means any technical measure and/or arrangement whereby access to a protected radio or television broadcasting service in intelligible form is made conditional upon subscription or other form of prior individual authorisation." Article 2 (ea) of the Framework Directive qualifies the conditional access system as an "associated service": "services associated with an electronic communications network and/or an electronic communications service which enable and/or support the provision of services via that network and/or service or have the potential to do so..."

The majority of OTT service providers operate a conditional access system, which provides access to the content only to authorized users (those who pay the subscription or transaction fees). The question is whether the service provider qualifies as an electronic communications service provider in this case. The Framework Directive qualifies this service as an "associated service", i.e. a service related to the electronic communications service. In the abovementioned UPC Dth. case, the court of Luxembourg

[40] Judgement by the Court of the European Union regarding the request for a preliminary ruling under Article 267 TFEU from the Budapest-Capital Regional Court (Hungary), made by decision of 27 September 2012, received at the Court on 22 October 2012, in the proceedings UPC DTH Sàrl v. Vice-President of the National and Infocommunications Authority in case C-475/12.
[41] Idem, point 43
[42] Idem, point 44

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studied the issue from a different angle, although it did deal with the topic of the conditional access scheme. In simple terms, the court actually sought to answer the question whether a service provider operating a conditional access system could be qualified also as an electronic communications service provider.[43] The court took the position that it could; however, this would not automatically mean that an entity operating a conditional access system also qualifies as an electronic communications service provider.

Information society-related service:

The broadest service type identified by legislation is, according to Article 2 (f) of Act CVIII of 2001 on Certain Issues of Electronic Commerce Services and Information Society Services, the information society service provided by electronic means to remote consumers with unique access to such service generally in return for payment.

Separating regulations on content and transmission

The business operations of the "traditional" media service distributors currently active on the market consists of two separate and fundamentally different activities:

- *content packaging*, i.e. the selection and aggregation of the linear media services marketed by the media service distributor as well as the multiplexing of the digital (or analogue) signal, and
- *transmission*, i.e. a classic electronic communications service by which the media service distributor delivers the programme package to the subscriber.

The two activities are fundamentally different. Content aggregation is primarily within the real of media regulation because the decision by the service provider as to what content is added to the programme package determines what content the viewer (subscriber) has access to. The media regulatory significance of media service distributors is underlined by Wichmann saying that *"programme aggregation and marketing is more than a content-neutral transmission and relaying function. When compiling their programme packages, cable operators make editorial type selection decisions and by doing so they preform a content-related function, which impacts the process of opinion making in the area of network provisioning."*[44]

[43] C-475/12., Sections 50–58.

[44] Anja WICHMANN: *Vielfaltsicherung in digitalisierten Breitbandkabelnetzen. Rechtsprobleme der Nutzung digitalisierter Rundfunk-Kabelnetze durch Fernsehveranstalter*, Duncker und Humblot, Berlin, 2004., 55. Quoted in: POLYÁK, Gábor. *A médiarendszer kialakítása* (The configuration of the media system), HVG-Orac, 2008., 353.

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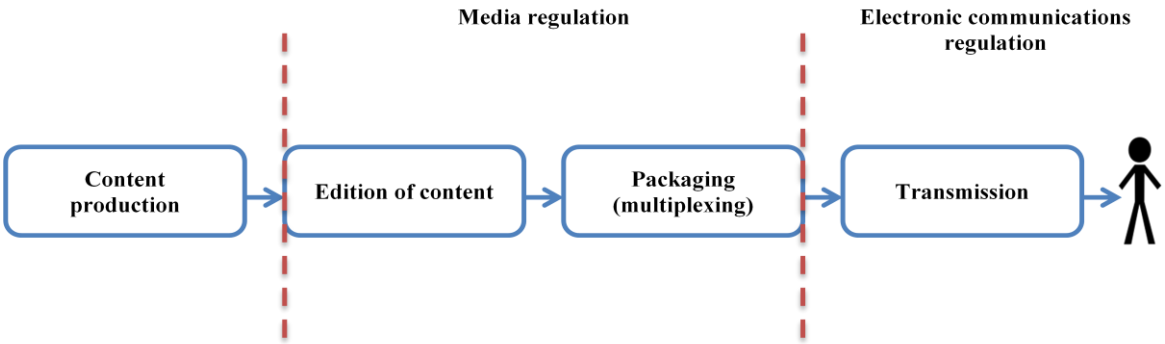

Figure 21: Separating content and transmission regulations

So far, broadcasting businesses performed these two activities in a (vertical) integration, which is pictured in the current definition of media service distribution activity as stipulated by the Electronic Communications Act. The definition does not separate the electronic communication activity (transmission to the user) from the content selection and aggregation activity that is important from the perspective of implementing the media system. Most probably the reason behind is that back in 2003 (when the Electronic Communications Act was adopted) all services providers carried out these two activities in integration.

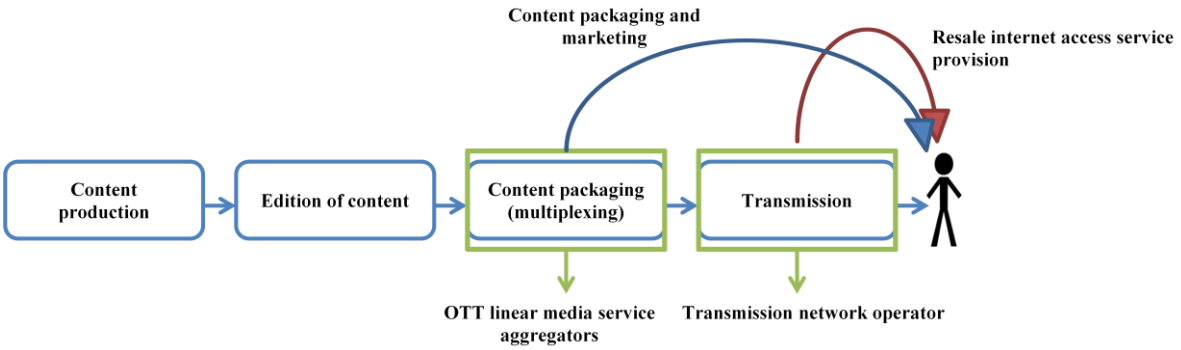

Figure 22: The separation of the media service distributor and the transmission network operator on the case of OTT

The separated regulation of content aggregation and transmission is a requirement in EU law. Paragraph (5) of the Preamble of the Communications Directive (2002/21/EC) declares as a fundamental principle of the entire communications regulatory framework that "*... it is necessary to separate the regulation of transmission from the regulation of content. This framework does not therefore cover the content of services delivered over electronic communications networks using electronic communications services, such as broadcasting content, financial services and certain information society services, and s therefore without prejudice to measures taken at Community or national level in respect of such services, in compliance with Community law, in order to promote cultural and linguistic diversity and to ensure the defence of media pluralism (...).*"

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In contrast, Paragraph (2) of the Preamble of the Access Directive (2002/19/EC) clarifies that *"services providing content such as the offer for sale of a package of sound or television broadcasting content are not covered by the common regulatory framework for electronic communications networks and services."* This is reinforced by the European Commissions 2007 Explanatory Note regarding Recommendations on "recommended" markets: *"Whereas the transmission services that a pay platform purchases (captively or on the merchant market) are electronic communications services and fall under the regulatory framework, the relationship between the individual media service distributors and the pay platform concerns a content aggregating service and does not fall under the regulatory framework."*[45] In 2006 the National Communications Authority (NHH) also formulated its opinion on the issue, naming programme package editing as a kind of *"secondary content compilation or aggregation"* service, in the context of which the service provider markets to consumers programmes it selected and typically edited into packages as well as other content.

The principle, however, is not consistently presented in European Union law as Section 31 of the Universal Service Directive stipulate that *"Member States may impose reasonable 'must carry' obligations, for the transmission of specified radio and television broadcast channels and services, on undertakings under their jurisdiction providing electronic communications networks used for the distribution of radio or television broadcasts to the public"*, which appears to be somewhat in disagreement with the principle to separate the regulations on content and transmission.

Question 4

How would you classify the service provided by a service provider aggregating linear media services using the OTT method?

If they cannot be classified under the current legislative framework, does it warrant regulatory intervention for the services and if so, how?

[45] Commission Staff Working Document. Explanatory Note. Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services [SEC (2007) 1438], 48.

