Television's Next Top Business Model: Personalized and Pervasive

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Abstract. In this paper, we study future business models of video content aggregators focusing on professional scripted entertainment. Recent technological changes and widespread adoption of the broadband Internet and media-capable mobile devices is

rapidly changing the landscape of content aggregation. Traditional players, such as TV broadcasters, are losing ground to the newer, more agile market players with business models, which answer better to the demands of the contemporary customers. We review existing business models, studying successful companies, both traditional and new market players. We analyze strong and weak sides of each model, collecting the best practices. In the second part of the paper, we go through different stakeholders related to video content aggregators and their demands. In the concluding sections we summarize the findings from the literature and combine this knowledge with empirical findings from qualitative interviews conducted with experts from the field.

Keywords: video content aggregation, Internet, future of TV, business models

1. Introduction

Traditional broadcast television is more popular today than ever before. According to a recent report, people watch television on average five hours per day in the United States (The Nielsen Company, 2013). While new technologies, such as time shifting and digital video recorders, DVRs, have decreased the time spent watching live television, the total time spent watching broadcast television is still on the rise. People also are spending more money than ever on entertainment, and in particular on TV subscriptions. From 2000 to 2010 consumer expenditures on entertainment media grew 69 percent in the U.S. and Europe, and during the same time period revenue from cable and satellite TV services grew 148 percent (Advanced Television, 2011). Even though the traditional video content aggregation business, the television industry, seems to be doing well, it is facing large changes in the future.

Television has been the dominant entertainment device for half a century. By the mid-1950's television started to gain a foothold as a distribution channel for movies. In addition to public television, commercial television with commercials paid by the advertisers was rapidly expanding. Television created a new opportunity for viewers: instead of going out to theatres, they could view the movies in the comfort of their own homes, free of charge. However, the program selection of the few TV channels was limited, and the viewers had to watch commercials on commercial channels. Technological progress led to cable and satellite broadcasting, which significantly increased the number of available channels. Cable and satellite television also enabled the subscription model, where the television viewer pays a recurring fee in exchange for the service.

In the past few years, broadband Internet connections capable of delivering high quality video content have become available to the public. The high bandwidth, low cost, fixed, and mobile connections and a huge selection of multipurpose end devices make its use more attractive to viewers. Companies from the television industry, such as NBC, from the video rental industry, like Netflix, and completely new players, like

YouTube, are offering video content aggregation services on the Internet. Internet use in general is also more widespread than ever. Of particular interest however is what people do on the Internet. In 2008, young adults spent 30 percent of their Internet time watching videos (The Nielsen Company, 2008). In 2012, the same number for kids and teenagers was over 60 percent (The Nielsen Company, 2013).

The current development towards increased consumption of online video can be considered as a threat to the traditional television businesses, but it is also a huge opportunity if people realize the potential of such videos. D'Arma (2011) studied the impact of Internet distribution on television business. The author emphasized that the traditional television businesses own the majority of the online video aggregators and that they benefit from their established content creation activities. The strategic importance of content creation activities and licensing intellectual property will increase. He also found two increasingly different logics based on content shelf life: content with short shelf life, such as sports and news, and content with long shelf life, such as scripted drama series. People view short shelf life content during a short time period after its release; the traditional television is quite well suited for this type of content.

Even though the threats are not imminent, understanding the changes in video content aggregation is vital for traditional television businesses that want to exploit the new opportunities and expand their business. Companies who want to enter the aggregation business should understand also the different parties' needs. In our study, we focus on content aggregation of professional scripted video entertainment, i.e., content with a long shelf life. Our premise is that the Internet will be the dominant distribution channel because of the possibilities it provides. In addition, we exclude the operators from our analysis, as we predict that their role will not be significant in future business models. By analyzing the needs of the viewers, advertisers, and content creators, we discover what the aggregators need to take into account in order to survive in the Internet-based aggregation business of the future. We argue that video content aggregators need to personalize their service to viewers, provide data to advertisers and content creators, and adapt their service to changes in content creation and content itself.

The rest of the chapter is structured as follows. In section 2, we examine the currently dominant business models in video content aggregation by examples. Section 3 deals with the value that the aggregators offer to fill the needs of advertisers, content creators and viewers. In section 4, we discuss our findings and compare them to industry opinions gathered from interviews. We also highlight the key factors that will affect the success of a business model in the future. Finally, section 5 concludes our chapter with implications to the stakeholders in video content aggregation industry.

2. *Business Models and Its Components*

The business of video content aggregation has been relatively stable for decades. While competition was always high and technological advances such as cable TV, satellite TV, VHS and later DVD players did upset the balance occasionally, good old TV business remained largely unchanged. However, as the new millennium arrived, something happened: the Internet started to change the world. Recent advances in fast broadband Internet connection and end-user devices made delivery of video content through a network connection a viable option (D'Arma, 2011). Two-way interaction changed the roles: Previously passive viewers became active in choosing content and how to pay for it.

The Internet was referred to as "disruptive" in the context of media business already in the early 2000's. Economic impacts of the new technology were predicted to capture the whole value chain of video content creation and distribution (Zhu, 2001). Such big disruption spawned a variety of new business models of content aggregation and seriously challenged existing market players. However, the winner in this battle of business models is far from decided. In this section we look at currently dominant business models on the market by reviewing prominent cases of concrete companies and draw comparison between their methods of content delivery, revenue model and the ecosystem around them.

2.1. Value Networks

We use the Value Network Analysis (VNA) (Allee 2002) modelling technique to analyze the business models of different content aggregators. The value network consists of roles, which are represented as nodes and flows of transactions represented by arrows between the nodes. First, we show the tangible flows, which are products and/or services from supplier to customer, and respective flows of money from customer to supplier. Later in the chapter, we also add the intangible flows, which represent other values in addition to monetary value.

In value networks from video content creation to viewing it we can see several roles and players. The 'content creators' create video content. They are film and TV production companies, advertisement makers who carry out the creative part of making content. Often the 'content producers' are connected to the same role; they carry out the economical part of making content. Then the 'content aggregators' collect the video content from creators and make it available to the viewers, often accompanied with commercial spots from the 'advertisers'. 'Content viewers' then select the content from available choices for viewing.

2.2. Revenue Models

Revenue models explain how the viewers are charged for the services that are needed to view the content. There can be separate charges for distribution channel and actual content. Sometimes they are bundled in innovative ways. In the delivery of video content from the content creators to content viewers, we can see two revenue models: 'supply chains' and 'multisided markets'.

'Supply chains' are the traditional form of markets. They consist of seller and buyer roles, where the buyer purchases products or services from the seller and pays for them. An example of a supply chain is filmmaker – movie publisher – movie retailer/rental company – viewer, presented in Fig. 1.
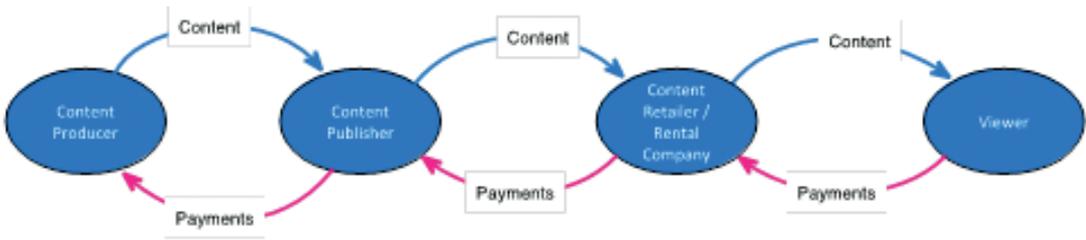

Fig. 1. *Supply Chain Value Network*

Two-sided or multisided markets have sellers and buyers but also a third role, 'business platform', which enables two distinct but related groups of customers to interact with each other. The platform serves all groups, usually charging one a premium price for the service, while subsidizing the other. The side paying the premium is willing to do so because it needs access to the subsidized side and is interested in growth on the platform. The subsidized side is willing to use the service and contribute to the goals of the other side in order to get a product or service for a very low price or for free (Eisenmann, Parker and Van Alstyne, 2006). An example of a business platform is a commercial TV company. It has two sides; one is the advertisers who pay for the advertisement spots and the other side is the viewer who, in exchange for watching those advertisements, gets content for free (see Fig. 2).
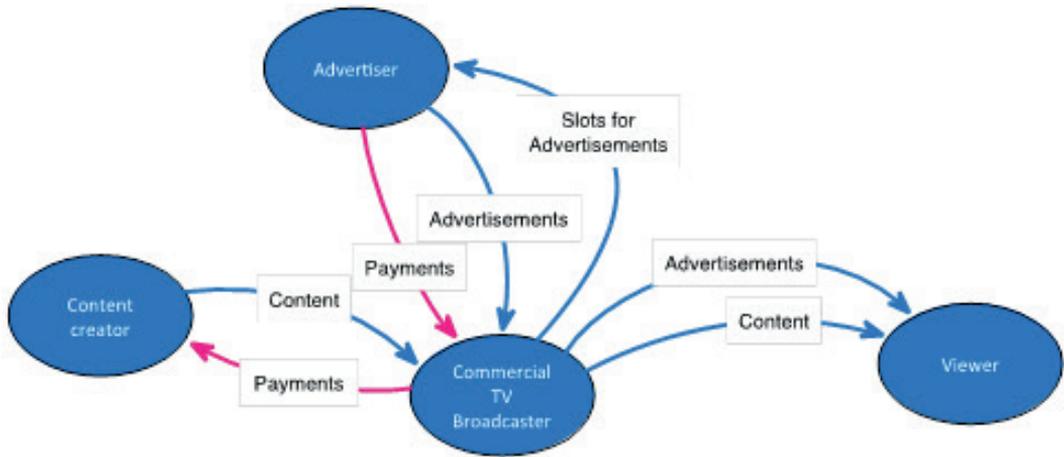
Fig. 2. Commercial TV as Two-sided Business Platform

2.3. Traditional Commercial TV: NBC

The National Broadcasting Company (NBC) is an American commercial broadcast television and radio network. It started transmission of radio programs in 1926 and television in 1939. NBC was initially owned by the Radio Corporation of America (RCA), which was manufacturing radio and TV receivers and transmitters and was also operating broadcasting stations. There was a clear need to offer content to create the need for the consumers to buy radio receivers. Also very early the advertisement-funded business model was born. NBC also bought content from other creators like moviemakers. Thus, NBC frequently combined the roles of content creator and content aggregator. During the next sixty years, the content offered by NBC and in similar models by its main competitors CBS, ABC and Fox consisted of TV shows, sports, news and TV series.

Today the company is known as NBCUniversal. It is one of the world's leading media and entertainment companies. They have four business segments: Cable Networks, Broadcast Television, Filmed Entertainment and Theme Parks. The number of subscribers to their most successful cable networks in the U.S. was approximately 100 million at the end of 2011 (NBCUniversalMedia, 2011). They operate a local television station network, which collectively reaches approximately 31 million households representing close to 27 percent of all U.S. television households. Their filmed entertainment segment consists of Universal Pictures, which produces, acquires, markets and distributes filmed entertainment in various formats worldwide. Their total revenues in 2011 was around $20 billion.

2.3.1. Content Delivery

The main delivery channel of NBC is a nationwide network of terrestrial broadcasting stations and cable TV broadcasting under other brands like CNBC. Today NBC and other traditional broadcasting companies also offer most of their video shows through the Internet, however, only in the U.S. and a day after the television broadcast.

2.3.2. Revenue Model

NBC business segments have several sources of revenue. Fig. 3 provides the structure of their TV business. Cable Networks collect revenues from (1) the fees they charge from the subscribers of their cable networks and were generated from distribution agreements with multichannel video providers ($4 billion), (2) the sale of advertisement time on their cable networks ($3 billion) and (3) licensing and sale of their own programming ($0.7 billion).

Broadcast Television collected revenues from (1) the sale of advertisement time in their broadcast networks ($4 billion), (2) content licensing ($1.5 billion) and (3) other revenue ($0.5 billion) like distribution revenue associated with 2010 Vancouver Olympics. Beyond this, NBC has revenues from film production and theme parks.
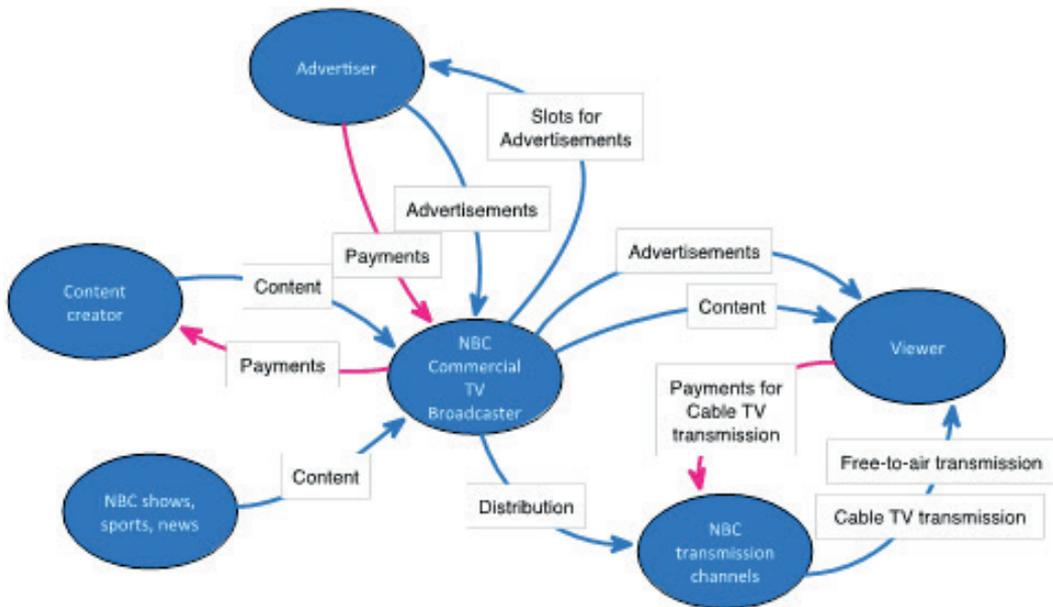

Fig. 3. *NBC, Traditional Commercial TV Business Model*

2.3.3. Discussion

NBC traditional TV is a classic example of an advertisement-funded business model. It has been the dominant business model since the early days of radio and television broadcasting. Its strengths are that it is easy for all parties to be successful: advertisers, viewers and broadcasters. It is also cost-effective for brands with a large number of

potential buyers. Recently this traditional model has been challenged strongly by innovations in technology, which enable the advertisers to target their message to more potential receivers and to measure the effectiveness of their ads better than before. In addition, on the other side, the viewers can choose to look at programs with less or even no ads at all.