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5.2 Network neutrality

In addition to the abovementioned copyright issue, one of the key issues is service quality for OTT content providers because under the "best effort" principle that applies to content transmission over the open Internet there is no guarantee for the quality of transmission. From the other end, Internet service providers are increasingly worried about increased costs resulting from the increased data traffic, which is becoming more difficult for them to cover in a constantly changing market environment where classic services generating high revenues (voice and SMS) are less popular. In addition, Internet service providers are often also media service distributors causing them to interpret the headway of OTT content services as a risk. Consumers are highly interested in gaining access to Internet content and in as high of a quality as possible. These concerns, issues and corrupt market practices all just heighten the debate on network neutrality. Thus, this chapter primarily focuses on the issue whether it is permissible, and if so, what potential risks are involved if an Internet service provider offers guaranteed bandwidth to an OTT content provider that is willing to pay for this guarantee.

Online stream service places heavy demands on bandwidth, which triggers huge expenses for Internet service providers, especially if we consider the likely increasing number of subscribers using such services. Cisco, for instance, forecasts a sixfold increase in mobile data traffic between 2014 and 2018.

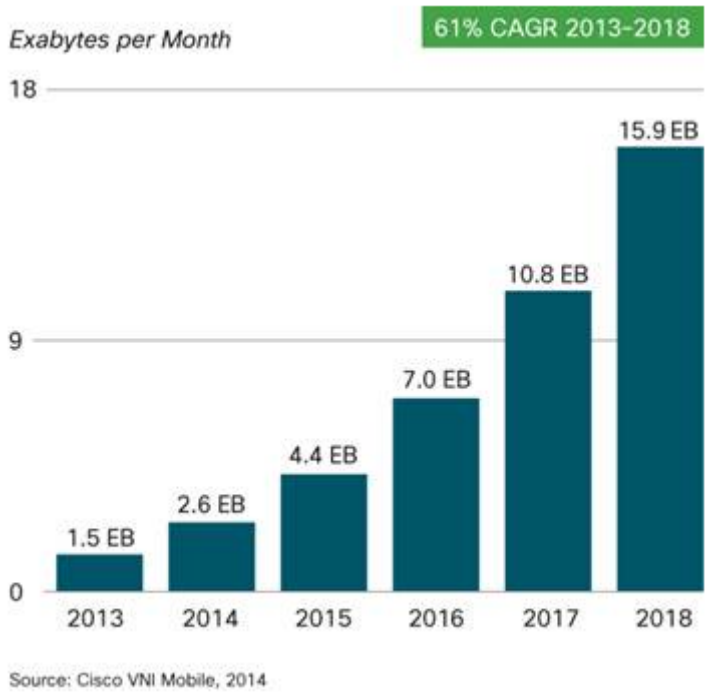

Figure 23: Projected data traffic increase on mobile communications networks (Source: Cisco, 2014)

This trend has already created some tension between OTT service providers generating huge volumes of data (e.g. Netflix and Google) and the Internet service providers operating the transmission

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network.[46] The latter group would like OTT service providers using their network and generating huge data traffic to pay for network use. However, in principle at least, this effort is against the principle of network neutrality, which stipulates that the Internet service provider must provide equal treatment to all OTT service providers regardless of the data transmitted, and the person sending or receiving such data.

The Internet, however, has undergone significant changes over the past years. There are an increasing number of online services where *best effort*-based approach, one of the key characteristics of the Internet today, is simply not acceptable. These include some recently emerged but most definitely decisive services in the future like e-health, online stock exchange and cloud-based business services that do not tolerate spontaneous data loss and usually can operate only with guaranteed service quality. The same holds true for OTT content providers that can only become competitors to classic media service distributors if their bandwidth-intensive services[47] are available in high quality.[48] The latter, however, requires that the Internet service providers providing the infrastructure and bandwidth enter into separate agreements with the online service providers in need of guaranteed bandwidth, which then will pay for this guaranteed bandwidth. Such "managed" services can prove to be the answer to the long-existing issue pressed by Internet service providers saying that they need to find new revenues to cover the extra costs resulting from exponentially growing data traffic, and that they want to charge businesses offering services with high bandwidth demand instead of their subscribers.[49]

If such agreements are permitted, this would mark a paradigm shift from the purely *best effort* based operation of the Internet. This principle provides no guarantee for service quality, i.e. if the data stream to be transmitted over the network reaches the maximum of the network's transmission capacity, then it would result in lower service quality.[50] Internet service providers aim to have the regulatory bodies recognise their right to contract for paid bandwidths of specific quality ("managed service contract") with online content providers willing to pay the price to enjoy priority in data traffic. There may be demand from OTT players, whose primary interest is to offer steady and good quality content to viewers.[51]

[46] More details: BARTÓKI-GÖNCZY Balázs: Attempts at the regulation of network neutrality in the United States and in the European Union – The route towards the "two-speed" Internet, *Media Freedom and Regulation in the New Media World,* (A. Koltay, ed., Budapest: Wolters Kluwer, 2014)

[47] Netflix uses 30% of the U.S. Internet bandwidth during the evening hours.

[48] Therefore, it is not by coincidence that in March 2014 Netflix signed an agreement with Comcast, the largest U.S. internet service provider to pay for secure guaranteed bandwidth for the service.

[49] BARTÓKI-GÖNCZY Balázs: Attempts at the regulation of network neutrality in the United States and in the European Union – The route towards the "two-speed" Internet, in.: Koltay (ed.): *Media Freedom and Regulation in the New Media World,* Wolters Kluwer, Budapest, 2014.

[50] BEREC Response to the European Commission's consultation on the open Internet and net neutrality in Europe, 30 September 2010.,BoR (10) 42., p. 9.

[51] Note that for the sake of improved service quality OTT players also use the services of *Content Delivery Network (CDN)* service providers to ensure that the content may be downloaded from a geographically closer location and in better quality.

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The controversy in the U.S.[52] indicates that this is a highly sensitive issue as the introduction of this type of business model would go against the principle of network neutrality. In short, the debate is about opposing interests of online content and service innovation on one hand and those of network development on the other. Nonetheless, the European regulatory authorities that have already offered their opinions on the subject do not refuse the introduction of the new business model favoured by Internet service providers because it can basically help realise the European Commission's long-terms broadband objectives if service providers reinvest such new revenues in the development of their infrastructure. One of the top priorities of the Council of the European Union is to preserve the openness of the Internet, yet the Council believes that the regulatory authority must not only warrant the freedom of expression but also to facilitate the freedom of business.[53] In its resolution on network neutrality, British regulatory authority Ofcom *(Office of Communications)* noted that "the provision of managed services inevitably involves a degree of discrimination. Such discrimination is likely to be acceptable as long as its purpose and effect is to enhance efficiency, rather than to restrict competition."[54] Thus, Ofcom acknowledges the benefits offered by managed services and those of the best effort Internet and argues that the objective is to ensure the mutually beneficial "coexistence" of the two services. In its resolution, French regulatory authority ARCEP (*Autorité de régulation des communications éléctroniques et des postes*) noted that managed services and best effort Internet access offer mutual benefits: the network operator can increase investments on developing bandwidth from the new financial resources, which in turn would improve the quality of best effort Internet access.[55] According to Swedish regulatory authority PTS (*Post- och telestyrelsen*)[56], the principle of network neutrality must be counterbalanced by other interests also worth protecting such as incentives for business investments and network security.[57]

Even the European Commission has recognised the demand for such services and in its proposal for a regulation published in September 2013[58] the Commission would clearly permit Internet service providers to acquire new sources of revenue by charging content and application providers requiring guaranteed quality of access to users.[59] The European Parliament and the Council will decide wither to adopt the proposal for a regulation currently in the opinion phase.

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[52] http://www.nationaljournal.com/tech/netflix-to-join-internet-slowdown-protest-over-net-neutrality-20140908, [12.09.2014]

[53] Council of the European Union – Council conclusions on Net Neutrality, 15 July 2011., 12950/11.

[54] Ofcom: Ofcom's approach to net neutrality, 24 November 2011, p. 10. http://stakeholders.ofcom.org.uk/binaries/consultations/net-neutrality/statement/statement.pdf, [05.08.2014]

[55] ARCEP – Internet and network neutrality – Proposals and Recommendations, September 2010, p. 29., http://www.arcep.fr/uploads/tx_gspublication/net-neutralite-orientations-sept2010-eng.pdf, [05.08.2014]

[56] PTS: Open networks and services, PTS-ER-2009:32, 30 November 2009., p. 93.

[57] BARTÓKI-GÖNCZY, Balázs, "Connected TV – új szabályozói kihívások a horizonton" (Connected TV – new regulatory challenges on the horizon). In: *Infokommunikáció & Jog*, 2013/ 52–53.

[58] Proposal for a regulation of the European Parliament and of the Council laying down measures concerning the European single market for electronic communications and to achieve a Connected Continent and amending Directives 2002/20/EC, 2002/21/EC and 2002/22/EC and Regulations (EC) No 1211/2009 and (EU) No 531/2012, COM (2013) 627 final.

[59] In addition, the proposal for a regulation also includes a definite ban on discriminative traffic management practice on the "open Internet".