2.4. Subscription: HBO

Home Box Office (HBO) is an example of a subscription-based business model. HBO, a subsidiary of Time Warner Inc., is an American premium cable and satellite television network. The company started initially in the 1970's as a distributor using cable TV networks and soon expanded into satellite broadcasting business. In the 1980's, they also started to produce their own content, which during the 1990's became very popular and earned numerous nominations and awards. Their business model is based on viewer subscriptions.

2.4.1. Content Delivery

HBO started as a cable TV and satellite TV distributor. Since then the creation of original programs has become more important. They license their content for distribution over other cable TV and satellite TV broadcasts and free-to-air distribution in many countries. HBO's programming reaches approximately 30 million paying TV subscribers in the U.S. (September 2012) and, in addition to U.S. HBO broadcasts, in at least sixty countries covering about 114 million subscribers worldwide (Time-Warner, 2012).

2.4.2. Revenue Model

HBO's revenues are generated through the fees that Multiple System Operators (MSOs, cable/satellite operators) pay per subscriber per month. HBO does not make money on advertising. HBO does make money in licensing its programs in other countries (Forbes, 2012). HBO's main customers are the MSOs who in turn deliver video feeds to the viewers, as part of the bundled service that includes pay TV, Internet and phone services. The model of the HBO is given in Fig. 4.
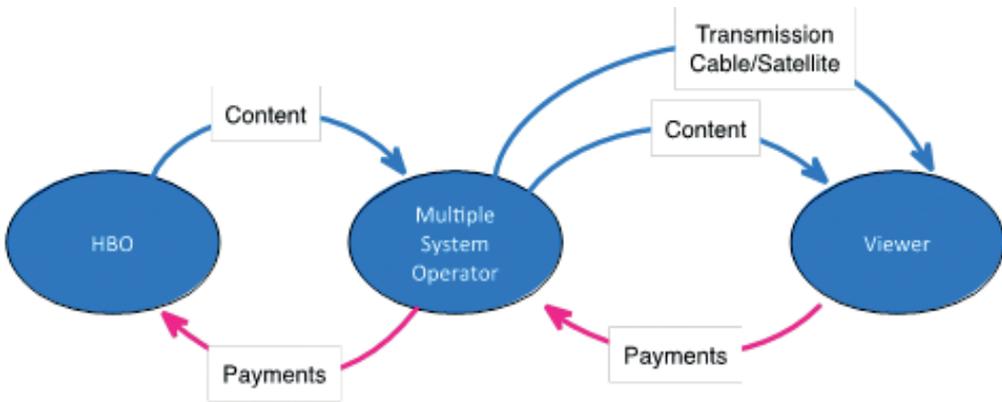
Fig. 4. *HBO Business Model*

2.4.3. Discussion

The business model of HBO is based on delivering quality content to viewers through cable TV operators. Typically, the viewers buy a bundle of channels with the pay TV subscription package from the cable TV operators. Therefore, cable TV operators are helping HBO greatly to sell to viewers. On the other hand, over the top (OTT) content aggregators like Netflix deliver content directly to the viewers using the Internet and bypassing cable TV packages. We predict that the operators' role will diminish and that OTT will be the dominant content delivery method.

2.5. Open Online Video Platform: YouTube

YouTube, a video-sharing website was founded in early 2005 (YouTube, 2013a) by three ex-PayPal employees (Artero, 2010) and was acquired by Google a year later (Associated Press, 2006). The idea leading to the creation of the service was to allow Internet users to upload, share, and watch short online videos easily. YouTube was not the first website to offer such services, and there was substantial competition on the market, including Google's own Google Video service. However, an easy user interface and ability to instantly share new submissions made YouTube stand out to its advantage (Graham, 2005).

YouTube grew impressively: the service posted approximately 3 billion short videos in 2006 (Hopkins, 2006), today 6 billion hours of video is watched per year (YouTube, 2013b). YouTube also attracts more than 1 billion unique visitors per month (YouTube, 2013b), making youtube.com one of the most visited websites on the Internet. The success of YouTube lies also with how users interact with it and how the revenue model is constructed around the vast ecosystem of complementary Web services on the Internet. In many respects, YouTube is the true child of the era of a social Web. YouTube fits perfectly the criteria of Web 2.0 defined by Tim O'Reilly

(2005): it is purely an Internet service, co-created together with its users, giving users a freedom to customize their use and experience.

2.5.1. Content Delivery

From the beginning, YouTube stood out in terms of revolutionizing content distribution among users. Google recognized the potential of mobile video early on by including the YouTube application with the first generation of Apple's iPhone in 2007 (Artero, 2010) when the smartphone phenomenon was only emerging.

Today YouTube is available on most devices connected to the Internet including PCs, various smartphones, tablet computers, TV sets and gaming consoles. Finamore, Mellia and Munafò (2011) conducted a study to compare user behaviour across different devices confirming that viewers acted consistently on all devices. Such consistency helped YouTube to grow and paved the way for the steady generation of revenues discussed in 2.5.2.

2.5.2. Revenue Model

Right from the beginning YouTube relied on an ad-supported business model. The model utilizes a multisided market. Fig. 5 gives an overview of YouTube's business model and participating sides.
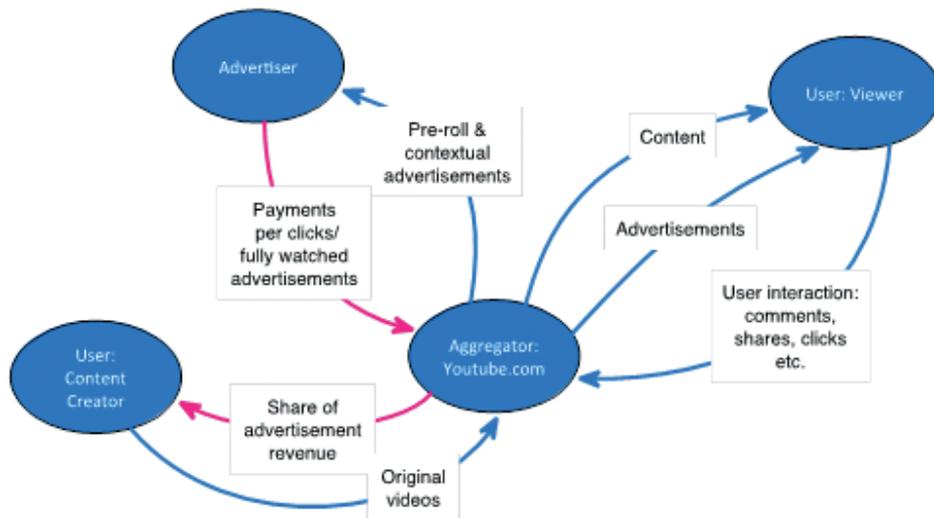

Fig. 5. *YouTube's Business Model*

In the case of YouTube the subsidized side are the viewers and the paying side are the advertisers. The viewer receives the content available on YouTube for free; in exchange they encounter advertisements in the form of contextual text and pre-roll skippable video ads paid for by the advertiser. Skippable ads have been a successful

model for YouTube, where the user can skip the video just after five seconds, and in turn the advertiser pays only for video ads watched fully (Mehrotra, 2012). This is an attractive offer to the advertisers. The viewers are happy as they can choose to ignore ads that do not interest them.

Another party in this multisided market is the content creator. As mentioned previously the users largely create YouTube's content, yet professional video creators are a minority. YouTube offers a special arrangement – "YouTube Partnership Program" – to professional content creators. The arrangement gives the content creators extra features and a share of ad revenues in order to facilitate creation of more videos and attract new creators (YouTube, 2013c).

2.5.3. Discussion

YouTube uses the Internet to distribute content easily to as many people as possible at their convenience. YouTube now also provides most of its content, which is uploaded by the users, for free, subsidizing it with advertisements. These two aspects ensured the wide success of the service, which make it by far the most popular video site on the Internet.

The sustainability of such a model can be questioned. YouTube manages to profit because of its enormous scale, near-monopoly in Internet video sharing and a tight integration with Google, which is a leading search engine in the Western world. It has to be noted also that the content on YouTube is very specific and does not include things like new movies, popular TV shows, or other expensive, copyrighted and popular content. Considering all these, it would be hard to imagine that exactly the same model would be applicable in the context of smaller markets or more expensive-to-produce content.

2.6. Online Subscription: Netflix

Netflix was founded in the United States in 1997 (Netflix, 2013) as a flat rate DVD-by-mail rental company. However, as DVD rental business declined, the company transformed itself largely into a video-on-demand, online streaming service by 2011 (Carr, 2013b). Today it has 37 million streaming subscribers in forty countries around the world, offering TV shows and movies in exchange for a flat-rate subscription fee (Netflix, 2013). While Netflix has built alliances with traditional market players such as cable television providers and movie studios, it is also their biggest competition. Netflix poses a direct threat to companies targeting TV viewers, as it offers the same type of content, with a big collection of on-demand series and movies, cross-device compatibility, affordable prices and an absence of advertising.

2.6.1. Content Delivery

In terms of content delivery and customer interaction, Netflix acts more like traditional media channels than it does a social media one. Netflix also has full control of the content offered in particular areas and markets. The content offered usually

is licensed from original producers. Netflix tries to take on the market share of traditional players and cover all possible devices. Netflix can be streamed through the most popular Blu-ray players, Internet-connected TV-sets, streaming players, home theatres, game consoles, smartphones and tablets (Netflix, 2013).

2.6.2. Revenue Model

Unlike many new Internet-based companies which utilize multisided market models, Netflix is following a tried and true flat-rate subscription model (Fig. 6), very much like commercial cable TV. So far this model is a relative success: according to 10-K submission to the U.S. Securities and Exchange commission, Netflix had a revenue of $3.6 billion in 2012 (United States Securities and Exchange Commission, 2013); around one third of this comes from streaming services.
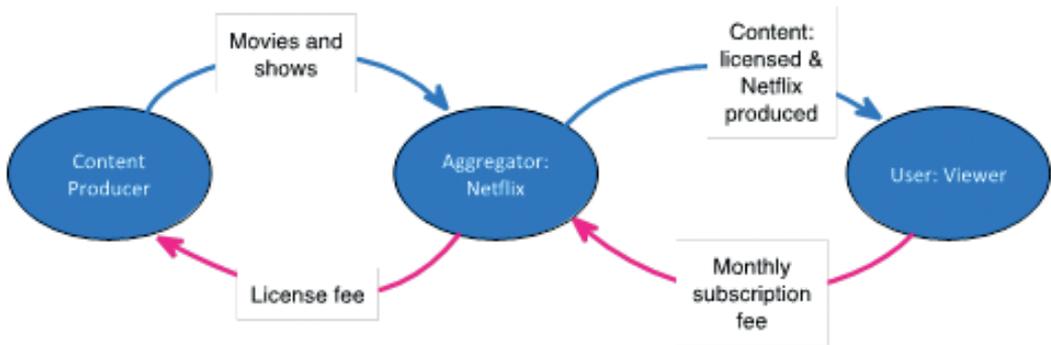

Fig. 6. *Business Model of Netflix*

The major difference between Netflix and commercial cable TV channels is that the former offers video-on-demand streamed through the Internet, while the latter comes by means of TV cable in the form of a live broadcast. Netflix does not offer advertisements to its customers, and profits are based on subscription fees. The cost side of the model is mainly acquisition of licenses for the content as TV channels and movie studios charge Netflix for their content.

A new direction for Netflix is production of its own content. TV series exclusively licensed by the company have had considerable success and put Netflix on par with bigger players in the industry (Carr, 2013a). However, some observers of the industry have questioned the viability of this model. Kosha Gada of A.T. Kearney (Gada, 2013) questions the profitability of exclusive TV series if they are not licensed further to other content distributors. Currently, TV series produced by Netflix break even after two years, while an average subscriber of the service stays with it for twenty-five months (Gada, 2013). Netflix does not license its content, as it is one of the selling points of their subscription; therefore in this setting TV series produced in-house are not very profitable. However, this may change, as Netflix grows, bringing down fixed costs per user.

2.6.3. Discussion

Netflix uses a conservative model from the era of movie rental, where users are charged a flat fee for the privilege to watch their content. Netflix's model is simple and relies on the money that *all* users of the content pay. This model has an advantage as it eliminates the chance of free riders, and reluctant advertisers, which are possible in the case of ad-supported (users skipping ads), or donation based models. However, the maintenance of the content collection requires scale in the number of users. Therefore this model would have a break-even point that needs to be reached fast enough for business to be profitable. The model may prove to be attractive to content aggregators that already have a user base, but expect a switch in the model (e.g., cable TV).