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Question 5

What do you think about the European Commission's legislative proposal for a more detailed regulation of network neutrality?

Question 6

What do you think about the EU proposal permitting content providers to sign agreements with Internet service providers on guaranteed bandwidth?

Question 7

Do you think network neutrality needs to be regulated in Hungary?

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5.3 A new bottleneck in the digital content distribution value chain

On the current media market, television constitutes the main channel for media consumption, simply displaying the signals received through the network without the need for any special "intelligent" functions. Content consumption, however, is undergoing radical change. As a result, not only will media be consumed using various platforms (smartphones, tablets, phablets, televisions), but the key difference between these platforms will simply lie in the size of their screen. Television, hitherto used as a mere signal-transforming device, will become a smart device with its own menu, featuring the same applications currently seen on smartphones, over and above media content.

Figure 24: Smart TV menu (Source: www.futureplatforms.com)

The operator of this platform (the operator of the operating system) will be the "bottleneck" in the media consumption value chain, being the unavoidable market player leading to viewers. The following figure illustrates why the "application environment editor" for smart TVs is the bottleneck. The editor can conclude an agreement on preferred placement with the on-demand media service provider (1), or the service provider aggregating linear media services (2), or directly with the linear media service provider (3), while also providing other services (such as Facebook, YouTube, etc.).

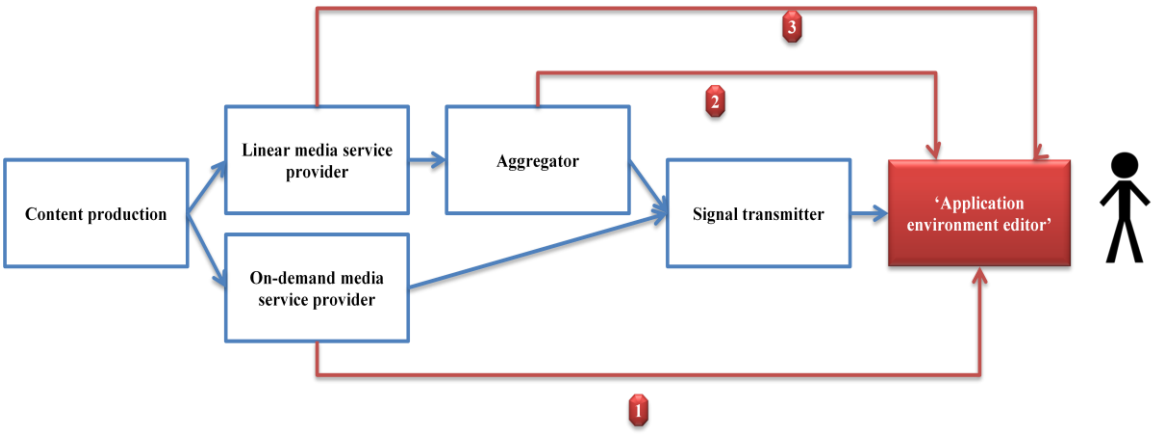

Figure 25: The smart TV platform operator as the bottleneck

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It should be noted that the influence wielded by the application environment editor is not equal to that of media service distributors. On the current "classic" broadcasting market, if media service distributors do not include a media service in their programme package, viewers will not have access to that specific content.[60] In this scenario, the bottleneck is the transmission network, its capacity or business policy. In contrast, in case of online content, the theoretical possibility of access to content is a given, as publication of specific content fundamentally depends on the media service provider.[61] In this case, the main threat to content of public interest reaching viewers is the sea of information and limited viewer attention. Competition is therefore increasingly shifting from transmission capacity to user attention, and in the future, the success of media services will depend primarily on the findability, references and recommendations of their service.[62]

With regard to the wealth of content available through connected TV, it is essential for content providers to ensure viewers easy access to content. Service providers with editorial responsibility over the application environment (platform operators) have influence over this: they may lend preference to certain content while ranking other content — including otherwise available content of public interest — lower, "hiding" it from viewers, essentially achieving the same outcome as if content were not available. As stated by the European Commission, such filtering and personalisation mechanisms may not only determine what content is accessible but can also impact choices, e.g. by varying the prominence with which certain content is displayed, limiting the citizen's ability to change the menu or restricting certain applications. This could influence the de facto choice for citizens to access media offerings representing a plurality of opinions.[63]

This concern held by content providers is corroborated by the fact that platform operators can conclude separate agreements with the major content providers for the preferred positioning of their content, creating the risk of them showing preference for their own — vertically integrated — content. Manufacturers of smart TVs (like Samsung, LG, Sony) will conduct individual negotiations and test the applications vying for inclusion on platforms in exchange for compensation. In addition, it is common practice for platform operators to charge a 'bounty fee' for new customers lured in by the operating service provider through pre-installed smart TV applications.

The appearance of smart platforms as the bottleneck could thus give rise to issues in terms of access to content and market competition. The European Parliament also attempted to propose recommendations for resolving the issue, proposing in the Kammerevert report published in June 2013 to supplement the existing must-carry rules with must-be-found rules, requiring smart platforms to

[60] On this point, it should also be mentioned that the broadcaster is not always responsible for choosing the media provider services included in its offering, as media service providers sometimes have more leverage than broadcasters based on their market power. In an effort to counter this, Hungarian regulations have introduced the must-offer regime, imposing extra obligations on media service providers with significant market power.

[61] BALÁZS BARTÓKI-GÖNCZY : A „must-carry" szabályok jelene és jövőképe az Európai Unióban (The present and future of must-carry rules in the European Union), *Médiakutató, Autumn 2013, pp.* 75-86.

[62] European Parliament Resolution of 4 July 2013 on connected TV, 4 July 2013, [2012/2300 (INI)], L.

[63] European Commission: Green Paper on Preparing for a Fully Converged Audiovisual World: Growth, Creation and Values, 24 April 2013, COM (2013) 231 final, pp. 15-16

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ensure access to specific public interest content.[64] The Kammerevert report[65] directly calls on the European Commission.[66] to regulate hybrid television platforms According to the European Parliament's position, it should be examined whether and how those content providers can be granted an appropriately privileged status with regard to findability on first-screen devices, such as TV sets with a connection to the Internet, "to which the Member States assign a public broadcasting remit or which help to promote objectives in the public interest, such as ensuring media pluralism and cultural diversity, or which undertake to carry out duties which maintain the quality and independence of reporting and promote diversity of opinion".[67]

The EBU (*European Broadcasting Union*) defined media service provider expectations in six key points in its 2011 position paper. It formulated the following expectations: *(i)* hybrid TV portals, hybrid TV menus and home screens must guarantee nondiscriminatory access for all broadcasters and content providers, *(ii)* broadcasters' complete on-demand offering should be prominently displayed and easily accessible in an appropriate category on the hybrid TV menu or home screen, *(iii)* viewers must be able to enjoy a channel experience, with for instance the option of going directly to their favourite channel and to a list of channels which viewers must be able to personalise, *(iv)* viewers must be able to access any portal site/application provided by the broadcaster from the home screen (where it should be identified by the broadcaster's logo or icon) and also while watching one of the broadcaster's television channels by pressing the red (or similar) button on the remote control, *(v)* If the hybrid system includes a media search engine, the broadcaster's content - both linear and non-linear - should be properly referenced, using any metadata provided by the broadcaster, *(vi)* it must be possible for the viewer to return at any time to the last-viewed broadcast channel by means of a specific return button.[68]

Question 8

Do you think there are issues on the Hungarian market in terms of access to smart platforms? Do you think regulator intervention could be called for in this matter in the future? If so, what tools should be used?

[64] European Parliament Committee on Culture and Education, Draft Report on Connected TV, 31 January 2013, 2012/2300 (INI), Explanatory Statement, 2.
[65] It is hybrid, as it combines the offering of classical broadcast channels with online content.
[66] European Parliament Resolution of 4 July 2013 on connected TV, point 26
[67] Idem, point 20.
[68] European Broadcasting Union: Principles for Internet Connected and Hybrid Television in Europe, 15 April 2011, points 6-11
http://www3.ebu.ch/files/live/sites/ebu/files/Knowledge/Media%20Law/Position%20Papers/20110415_EBU%20Principles%20for%20Internet%20Connected%20and%20Hybrid%20TV.pdf [1 Oct 2014]

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5.4 Level playing field

Media services hitherto were accessible through television sets and established in Europe, and as such, governed by Directive 2010/13/EU of the European Parliament and of the Council on audiovisual media services (hereinafter: AVMSD) face a competitive disadvantage due to the numerous obligations they must adhere to under the AVMSD, while OTT players, their direct competitors, do not even always have a clear legal status (i.e. whether they qualify as media services). Even if they do qualify as media services, they are often not subject to European jurisdiction and are therefore exempt from the abovespecified rules. Of course there is some level of discrepancy among the rules governing media service providers established in various member states of the European Union, as Article 4 of the AVMSD grants member states freedom to require media service providers under their jurisdiction to comply with more detailed or stricter rules in the fields coordinated by the Directive. Nonetheless, these rules all share a common denominator defined by the AVMSD and other European Union law. By contrast, media service providers established outside Europe — mainly in the US — are not governed by European Union law or the fundamental principles set out in the AVMSD in any shape or form.