2.7. Online Pay-Per-View: iTunes

In 2003, Apple launched the virtual iTunes store, based on the media player with the same name, where consumers can buy and download digital music and video on demand (Neumayr and Garlinghouse, 2012). Apple's iTunes evolved from a music player to a virtual media marketplace. The most recent version of iTunes, iTunes 11, enables users to buy and download a variety of media content such as songs, movies, TV shows, iBooks, podcasts and gift cards (Neumayr and Garlinghouse, 2012).

2.7.1. Content Delivery

The key factor of iTunes's success is its content delivery model which allows consumers to consume their favourite content anywhere and on various devices (Neumayr and Garlinghouse, 2012). There are many devices such as iPads, iPhones, iPods and Apple TVs – over 315 million devices worldwide (Staff, 2013; Miller and Monaghan, 2012).

Moreover, iTunes enables the consumer to download legally thousands of inexpensive songs and videos through the iTunes store. It offers online sales of over 26 billion pierces of media content including videos, TV shows, songs and e-books (Miller and Monaghan, 2012). The iTunes player has free software with state-of-art features for automatic updates, and it preserves personal security and reliability. The cost of the content is reasonable, which authorizes content delivery to be legal, so consumers are satisfied that they are not breaking any copyright laws.

2.7.2. Revenue Model

The main sources of revenue for iTunes include music (both audio and video songs), movies, TV shows, audio books and iTunes affiliate programs. These sources earned Apple Inc. a total of US$1.4 billion in 2011 Q1 (Dilger, 2011), and the store had sold twenty-five billion songs worldwide by February 2013 (Monaghan and Garlinghouse, 2013).

The revenue model of Apple's iTunes (see Fig. 7) works on the principle of pay per content download (a la carte business model). This allows users to selectively buy

pieces of content, not bundled in any package, such as a music album. Moreover, Apple's iTunes introduced a three-tiered pricing structure in April 2009. The user can buy songs (both audio and video) at three different prices (69¢, 99¢ or $1.29) depending on the popularity of the song (Adegoke, 2009). Similarly, there are pricing tiers for movies and TV shows, depending on the quality and ratings of the content. For instance, the price of feature-length movies in SD format typically ranges from $14.99 (for new releases) to $9.99 (for most other movies), while television episodes, short movies and video songs cost $1.99 (standard definition) and $2.99 (high definition). In addition, the store offers timely bundle promotions on popular movies and TV shows (Pope and Neumayr, 2006).
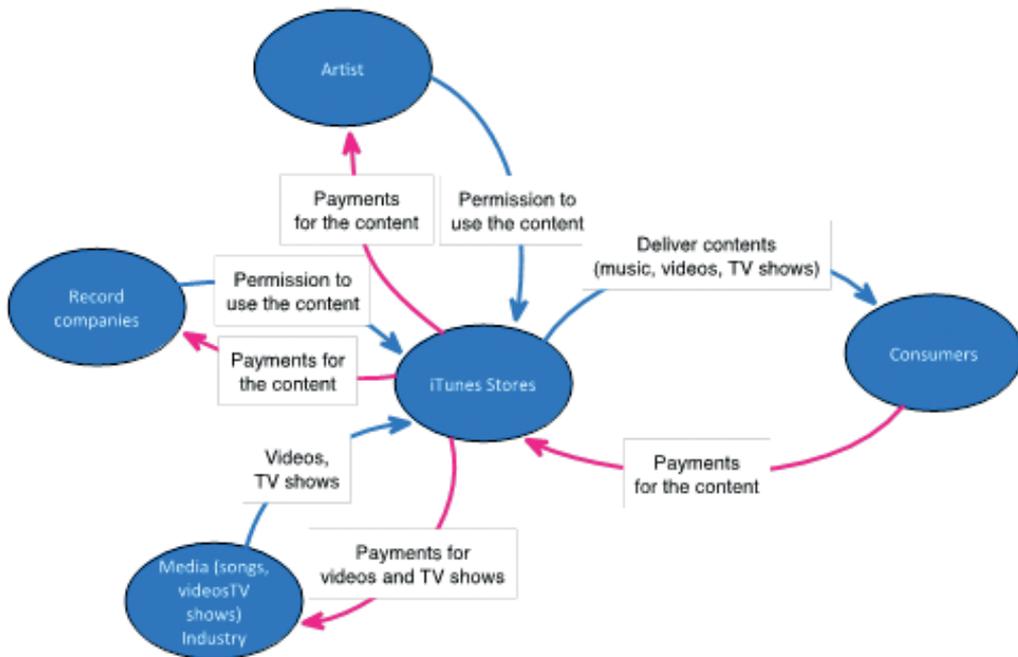

Fig. 7. *The Business Model of iTunes*

2.7.3. Discussion

The unprecedented success of Apple's iTunes is a combined result of efficient content delivery, intelligent business strategy and distinct models for generating revenues. According to Apple's press info, Apple was the leading media content seller in the world in 2010 (Roth and Neumayr, 2010). Apple's iTunes provided the real essence of value and convenience to its consumers by offering the opportunity to consume content on multiple devices. However, this opportunity is restricted mostly to Apple's devices, and many consumers do not like that limitation.

2.8.   Online Piracy: Pirate Bay

Online piracy refers to unauthorized copying and/or downloading of copyrighted or patent digitalized content (Hill, 2007). According to a study (Warr and Goode, 2011), the rate of online piracy in the U.S. is estimated to be 21 percent, which is considered relatively low as compared to other regions of the world where the average rate is 88 percent. The phenomenon of online piracy originated from Napster software. Napster, a P2P (peer-2-peer) file-sharing technology-based program was developed to utilize Internet as a medium for copying music files stored on a peer's hard drive (Choi and Perez, 2007).

The current online piracy model is based mostly on BitTorrent technology, introduced by Bram Cohen in 2001. BitTorrent originally extended the P2P model by facilitating downloading video files from a collection of peers, rather than a single peer, on a bit-by-bit basis eventually decentralizing the content of the video from any single storage (Choi and Perez, 2007). The evolution of online piracy and related technologies promoted the development of more sophisticated content delivery, business and revenue models. In this study, we focus our analysis on one of the public BitTorrent portals – Pirate Bay.

2.8.1. Content Delivery

Pirate Bay is one of the most prominent public BitTorrent portals responsible for a significant portion of the current content delivery model using BitTorrent technology. In addition to Pirate Bay, the other two key players in the content delivery model are content publishers (users) and trackers. Pirate Bay is responsible for hosting thousands of torrent files and provides a user-friendly interface to search the database. Each torrent file contains IP addresses of trackers along with other information related to the content. The user searches for the desired content on Pirate Bay and receives the .torrent file. On opening the .torrent file, the user connects with the tracker to get the IP addresses of all the peers sharing the content. Finally, the user connects with the peers and downloads the content.

2.8.2. Revenue Model

Pirate Bay is one of the key players bringing substantial financial profit to the online piracy ecosystem. Pirate Bay quickly removes any fake or virus-infected content and offers reliable service for torrent indexing, and thus it has a vital role in the ecosystem. As a result it attracts huge amounts of Internet traffic on the portal and eventually becomes a perfect target for profit-seeking publishers in order to advertise their websites and/or content. For example, Pirate Bay has been ranked 94th in the Alexa Ranking and its revenue is around $10M (Cuevas, Kryczka, Cuevas, Kaune, Guerrero and Rejaie, 2010; Jelveh and Ross, 2009)apart from required resources, publishing (sharing.

Most of the revenue for Pirate Bay comes from the ad-supported business model. The model allows various Internet ad companies to place ads on the portal, and in

turn Pirate Bay receives payments for ad placements. The flow of revenue of Pirate Bay is illustrated in Fig. 8 (Sudler, 2013). Moreover, a small portion of the revenue in the online piracy ecosystem also comes from the private BitTorrent trackers. These private trackers offer premium service to consumers and seek donations from them. The premium service includes faster download bandwidth, less latency, and high-quality pirated content. Moreover, these private trackers also earn money from a few Internet ad companies seeking prospective valued customers (Sudler, 2013).
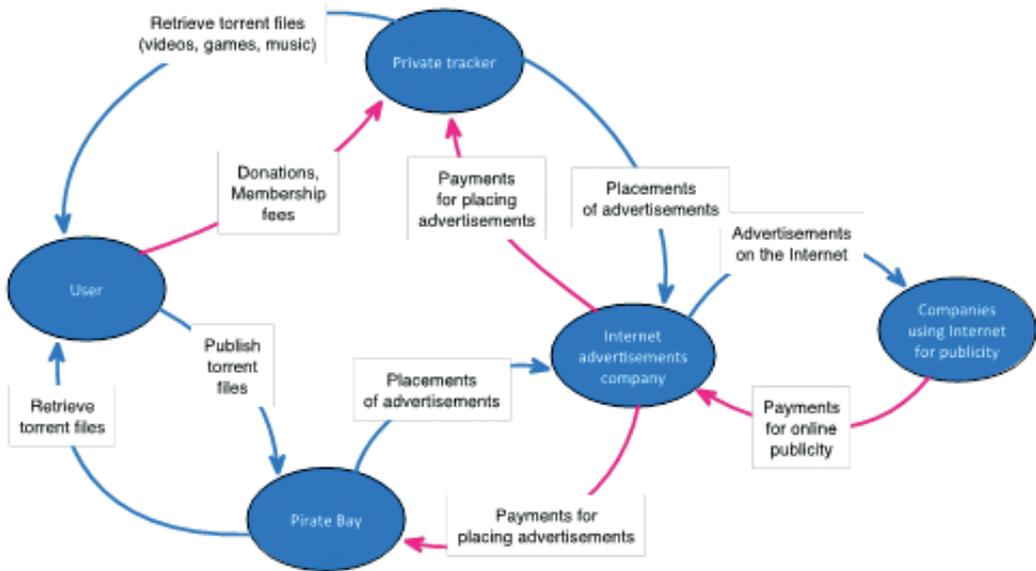

Fig. 8. *The Business Model of Pirate Bay*

2.8.3. Discussion

Piracy in any form is illegal and unethical; however, it demonstrates the feasibility and potential market acceptance for consuming media (videos, TV shows) over the Internet. In essence, piracy is related to the value and convenience to consumers. This fact has been exploited by Pirate Bay, whereby offering reliable content aggregation service and the ability to consume favourite content free-of-charge. However, at the same time, consumers are deeply concerned and unsatisfied with the risk of consuming illegal content, which brings the future of online piracy under debate. Online streaming video service Hulu demonstrated that by providing a choice for people who are willing to acquire content legitimately. "The original idea behind Hulu was to give viewers a legal, TV-on-demand free streams alternative to downloading pirated content, which appears to have worked" (Riley, 2009). In the Swedish music industry the streaming service Spotify already has converted the majority of illegal downloaders to their customers with the easy-to-use and accessible service (Ahrens and Kreidenweiss, 2012).

3. Value

In previous sections we have shown the tangible flows between various market players. They consist of products and/or services what one role gives and the respective money that role receives. In this section, we show the intangible flows, which represent other values in addition to monetary value. An overall diagram of the intangible flows is presented in Fig. 9.
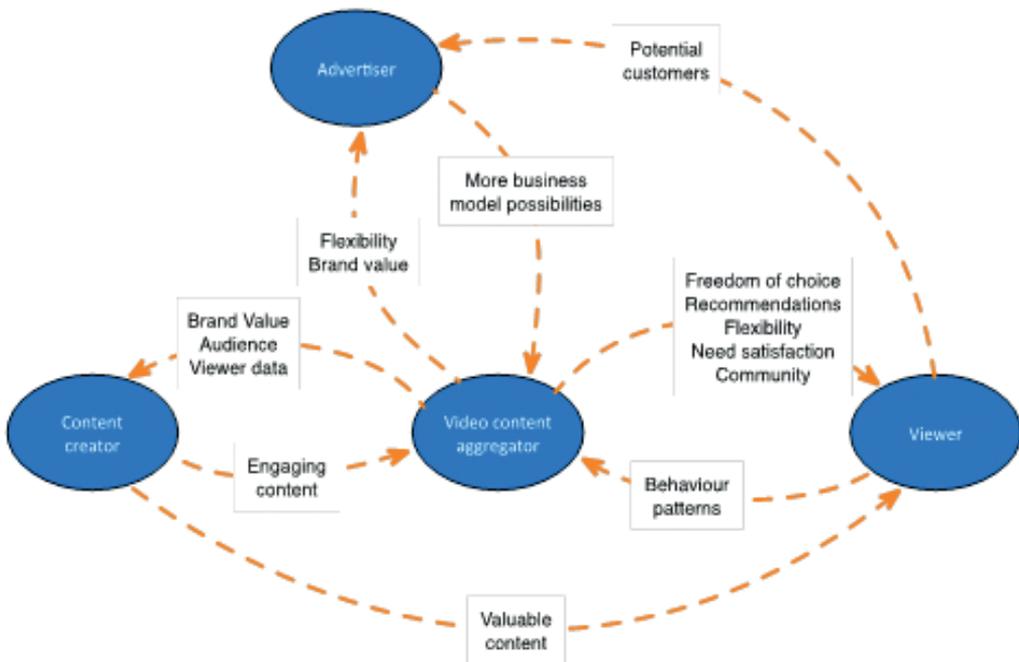

Fig. 9. *Intangible Values*

Intangible values include concepts concerned with the behaviour of the users, their emotions and abstract values such as trust in a brand. For advertisers and content creators it means greater creativity, new ways of engaging viewers and anticipation of their demands. In this section we highlight some of the values that video content aggregators can bring to the involved parties.

3.1. Value to Viewers

The value to the end user, the viewer, has been studied in different contexts. In this section, we will look at the value to the user from two perspectives: the uses and gratifications theory and technology acceptance models. The first perspective attempts to explain why people consume media, while the second has been developed to evaluate whether people will start to use a novel technology or not.