Thus an OTT player not subject to European regulation may broadcast popular content that a Hungarian media service provider cannot due to age rating restrictions. OTT players not subject to European regulation therefore also represent a risk for the advertising market, as the absence of regulation could put certain services and advertisers at an advantage. The media service providers in attendance at the conference[69] hosted by the Cypriot media authority and the European Commission (hereinafter: Commission) stressed their expectation for the regulation to create a level playing field for all service providers operating in similar conditions. They emphasised that if their market revenues wane due to unregulated OTT services, the funding of European works may be jeopardised.

The fundamental question when defining the creation of a level playing field as a regulatory objective is whether it is necessary for the linear and on-demand services accessible through television screens of OTT players not governed by the AVMSD to comply with certain fundamental requirements such as the protection of minors and advertising restrictions and if so, how can such compliance be enforced. Here, it should be noted that several highly popular American OTT players have also established seats in the European Union (although there was debate surrounding Netflix, providing services across the entire European Union from its seat located in Luxembourg).

Question 9

Do you think there is a realistic risk of media service providers governed by the AVMSD being put at a competitive disadvantage compared to media service providers not subject to it?

[69] Connected TV Conference – Looking beyond the AVMS Directive, Limassol, 25-26 October 2012

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5.5 The absence of standardisation

It is essential for media service providers — including traditional broadcasters and OTT players alike — that their content be displayed on all connected TV sets. However, the diverging technical (house) standards used by rival television manufacturers (Samsung, Sony, Panasonic, LG, Sharp, etc.) poses an obstacle to this. As a result, content producers must adapt their content to all the different standards available. This industry fragmentation is a heavy burden and even a barrier to entry for media service providers, and poses the risk of OTT players, backed by ample funding, being present on all platforms[70], while smaller service providers seeking to enter the market (potentially including important local content of public interest) might find themselves squeezed out of the market, their services available on fewer devices, resulting in falling advertising revenues. This is a market failure that severely jeopardises the goal of creating media pluralism.

In 2010 18 French media service providers issued a call asking device manufacturers to adopt a common technical standard for their platforms to enable media service providers to generate the content for a single platform.[71] The European Broadcasters Union (EBU) has also called for a "common solution" regarding hybrid systems to "encourage more competition between suppliers, lower costs and more choice for consumers".[72]

Pressured by media service provider, device manufacturers have recognised that it was their fundamental interest to offer the greatest range of content on their platforms, over and above the competitive advantage of innovation. Connected TVs operate on a dual-sided market where externalities (especially positive ones) are prominent on both sides, similarly to the Internet. The more devices the content is available on, the more people will be compelled to buy the device. This recognition, coupled with pressure from media service providers — upon a French and German initiative — the first common standard registered by the ETSI (*European Electronic communications Standards Institute*), the HbbTV (*Hybrid Broadcast and Broadband Television*) was created [73], now applied by many manufacturers.[74] In Hungary, Antenna Hungária has been testing HbbTV since November 2012, and it may open the door for interactive services alongside linear ones in the future.[75] No breakthrough has yet been achieved, as several major service providers (Samsung, Philips, Panasonic) have refused to adopt the HbbTV standard, giving preference to their own standards

[70] The American OTT aggregator giant Netflix for instance broadcasts on over fifty devices, see: https://signup.netflix.com/MediaCenter, [5 Aug 2014]

[71] Charte des éditeurs sur les modalités d'affichage des contenus et services en ligne, 19 Oct 2010, http://www.infohightech.com/IMG/pdf/charte1.pdf, [5 Aug 2014]

[72] European Broadcasting Union: Principles for Internet Connected and Hybrid Television in Europe, 2011.04.15. http://www3.ebu.ch/files/live/sites/ebu/files/Knowledge/Media%20Law/EBU%20Positions/20110415_EBU%20Principles%20for%20Internet%20Connected%20and%20Hybrid%20TV.pdf, [5 Aug 2014]

[73] ETSI TS 102 796 (2010), http://www.hbbtv.org/pages/about_hbbtv/introduction.php

[74] DE BUERGER, Geneviève: La standardisation – un enjeu pour la sauvegarde du pluralisme?, Colloque du CSA (belge) Nouveaux écrans, nouvelles régulations, Brussels, 5-6 July 2012

[75] http://www.hwsw.hu/hirek/49381/hbbtv-dvb-t-antenna-hungaria-mtva.html?utm_campaign=Feed:+HWSW&utm_medium=feed&utm_source=hwsw_rss, [5 Aug 2014]

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instead, citing, among other things, that the technical options offered by the standard are not up to par with their own technology.[76]

TPV 2012, owned by LG, Toshiba and Philips, created the *Smart TV Alliance* in June 2012 primarily in an effort to establish uniform standards to ensure that TVs offer the same number of apps as mobile phones.[77]

Question 10

Can the impact of the lack of standardisation among the various smart TV platforms be felt in Hungary today?

[76] TAZZER, Bruno: TV Connectée – Un nouveau rôle pour le fabricant et un enjeu pour l'éditeur de contenu « local », CSA Régulation, vol 51, 2012, 20

[77] For more, see: www.smarttv-alliance.org, [5 Aug 2014]

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5.6 Content integrity

Technological progress enables third parties (such as Google) to place ads alongside media service providers' content or even recommend other channels during advertising breaks. This represents a real threat to media service providers, as they may lose their editorial influence over their own content, which also raises questions of responsibility — alongside the risk of waning viewership ratings and the resulting loss in revenues —, as the media service provider is primarily responsible for content which may have thus been modified without its consent or even knowledge. It is no surprise therefore that the integrity of content is one of the key expectations of media service providers from Internet television, one that they have expressed in various forums.[78] It is therefore no surprise that the call issued by French media service providers in 2010 states that they will offer their content on platforms that ensure the integrity of content.[79] According to the 2011 EBU position paper, media service providers' linear and non-linear programmes and services must be displayed without any alterations and without disrupting the viewing experience, and must not allow the overlay of third-party content or commercial communications on the television picture without the broadcaster's consent or an active decision by the viewer.[80]

This contrasts with hybrid system developers' concept to enhance the viewing experience by allowing viewers to predefine their preferences (for instance tennis matches), and the TV would automatically recommend the selected programmes, irrespective of the programme currently being viewed.[81]

Question 11

Do you think the matter of content integrity warrants regulatory intervention?

[78] For example Hans-Martin Schmidt's (EBU Chairman) presentation, Connected TV Conference – Looking beyond the AVMS Directive, Limassol, 25-26 October 2012, http://www.connectedtveuconference.com/session_2/Hans-Martin%20Schmidt.pdf, [5 Aug 2014]
[79] Charte des éditeurs sur les modalités d'affichage des contenus et services en ligne, i.m. point 2
[80] European Broadcasting Union (2011), i.m. (70. lj.) points 3 – 5
[81] Conseil supérieur de l'audiovisuel belge (CSA): Régulation, vol 51, 2012, p. 19.

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6. The European Union's regulatory initiatives

6.1 The European Commission's Green Paper

The Commission has been addressing the anticipated market impact of connected TV since early 2012. In October 2012 the *Connected TV – Beyond the AVMS Directive* conference[82] was hosted in conjunction with the Cypriot media authority, Cypus holding the European Union's presidency at the time, where Agenda Neelie KROES, then commissioner responsible for media (amongst other things) outlined the Commission's main directions of investigation. In her speech, Kroes raised the question of whether the 2010 AVMSD was still conducive to attaining its objective, or whether a new regulatory framework was called for, providing the same safeguards while imposing fewer restrictions on market players The Green Paper[83] published in late April 2013 is a cautious study, feeling its way around the topic. The Commission did not define a clear direction, merely identifying the challenges of a converging media landscape and presenting the relevant questions for public consultation. The Green Paper nevertheless contains several statements that are clearly indicative of the direction of the Commission's thought process. Some of these are worth looking at.

First of all, according to the commission, linear media service providers established in Europe are not only at a disadvantage compared to their American counterparts (as the latter are accessible online and are not governed by the AVMSD), but also compared to on demand media service providers, increasingly accessible through the same screens and offering the same content as linear media services. New forms of on-demand content resemble traditional, passively received a linear content in many aspects. From the consumer's perspective, this means that the lines between linear and on-demand services are increasingly blurred. For this reason, argues the Commission, linear and on-demand content will have to be regarded as competing services in the future, therefore diverging regulatory requirements could clearly have a distorting effect.[84] The Green Paper also raises the issue of online US media service providers (OTT players) gaining a competitive advantage compared to media service providers subject to European jurisdiction, so there might be "efforts" to establish jurisdiction over these services. On this topic, the Commission also notes that an extending jurisdiction could result in overlapping jurisdictions.[85]

The Green Paper also addresses another key issue: the potentially limiting impact of Internet search engines. Filtering mechanisms, including personalised search results, make it more likely for people to receive the news in their area of interest, and from a perspective with which they agree, however mew players in the media market value chain may determine what content is accessible, e.g. by varying the prominence with which certain content is displayed, limiting the citizen's ability to change the menu or restricting certain applications. This could influence the de facto choice for citizens to access media offerings representing a plurality of opinions and can lead to a situation where citizens potentially find

[82] http://www.connectedtveuconference.com/index.htm, [5 Aug 2014]
[83] European Commission: Green Paper on Preparing for a Fully Converged Audiovisual World: Growth, Creation and Values, 24 April 2013, COM (2013) 231 final
[84] Idem 13.
[85] Idem

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themselves in a vulnerable situation without realising it.[86] The question — stemming from its nature — ties in to the matter of net neutrality, and could be referred to as search neutrality. The Green Paper raises the possibility of regulation, which has already been raised by certain member states (France) and on the level of the European Union (Freiberga report).[87]

Over 200 comments were submitted on the Green Paper; the European Commission published an executive summary of them in September 2014.[88] The consultation could serve as the basis of the AVMSD's review slated for 2015.

6.2 The European Parliament's position

The EP has also been actively addressing the matter, alongside the Commission. The Kammerevert report issued in January 2013[89] confirms that the European Parliament resolution adopted in July 2013 unequivocally calls on the Commission to regulate "hybrid"[90] television platforms.[91] One of the resolution's key findings may be that in the converging media landscape, competition is increasingly for viewers' attention rather than transmission capacities. Consequently, access to and findability of services, their references and recommendations will be decisive for media service providers' success.[92] With a view to this objective, access for media service providers without discrimination must be ensured across all platforms.

Another key topic identified by the EP is that the Commission should endeavour to ensure fair competition among all content providers in the event of a review of the AVMSD, as there is a risk of a new, imbalanced competitive landscape emerging, in which European players could find themselves at a disadvantage compared to new players, the latter gaining economic attraction and undergoing international development.

The EP wonders whether the principle of the division between advertising and programme content can be maintained across all types of media or whether the aim of providing protection could be better achieved by making advertising and programme content clearly recognisable and clearly distinguishable across all types of media;.

The resolution also urges for direct European Union-level regulation of net neutrality, as "net neutrality is proven to be insufficiently safeguarded by transparency and competition".[93] In this

[86] Idem 15.
[87] High Level Group on Media Freedom and Pluralism – A Free and Pluralistic Media to Sustain European Democracy, January 2013, http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/HLG%20Final%20Report.pdf, [05.08.2014]
[88] http://www.epra.org/news_items/green-paper-on-convergence-commission-publishes-long-awaited-summary-of-replies, [24 Sept 2014]
[89] European Parliament Committee on Culture and Education, Draft Report on Connected TV, 31 January 2013, 2012/2300 (INI), Explanatory Statement, 2.
[90] It is hybrid, as it combines the offering of classical broadcast channels with online content.
[91] European Parliament Resolution of 4 July 2013 on connected TV, A7-0212/2013, point 26
[92] Idem point L
[93] Idem, point V

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content, the EP calls on the Commission to take legally binding measures to ensure that network operators systematically treat all data packets in the same way when forwarding them from dispatchers to receivers, i.e. that they do not give certain packets priority on the basis, for example, of origin, content, use or the fee charged to users.[94] This intention is a consistent with the Commission's draft regulation leaked in late July[95] that would unequivocally ban the practice of discriminatory traffic management. Here, it should be noted that the regulation proposal still contains a large number of internal contradictions and the draft that was leaked was quite rudimentary, and will clearly undergo multiple amendments.

Question 12

Which areas of the AVMSD call for amendment, in your view?

[94] Idem, point 31

[95] https://netzpolitik.org/wp-upload/CONSOLIDATED-DRAFT-for-ISC-070713.pdf, [25 Sept 2014]

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7. Summarised list of questions

1. **Do you agree with the definition of OTT services specified in point 3?**

2. **Do you think that the relationship among "traditional" broadcasters and OTT players in Hungary over the upcoming five to ten years will be one of substitution or complementary?**

3. **What barriers to entry are there in Hungary for OTT players?**

4. **How would you classify the service provided by a service provider aggregating linear media services and broadcasting them using the OTT method? If they cannot be classified under the current legislative framework, does it warrant regulatory intervention for the services and if so, how?**

5. **What do you think about the European Commission's legislative proposal for a more detailed regulation of net neutrality?**

6. **What do you think about the EU proposal permitting content providers to sign agreements with Internet service providers on guaranteed bandwidth?**

7. **Do you think net neutrality needs regulating in Hungary?**

8. **Are there issues on the Hungarian market in terms of access to smart platforms? Do you think regulator intervention could be called for in this matter in the future? If so, what tools should be used?**

9. **Do you think there is a realistic risk of media service providers governed by the AVMSD being put at a competitive disadvantage compared to media service providers not subject to it?**

10. **Can the impact of the lack of standardisation among the various smart TV platforms be felt in Hungary today?**

11. **Do you think the matter of content integrity warrants regulatory intervention?**

12. **Which areas of the AVMSD call for amendment, in your view?**

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Annex I — A brief presentation of the leading OTT players

Netflix

The company was established in 1997 as a DVD delivery business and has grown to become one the leading providers of streaming media in the US, introducing its VoD (*video on demand*) service in 2007, and boasting 33.4 million subscribers in the US alone, and another 11 million worldwide. Netflix expanded to Canada in 2010 and Latin America in September 2011, later expanding to Europe first in the UK and Ireland in 2012, followed by Finland, Denmark, Sweden and Norway in the same year, and the Netherlands in 2013. In spring of 2014, the streaming media provider announced further plans for European expansion, citing Germany and France as future locations, with specific plans to launch the service in France in autumn of 2014. In addition, the streaming service is slated to soon appear in Luxembourg, Austria Switzerland and Belgium.

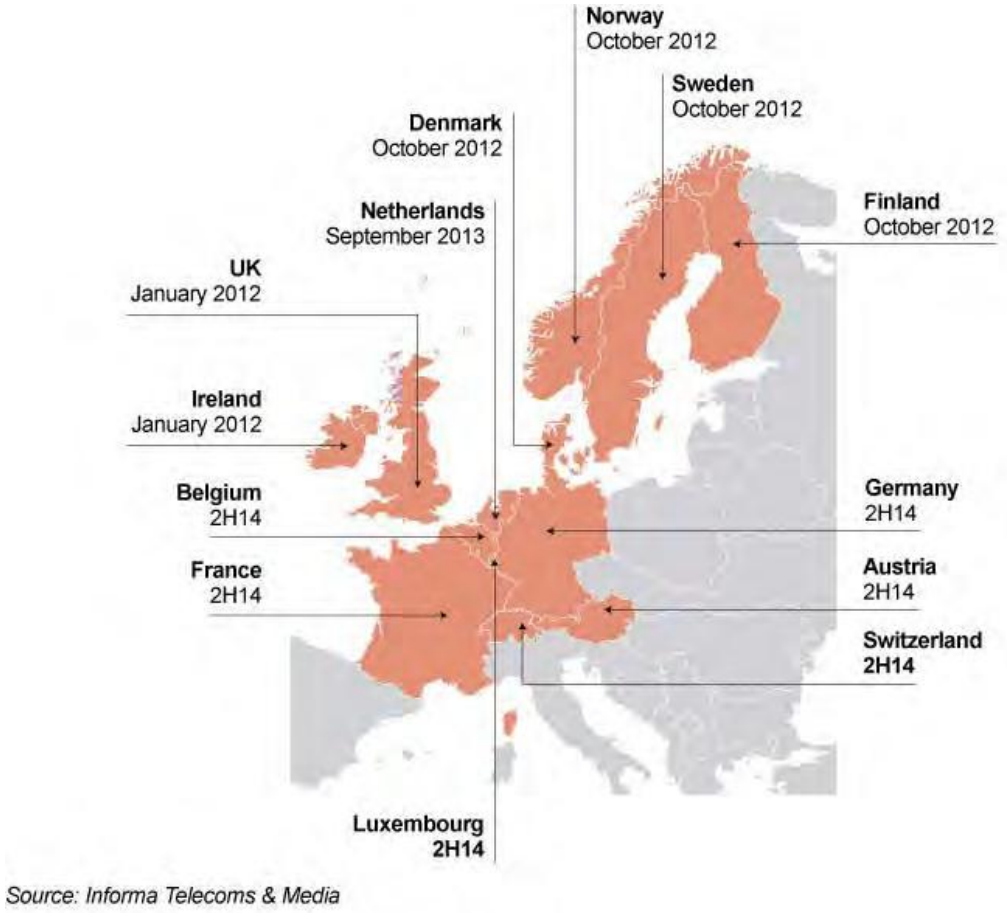

Figure 26: Netflix presence and expected market entry dates in Europe[96]