3.1.1. Uses and Gratifications

The uses and gratifications (UG) approach focuses on the reasons behind people's choices to consume mass media (Katz, Blumler and Gurevitch 1973). Understanding the audience's motivations can help video content aggregators create a service that satisfies the needs of the audience and thus generates gratifications that attract the audience to return to the source of the perceived gratification. The UG approach makes some assumptions about media consumption. The main, and most criticized, assumption is that media consumption is goal-oriented, and that the audience actively chooses the medium that they consume. In the past, it might have been a valid counterargument that people do not choose the medium but instead use the medium available to them in their circumstances. However, today, with the plethora of choices of media sources, one could say that the active choosing assumption is truer than ever, although, as many scholars have argued, the level of activity can vary (Ruggiero, 2000). According to the UG approach, the audience makes their choices from the available selection based on their needs, motivations and expectations of the gratifications that they will receive. For example, researchers have found that reading a book satisfies the need to spend one's time in a worthwhile way, while viewing television can satisfy the need to feel connected to society.

In the context of the TV medium, researchers have utilized the UG approach to discover the motivations for TV viewing. The traditionally used motivations are companionship, passing time, habit, escape, relaxation, entertainment, arousal and information (Rubin, 1983). These motivations can be divided into two clusters: social compensation and mood management (Finn and Gorr, 1988). Social compensation motives, i.e., the motives that compensate for the inadequacies in the individual's social life, are companionship, passing time, habit, and escape. Relaxation, entertainment, arousal and information belong to the mood management cluster. Mood management refers to the individual's need to regulate physiological arousal; s/he gets satisfaction from reaching an ideal level of arousal.

When designing a video aggregation service, it also is important to understand that different people have different motives for viewing TV. The results of a study on individual differences show that shy or lonely people seek social compensation from viewing television, and people who are more successful in their social life are more likely to seek mood management (Finn and Gorr, 1988). Another study found that the needs to pass time, companionship, relaxation, and stimulation motivate people who score high on the neuroticism personality trait, while socially outgoing extroverts were strongly opposed to the notion of using television for companionship (Weaver, 2003).

In online user shared video viewing, a study found that motivations are at quite different levels compared with television (Bondad-Brown, Rice and Pearch, 2012). Despite the social features of YouTube, social needs did not motivate YouTube viewers as much as information seeking. For generations born before 1977, there was evidence of a slight compensating use of YouTube, i.e., they watched less television due to YouTube. However, for Generation X, defined in the study as being born after

1976, the authors found a complementary behaviour; they watched YouTube clips of their favourite television shows. Another study also found the information-seeking motivation for viewing online videos but also social motivations in the form of social interaction and co-viewing (Haridakis and Hanson, 2009). In a comparison of online video and television viewing, entertainment and habit were the main motivations to view television (Cha, 2013). Habitual patterns developed over the past decades of television viewing dominate not only the choice of platform, but also the genres that people watch. Relaxation and information seeking were the main motivations for choosing the Internet platform. The study also revealed that the need to relieve boredom is fulfilled today more by online video than by television.

3.1.2. Technology Acceptance

Unified Theory of Acceptance and Use of Technology (UTAUT) was created for predicting whether consumers would adopt new technologies in the workplace (Venkatesh et al., 2003). Later it has been modified to fit the consumer context to predict voluntary switches, i.e., would users switch from following traditional television broadcasting to using online video content aggregators in some capacity? The model is comprised of factors that predict behavioural intention towards using a novel technology. The factors in consumer context are price value, effort expectancy, social influence, habit, performance expectancy and hedonic motivation. These have differing amounts of explanatory power over behavioural intention, and participant variables such as age, sex and experience with particular technology can modify the impact of a particular factor. These aspects moderate behavioural intention to use a technology, which, with facilitating conditions (support, guidance etc.), then predict actual usage (Venkatesh, Thong and Xu, 2012). Of these, habit and hedonic motivation are related to motivations discussed in the previous subsection. Performance expectancy of entertainment can be considered to be the degree to which a technology can answer to the motivations that the user has and thus is related to U&G.

As discussed earlier in the chapter, different types of video content aggregators have different ways of monetizing their services. Generally, users either pay with their money to get an ad-free experience or they pay with their time by having to watch commercials, which both affect the perceived price value of the service. This even has led to technology-led practices of minimizing the price, such as time shifting programs on DVRs for the explicit purpose of being able to skip ads (Notkin, 2006). Working with multiple electronic devices, on the other hand, affects effort expectancy: how easy is the system to use. In the context of online video content, effort expectancy relates both to the playback features as well as to finding interesting content amongst all possibilities.

Content is an important factor in user satisfaction with different media (Palmer, 2002). It also has been established as crucial in relation to novel television technology acceptance (Jung, Perez-Mira and Wiley-Patton, 2009). Different video aggregators can provide different types of content (e.g., only full-length movies or user uploaded

videos which are shorter than fifteen minutes). In addition, even if the content type is the same, e.g., drama series, the individual pieces of content might be different or they might be available at different times. The timing and pieces of content can influence the choice of platform via social influence. Social influence also can predict intention to move away from traditional television (Shin, 2009).

3.1.3. Discussion

Users cannot be seen as a mass, but as individuals, who have different priorities and motivations, which direct their choices. For example, the choice of preferred payment method (time vs. money) most likely depends on the user type – people with tight finances, e.g., young people and the unemployed, might consider that they would rather spend their time on advertisements. Piracy, besides being difficult, has the added price of being illegal, which proposes a certain amount of risk.

The UG studies have shown that currently the main motivations to watch traditional television are habit and the need to be entertained. However, the current trends suggest that long shelf life content is moving to new aggregation platforms. Habit seems to be the main inhibitor of this change. In order to attract habitual viewers of traditional television, the new aggregators should provide an easy way to transition to the new services. One particular aspect of habit is choosing the content.

3.2. Value to Advertisers

Throughout the decades, video content aggregators and advertisers have become two inseparable parts of a whole. Understandably so, as mentioned in the section 2, two-sided market models involving advertisers is one of the dominant business models in the media landscape.

Of all media aggregators, television was, and still is, the most popular advertising channel. This can be easily seen in that company ad spending, on average approximately 60 percent of advertising budget, is spent on TV ads (Nielsen, 2013; Berman, Battino, Shipnuck and Neus, 2009). Moreover, despite the impressive growth in Internet advertising, TV firmly holds its ground (Nielsen, 2013). The success of the medium is based on a number of factors. Television has invaded our living rooms, and even today with an abundance of different media and sharp growth of the Internet, an average American still watches around five hours of TV per day (Nielsen, 2013).

In addition to the sheer numbers TV manages to reach, there is another factor: TV advertising is easy. If the advertiser acquires prime-time spots, the number of potential customers reached is so large that the probability of some positive effect of the campaign is high. However, doubts on the effectiveness of TV advertising have been cast, and more people are talking about the advantages of advertising in the new media, such as the Internet and mobile (Berman, Battino, Shipnuck and Neus, 2009).