Netflix derives revenues in the streaming segment from monthly membership fees. The monthly fee in the US was USD 8, increased to USD 9 from 2014, with the USD 8 fee still valid for existing subscribers until May 2016. In 2013 the company also introduced its USD 12 monthly membership fee allowing subscribers to stream content on up to four devices concurrently. The USD 566.5 million

[96] Informa telecoms & media: Converging Media, Vol. 13, Issue 12, 1

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increase in the company's domestic streaming revenues in 2013 was due to the 26% (USD 2.7 billion) growth in the average number of paid memberships. Competition is fierce on the US market, and Netflix has seen its outlays increase due to its own productions, so further expansion in Europe is expected.

In the international streaming segment, the company derives revenues from monthly membership fees priced between USD 7 to 14 per month. The USD 424.8 million increase in its international revenues in 2013, totalling USD 712 million, was primarily due to the 134% growth in the average number of paid international memberships.[97] According to Informa's forecast, Netflix may double its current subscriber base in Europe, however the revenues derived from this growth may not rise (proportionately) with this increase.

Netflix features complex architecture, initially using an own data centre across its entire system, and gradually shifting to different solutions as it grew. The company currently uses cloud services and three content delivery networks, or CDNs to distribute its video streams: Akamai, Limelight and Level3 serve its needs, forwarding content ordered on Netflix from the Amazon cloud to the nearest Internet service provider. Netflix subscribers using PCs access the signal stream using Microsoft Silverlight. It uses the adaptive DASH (Dynamic Streaming over HTTP) protocol for transmitting signal streams, which flexibly adapt to traffic opportunities when playing media. The system distributes content that is coded and protected by DRM (*Digital Right Management*) to users. Netflix uses a *geoblocking*[98] system to restrict access to services to the geographic areas where it has announced its service.[99]

Hulu and Hulu Plus

One of Netflix's main rivals on the US video streaming market is Hulu, a joint venture of Walt Disney, 21st Century Fox and Comcast. Hulu launched its video streaming services in beta in 2008 and posted revenues of nearly USD 1 billion in 2013. It offers a free and a subscription model since 2010 (Hulu Plus at USD 8 per month), the latter already boasting 5 million subscribers in 2013. The free version is ad-supported, i.e. can be accessed in exchange for displaying advertising, while the Plus version features fewer ads and more content. Hulu Plus has seen a rapid rise in its number of subscribers, nevertheless the company still derives the lion's share of its revenues from advertising.

[97] Netflix Annual Report 2013, http://ir.netflix.com/secfiling.cfm?filingID=1065280-14-6&CIK=1065280

[98] The geoblocking system is used to restrict access to services to the geographic areas where it has announced its service. The geoblocking system grants access authorisation based on users' IP address.

[99] The transmission of video streams takes place in chunks of several seconds. These chunks are available in various qualities to Netflix, allowing it to use the DASH protocol to assign the appropriate qualities to the network's prevailing traffic opportunities. It is not possible to change quality within a single chunk, only when moving on to the next chunk. Netflix has outsourced most of its infrastructure (servers) to the Amazon cloud service both for user requests and content management, only retaining control of the Netflix data centre. The Netflix data centre has a dual role: it processes application requests and payments by new users and authorises or restricts services according to user status. The Netflix data centre is not involved in forwarding video streams; this process has been wholly integrated into Amazon's cloud service. It is where users are identified, the *manifest file* linked to the requested content downloaded and the video stream forwarded from another server park.

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Hulu's streaming service is only available in Japan outside the US, and the sale of Hulu Japan to Nippon TV after just three years on the market was announced in February 2014.[100] Hulu has not provided any explanation to its decision, but this shows that OTT video services is a nascent market carrying many risks for OTT players.

Both Hulu and Hulu Plus use geoblocking, so their services are — legally — only available in the US and Japan, or more specifically, users with an IP address registered in the US or Japan have access. Hulu uses somewhat simpler system technology solutions than Netflix, but have adapted access to their OTT services for a large number of end devices. Hulu can be streamed on iPhones, iPods, tablets and mobile phones powered by an Android operating system, as well as traditional desktop and laptop computers. Hulu also uses three CDNs to stream to desktop computers: Akamai, Limelight- and Level 3. Access from mobile clients are only served using Akamai and Level3. A point of interest is that ads placed before free streaming are transmitted through Akamai and Limelight, and Level3 is not involved in this process.[101]

HBO GO

HBO GO is HBO's streaming service available in 22 countries outside the US, including HBO subscribers in Hungary, following online registration. Its business model consists of offering free streaming, but only for HBO subscribers. HBO launched its streaming service for non-HBO subscribers in the Scandinavian region (Denmark, Sweden, Norway, Finland) in 2012 under the HBO Nordic moniker for a subscription fee of around EUR 10. HBO Nordic has 68,000 subscribers in Sweden, compared to more than 860,000 Netflix subscribers. One possible explanation for this low figure may be the fact that HBO Nordic initially offered subscriptions of at least six months without providing a free trial period, while Netflix is available on a month-to-month basis and offers a one

[100] Walt Disney Annual Report 2013, http://thewaltdisneycompany.com/sites/default/files/reports/10k-wrap-2013.pdf. See also: http://blog.hulu.com/2013/12/18/a-strong-2013/, [18.06.2014]

[101] An interesting point of difference compared to Netflix is that Hulu has not switched over to the DASH protocol and still uses the RTMP (*Real Time Messaging Protocol*), slightly more difficult to control. It forwards this either via actual RTMP using the 1935 port, or via RTMP *tunneled over http* (RTMPT), averting the firewall blocking of the 1935 port by company firewalls. However, this only applies to requests made from desktop computers, as Hulu uses adaptive streaming technology for mobile devices, for instance *http Livestream* technology for iPhones and iPads. The situation is even more complex, as ads arrive in simple .flv file format. It uses simple Flash Video format for video streams, but applies encrypted RTMP protocol transmission for the connection. As the storage of content of unequal quality is difficult with RTMP, Hulu's options are transmission speeds of 480 kbit/s, 700 kbit/s and 1000 kbit/s for certain films. Hulu's choice of CDNs is interesting. Here, the source server also only switches CDN within a video stream as a last resort, but it is prone to transmitting content on another CDN during searches. The quasi static CDN allocation characteristic of Netflix is not at all common. Manifest files are generated by the s.hulu.com server, which essentially controls traffic distribution across the network, including the selection of CDNs. Client devices receive the video stream from the www.hulu.com server, or a mirror server, and the protocol is set according to the type of end equipment. The client sends reports to the s.hulu.com server and receives payment information. While the other two servers, or rather the server pair, are monitored by Akamai, t.hulu.com is supervised by Hulu itself.

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month free trial period.[102] HBO GO is currently not offered as a *standalone* service on other markets for the time being.

Roku

ROKU Inc. is a privately held firm based in California that manufactures home digital media (multimedia) products and enables access to content. Roku devices give users access to hundreds of online streamed content through their TVs, including movie channels, video rentals and games, as well as content stored on devices connected to the local network. The OTT linear media services provided by Roku partners are presented in the form of TV channels. Some of these can be accessed under a subscription, but viewers can add many channels offered free of charge to their lists. Roku introduced its first generation of devices in 2008, available in three quality versions. The first was only capable of displaying SD content, the second was capable of displaying HD content, while the third featured an extra USB-port. The third generation of devices was introduced in 2013 with faster processors and the remote control featuring Wi-Fi Direct technology instead of the earlier Bluetooth. Another novelty of the Roku 3 was the headphone jack integrated into the remote. In 2014, Rokus launched its *Roku streaming stick*, which is similar to Google Chromecast, with the difference that it offers a much wider variety of channels for a higher price, as well as a separate remote control.

Voyo

Finally, Voyo, the OTT service of Central Media Europe (hereinafter: CME) deserves a mention, for two reasons: first of all, it is the OTT service of one of the largest media firms in the CEE region, and secondly, Voyo's failure is a prime example that OTT video services are not necessarily a universal formula for success. CME is present in six countries (Bulgaria, Croatia, the Czech Republic, Romania, Slovakia, Slovenia), has 35 linear media services, an aggregate viewership of nearly 50 million and over 72 news portals and websites.[103] The company launched its own OTT video service under the Voyo moniker in 2009, investing USD 40 million in the venture over the course of two years. The results, however, were quite disappointing, with only 128,000 subscribers at the end of 2013, incurring huge losses for CME.[104] The reasons for CME's failure, similarly to those that led to Hulu's exit from the Japanese market, cannot be addressed in this paper for considerations of length, but these examples clearly indicate that OTT video services cannot be generally regarded as an unequivocal success, and their rapidly developing market holds many risks.

IT giants on the broadcasting market

The revolutionary changes affecting television can be seen as the industrial revolution of television. It is no surprise that many market players hitherto involved in other areas of the value chain now see

[102] Time Warner Annual Report 2013, http://ir.timewarner.com/phoenix.zhtml?c=70972&p=irol-reportsannual [18 June 2014]
[103] http://www.cetv-net.com/en/operations/index.shtml, [2014.07.01.]
[104] István Litvay's presentation at the MKSZ industry day held on 4 June 2014

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potential in content provision. These include IT firms (Apple, Intel, Google, Microsoft, etc.), striving to maintain their status as market leaders in the long run in a continuously and increasingly rapidly changing technological and market environment. An illustrative example are the attempts of large companies from a variety of backgrounds trying to gain a foothold in the currently changing broadcasting market, seen as having huge potential. This convergence is primarily driven by the rapid development in technology and the diversity of viewing habits. The following section presents the efforts of large IT firms in the real of OTT services, examining the many instances of failure and the underlying reasons for such failure.

Apple

One of the largest IT firms in the world, Apple Inc.[105] introduced its first digital media player, Apple TV, in 2007. The device is designed to be connected to the TV set and display online digital content on its screen. Apple TV's core is its modified iOS operating system, and is powered by Apple's proprietary A4 chip also used in its iPod Touch, iPad and iPhone 4 devices. The media player can not only be used for the wireless streaming of digital content stored on Apple devices, but also to rent content from the iTunes Store.

Google

Google[106] appeared on the multimedia market in 2010 with *Google TV*, which operated as a smart TV platform developed jointly with Intel, Sony and Logitech. Google TV integrated the Android operating system with the Google Chrome browser. The device, originally designed for accessing multimedia content, was launched in October 2010, when the first TV set capable of web browsing and receiving online multimedia was introduced, controlled with a special remote control (functioning as a mouse and keyboard) similarly to computers. Soon after Logitech also launched its own set-top-box that could convert any television set into a Google TV. To fill the platform content, Google try to enter into agreements with various television companies, however the leading American television firms restricted streaming video on Google TV devices, leaving the system without any meaningful content. This decision was spurred by television company fears that Google would "siphon off" advertising revenues with the help of its Google TV venture, as was the case with YouTube.

Google's next step was the introduction of its *Chromecast* device in July 2013, which was a success due to its accessible pricing despite the relatively little content created for the device.[107] Google is

[105] In terms of its sheer size, Apple Inc. had over 80,000 employees and profits in excess of USD 37 billion in 2013. Since its foundation, the company has created a series of blockbuster products, from the Macintosh personal computer to the newest iPhones and iPads. Apple has also developed its own operating system, OS X (formerly Mac OS X), and iOS, the version optimised for mobile devices.

[106] Google Inc. is a public limited company registered on U.S. stock exchange. Originally founded as a private limited company in 1998, Google is renowned for the development and operation of its proprietary search engine. Of all the IT giants, it is perhaps Google that reaches out to various business sectors. In 2014, the number of its employees was close to 50,000 and the company's profit reached USD 13 billion.

[107] http://www.hwsw.hu/hirek/51474/google-chromecast-chrome-tv-stream-megosztas-kiprobaltuk-teszt.html, [5 Aug 2014]. Chromecast is a thumb-sized media streaming device that plugs into the HDMI port on TV sets and

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currently working on its new platform replacing Google TV, *Android TV*, which focuses on applications rather than content. Google's Android TV introduced on 25 July 2014 promises substantial innovation, including not only a quickly responding interface, but also capable of running the most popular applications currently available on phones and tablets. The new service, responding to criticism of difficult text entry, features a voice recognition software to facilitate communication with the TV set.[108]

Intel

In the first half of 2013, there were rumours that Intel[109] also plans to enter the intranet television market. According to plans, Intel was set to launch a paid streaming TV service called *OnCue*, being developed by a 350-strong expert team, which would have differentiated itself from the competition based on its innovative interface and special service that was a cross between TV and DVR. Viewers would have been able to view missed shows for a few days without having to record them. The service would have been available through Intel's set-top-box and mobile application. In January 2014, however, Intel sold its media business line to Verizon, scrapping its plans to enter the broadcasting market on its own.

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casts content to the TV's screen. Chromecast has no control panel and is controlled on any device running the Chrome browser and capable of connecting via WiFi (smartphone, tablet, laptop) using an installed app. Once the Chromecast device is connected to the home WiFi network, content can be cast to the TV screen using any connected mobile device. Chromecast uses the DIAL (*Discovery And Launch*) protocol, developed jointly by Netflix and YouTube, which enables DIAL clients to connect to the DIAL server found on the same network. In this case, Chromecast acts as the server, while the controlling mobile device connecting to it acts as the client. Content is cast through an application supporting Chromecast (Chrome browser) transmitting content data to the application running on Chromecast primarily the, URL, with navigation or volume adjustments performed through the application. Chromecast supports media content from Netflix, YouTube, Hulu Plus, Google Play Movie and Music channels. In addition, any Chrome browser tab can be displayed on the TV screen. This function will enable local content — such as films, music and images — stored on the computer to be displayed and played on the TV set.

[108] http://www.origo.hu/techbazis/20140626-mar-a-tevenken-sem-tevet-fogunk-nezni.html?utm_source=origo-nyito&utm_medium=sec-top&utm_campaign=sec, [29 June 2014], Android TV, similarly to Google TV, could be accessed through third-party hardware. The platform would function similarly to Android in case of smartphones. Manufacturers would integrate the ready-to-use system into their devices, which could be operated using a simple remote control. The advantage of the common platform is that it facilitates application development. If Android can succeed in gaining a foothold on the TV market, it may radically transform the role of TV sets, as devices running Android in the background could enable a series of functions currently featured on smartphones. However, the announcement by a many major smart TV manufacturers (Samsung, LG) that they would not use the new platform, having developed their own operating system that they will prefer to Google's offering, has made market entry more difficult for Android TV.

[109] Intel is mainly known for its microprocessors, but it also manufactures network interface controllers, motherboard chipsets, graphics cards and other computer devices. Its staff exceeded 100,000 at the end of 2013, and its profits amounted to USD 9 million.

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Microsoft

A Microsoft[110] launched its *Xbox* console in 2001, its first attempt as a hardware developer on the gaming console market, then dominated by Nintendo and Sony. The Xbox runs a unique operating system (Xbox OS), which is not a modified version of the Windows operating system. This is because the console was developed to be independent of the operating system widely used on PCs, enabling its modification at any time.[111] The successor to the Xbox, the *Xbox 360*, was launched in 2005. In the period that has since elapsed, the device was introduced in many different versions, with a different background storage and connection features adapted to user needs and possibilities. By connecting it to cable TV or satellite, or using a broadband Internet connection, the Xbox is capable of displaying television shows and OTT content. Over 80 million Xbox 360 units have been sold worldwide so far, making it one of the most popular OTT solutions to date.

The third member of the console range, the *Xbox One*, was launched in 2013. The device features 500 GB internal hard drive, has a combined Blu-ray/DVD deck, and 802.11 a/b/g/n wireless and WiFi Direct, as well as three USB 3.0 and HDMI ports to provide the perfect multimedia experience. The Xbox One features to operating systems, one of them Windows 8 based and allowing the installation of applications, and the other called Xbox OS, running the actual games. Xbox One sold 3 million units by December 2013, and another 5 million units were shipped out to retailers by 1 April 2014.

Amazon

Amazon's[112] leading product on the multimedia market is the *Amazon Kindle* range, originally an e-reader. Today, the fifth generation Kindle is also capable of displaying other digital content (such as PDF files). The *Kindle Fire* was launched in 2012, a small tablet running the Android operating system and capable of displaying multimedia content. The *Kindle Fire HD* was launched in the same year, and features a micro HDMI port, allowing it to display multimedia content on a TV screen. In April 2014, Amazon announced its *Amazon Fire TV* set-top-box, a formidable rival for Apple TV, Google Chromecast and Roku 3. Amazon Fire TV is essentially capable of all the TV services offered by its rivals, and additionally, Amazon focused on three areas where the competition was weak. First off, its remote control features voice recognition aimed at simplifying cumbersome, slow navigation, enabling immediate searches by movie title, producer or actor. Secondly, the device features strong hardware to eliminate delay (quad-core processor, dedicated GPU, B RAM, dual band WiFi). Thirdly, Amazon has created an Android-based platform enabling developers to easily optimise PC, gaming console and Android applications for Fire TV. Fire TV also supports the DIAL (discovery and launch)

[110] Microsoft is one of the leading global software firms. Its most well-know product is the Windows operating system range and the a Microsoft Office application package. The company employed over 100,000 in 2013 in 150 countries, and posted profit of USD 22 million.

[111] http://blogs.msdn.com/b/xboxteam/archive/2006/02/17/534421.aspx

[112] Amazon Inc., founded in 1994, is one of the largest online retailers, and is based on Seattle, Washington. The company started out as on online book retailer, but has become a major player on the electronic consumer goods and digital content provision market as well. Its staff exceeded 117,000 at the end of 2013, and its profits amounted to USD 250 million.

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technology capable of opening various applications from the user's smartphone or tablet. The displaying of applications on a dual screen elevates the opportunities for gaming developers to a new level in multiple-player games.[113] Fire TV featured the most popular video streaming services from the outset (Netflix, Hulu Plus, Amazon Video, YouTube, Showtime Anytime, etc.), alongside the most popular music streaming applications (Pandora, TuneIn, iHeartRadio). Fire TV also presents the advantage compared to rivals of doubling as a gaming console by purchasing a separately sold controller.[114]

Market acquisition challenges for IT firms

The entry of IT giants on the television market is a logical step in view of the fact that companies occupying different parts of the value chain are increasingly attempting to expand their activities to multiple parts. In addition, the upcoming era has been dubbed the "golden age of television" with reference to the revolutionisation of content consumption. Nevertheless large IT firms have so far failed to achieve breakthrough success on this new market. Google launched Google TV in October 2010, initially as a software platform accessible through the hardware of the major device manufacturers (LG, Sony, Toshiba). The service flopped and was finally redubbed Android TV in October 2013, promising substantial change in the realm of television.[115]
Although the Apple Box sold in 13 million units by the end of a 2013,[116] it is not considered a breakthrough success compared to Apple's other products. Intel Media's OnCue cloud-based service launched in 2011 was an even bigger flop, and was discontinued in late 2013. Microsoft's Mediaroom service met a similar fate and was sold to Ericsson. According to analyst firm Informa[117], the difficulties of market entry may stem from the following reasons:

- Content creators play a pivotal role in the television industry, as the maker of the most valuable content for subscribers is destined for success. This — partly — explains the success of Netflix and HBO, which are not only backed by sufficient capital to purchase premium content, but also produce their own content (e.g. Game of Thrones, The O.C., House of Cards, etc.). Content creators have a long-standing contractual relationship with traditional broadcasters, and it is difficult to convince them to replace these lucrative relationships by partnering up with IT firms, especially as the latter still represents a new and nascent market.
- Digital content distribution is an area where large IT firms are still relatively inexperienced (for instance in operating conditional access systems, Electronic programme guides, etc.), so it will take time to achieve economies of scale.

[113] http://www.businesswire.com/news/home/20140402006557/en/Amazon-Fire-TV-Developers-Powerful-Platform-Bringing, [29 June 2014]
[114] http://www.pto.hu/post/1/tag/konzol, [29 June 2014]
[115] http://www.android.com/tv/, [29 June 2014]
[116] Informa Telecoms and Media: TV disruption – Why Google, Apple et al. haven't made their mark…yet, 2014, 4
[117] Idem, 3.

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- Last but not least, many consumers are still wary of new technologies. Most TV viewers are used to accessing television content through classic broadcasting channels, and it will take time for new technology and new market players to gain a foothold on this market.

The following figure illustrates the relative value of Netflix and its main competitors (such as Apple, Amazon).

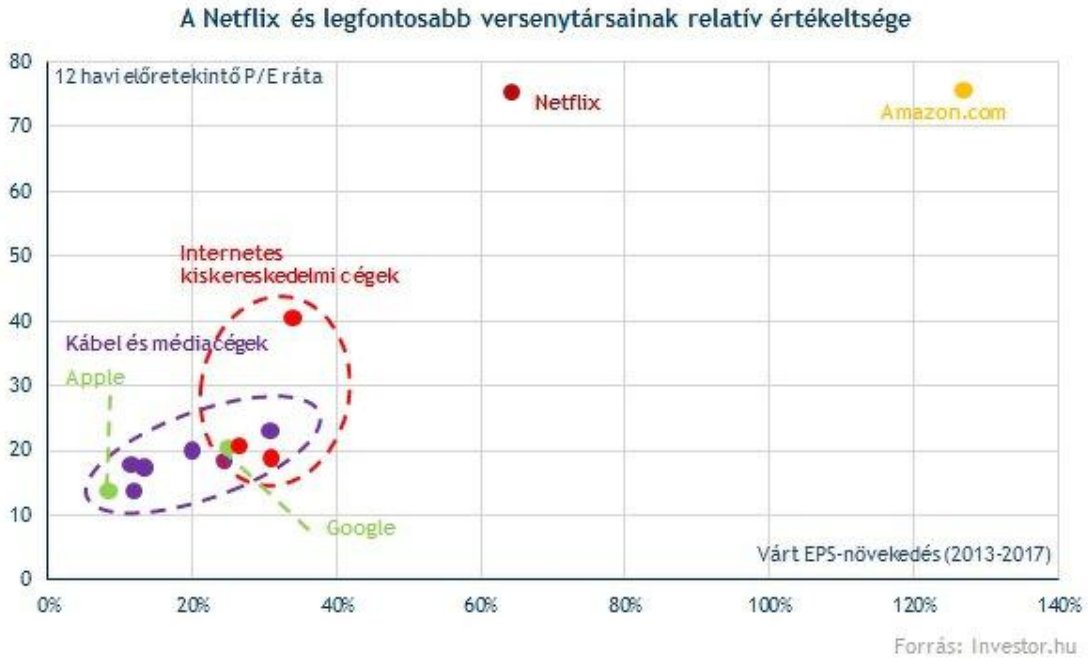

Figure 27: Relative value of Netflix and its main competitors (source: Investor.hu)

Electronic communications service providers

With the appearance of the Internet on television, the network, i.e. the infrastructure for transmitting signals has been decoupled from the service provided on the network, i.e. it is no longer just the electronic communications service provider that can provide media services to viewers through broadcasting. The fact that broadcasters can be "cut out" from the value chain may compel broadcasters to re-evaluate their business model.

One of the potential strategies for broadcasters could be to take advantage of the opportunities afforded by the intranet to offer their own OTT services to subscribers. There are many arguments to support this strategy: for one, it creates competition for other OTT services, trying to retain subscribers, secondly, it could boost competition on the broadcasting market, bringing its service to households covered by rival broadcasters, and finally, they can reach households with no current subscriptions. The British BSkyB launched its Now TV online service in the summer of 2012, and aims to compete with the American OTT giant Netflix while also targeting the 13 million Brits who

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currently have no television subscription.[118] Viasat launched a similar service in 2007 under the Viaplay moniker, available in Scandinavian countries and Russia. The success of these two service providers is primarily based on their premium content portfolio on the broadcasting market, which they use to their advantage. For broadcasters who do not have such a premium content, one means of market acquisition could be to offer thematic content. The Finnish Elisa launched its EpicTV service, offering a variety of extreme sports programmes.[119]

Another option for broadcasters is to conclude partnerships with connected TV manufacturers. Broadcasters — no longer the only bottleneck in the value chain — have a fundamental interest in ensuring easy access to their content for viewers using connected TV menus. More and more agreements of this nature are being concluded between broadcasters and device manufacturers in an effort to ensure that the content offered by broadcasters (both linear and on-demand) is accessible through TV set menus, the most straightforwardly possible and in the most prominent position. Such an agreement is not only intended to ensure easy access for broadcasters but can also be hugely beneficial by enabling service providers to draw in households that were previously not subscribers.[120] An example is France's Orange, offering a free limited version of its package on LG connected TV menus, prompting viewers to subscribe to its full package.[121] From a regulatory perspective, it is important to monitor these agreements to identify any potential anti-competition impacts.

[118] http://www.nowtv.com/land [25 Nov 2011]
[119] Analysys Mason: Connected TVs enable operators to deliver both multi-room and OTT services and extend their target market, 22.05.2012., p. 2.
[120] Informa Telecoms & Media (2012)
[121] For more, see: http://www.broadbandtvnews.com/2010/01/11/lg-and-orange-connect-the-tv [25 Sept 2014]