3.2.1. Measurement and Advertisement Goals

One big change new video content aggregators bring is the ability to measure the demographics of the audience, its activities and its reactions to advertisements. In the era of traditional TV domination in video content aggregation, advertisers had few indirect measures to determine if ads worked. Namely, TV stations provided station and program ratings in terms of audience, which were based on surveys, and companies whose products were advertised provided reports of sales of the product for that period as well as customer surveys. While all of this provided a good approximation of advertisement impact, the method still resembled carpet-bombing, rather than a precision strike.

Enter the new media! Thanks to the unique identifiers of Internet users and the amount of information they share willingly, it is possible to measure exact things about each user. Besides demographic data, Internet-based video aggregators such as YouTube and Netflix can pinpoint not only the information such as the videos and ads viewers click, but also the extent to which particular videos are watched and the rates at which ads are skipped. Content marketplaces such as iTunes can follow users' purchases and "window-shopping" behaviour to create customized suggestions for a particular user. Some common measurements in the new media include attention, interaction, conversation intensity and tone, velocity and impact of the advertisement (Fisher, 2009).

The value of such information is self-evident. Manager-oriented academic literature points out the growing importance of alternative advertising approaches based on the impact (Berman, Abraham, Battino, Shipnuck and Neus, 2007; Kono, 2009). It can be argued that such an approach brings enormous value to the advertisers, as ideally every cent spent on the advertisement distribution can have maximum impact, coupled with user satisfaction as ads become highly targeted.

The downside of the user data is obsession with and inability to measure it properly. Measurement of ROI (return of investment) in the new media has been a hot topic for the past five years. Measurement methods are introduced at a great speed only to be discarded quickly for another supposedly better one (Fisher, 2009). This complicates the task of the advertisers, as they have to set clear strategic goals for advertising campaigns and make sure the right methods are deployed in order to measure achievements.

3.2.2. Open Exchange and Ad Marketplace

The other departure from traditional ad-supported video content aggregation are the openness of the ad market (Berman et al., 2009) and the availability of various channels with specific costs, audiences, rules and potential impact. This brings two major changes to advertisers: ability to create new types of advertisements and change in cost structure (Berman et al., 2009; Teixeira, Wedel and Pieters, 2013).

Traditional broadcasters have rules and restrictions when it comes to advertising. Limited length of ad spots, fixed ad spots per hour and fixed standards on quality

and type of ad, to name a few. However, new channels such as online video provide new freedom to advertisers. There are numerous examples of video ad campaigns that are made solely for online sources. Among those are ad clips of shoes that are nine minutes long and Do It Yourself ads on a shoestring budget, such as "Will It Blend" campaign by Blendtec (Teixeira et al., 2013). The provided value for the advertiser here is the ability to choose the audience for the ad, achieve fast spreading of the message with immediate impact, and most importantly higher involvement of viewers.

Another change emerging from the new media is the method of ad spot pricing. Traditional TV stations charged fixed prices for ad spots depending of the time of the day and the rating of the TV show, disregarding any other impact of the ad. The new media offers new models. YouTube has successfully implemented skippable pre-roll video ads. Such ads can be skipped after just five seconds by the viewer, and the advertiser pays for the ad only in the cases where the viewer watches the full ad (Mehrotra, 2012). This is the win–win situation, as YouTube does not annoy its viewer with ads, and advertisers pay only for the ads that truly caught the attention of a potential customer.

Frequently, initial pricing policy is different as well. Instead of setting the prices based on aggregators ratings, many new video aggregators set auction systems for the ad spots, where the market decides what a particular ad is worth (Berman et al., 2009). This is possible also because video aggregators can now offer detailed targeting to the advertisers, thus finding the best-suited advertisers who are ready to pay for each spot.

3.2.3. Discussion

New aggregation platforms, enabled by modern communication technologies, hold the promise of enhanced value for advertisers in the form of better targeting and higher customer satisfaction. The trends that drive this value discussed here are: *measurements, changes in advertising strategy* and *aggregator pricing of the ad spots.*

3.3. Value to Content Creators

Different values motivate content creators, such as dispersing information, entertaining, expressing oneself, and becoming rich and famous. In this section, we examine three values that future content aggregators can provide to content creators. First, we look at financial value, which is the main value for most content creators. Second, we consider the audience as a value. Third, data, like viewer ratings, is considered. Finally we examine new opportunities that Internet-based aggregation creates.

3.3.1. Direct Financial Value

Amanda Lotz has written an excellent introduction into the changes in U.S.-based TV production in her book *The Television Will Be Revolutionized* (Lotz, 2007). After regulation was relaxed in 1995, media conglomerates bought networks and studios,

and they are again able to dictate terms to production companies. Currently the largest television productions are deficit-funded, which means that the production company sells an initial license to a network at a lower-than-production-cost, and if the production is successful the production company can license the show to different networks, i.e., syndicate. Syndication enables the release of the content to different distributors at different times.

The different release windows can generate great profits as shown by shows such as "Friends" and "Seinfeld", which originally aired on NBC, each earning over $3 billion through syndication. Netflix also licenses their original programming from production companies. In the case of the hit show "House of Cards", the production company Media Rights Capital sold exclusive rights to Netflix for a limited time window, after which Sony Pictures Television will distribute the show (Media Rights Capital, 2012). However, for content produced for traditional broadcasting, the online aggregators provide an additional distribution window between the debut airing and reruns. Netflix, Hulu and Amazon spend around $3 billion per year to license content, and the spending is increasing (The Economist, 2013). Thus, the value of archives is growing as copyright owners can profit from older programs that online aggregators such as Netflix are acquiring.

On the one hand, as the viewers want to be able watch any show whenever they want, the licensing of content across the globe becomes more important. On the other hand, people want local content, and this is the lifeline for many local companies that function for example only in their national market and in their local language. In addition to original shows, the content creators utilize television program formats. Formats are safe bets for local content creators, viewers and aggregators. A format's success in other countries often predicts a success in new countries. Furthermore, the shows based on formats are safe viewing for audiences, as they instantly know what content they are getting.

3.3.2. The Audience

As the audience grows, the chances increase for show syndication, which in turn increases the number of viewers. Besides the direct financial value gained as the increase of show value to the aggregators, the audience size increases the value of the show's brand. Another indirect financial gain from increased audience size comes from product placement, which has increased in recent years. Global product placement expenditure has risen annually over 10 percent (Warc, 2012), which surpasses the growth rate of all advertisement spending. Product placement in traditional television has been heavily regulated, but recently regulation has relaxed even in Europe (Lefever, 2013). On the Internet, regulation has less effect as the service providers can reside in a country different from the country of use, and enforcing the regulation is difficult due to the large number of service providers. The audience demographics also have an influence on the attractiveness of the service as a platform for product placement.

3.3.3. The Data

New technologies enable the collection of accurate and detailed data from and about the viewers. While in traditional broadcasting, viewer ratings give general viewer demographics based on samples; the new aggregation platforms enable the collection of detailed personal information and detailed behavioural information within the service of all the individual users. The content creator could use the information to predict a show's success and to drive production into a more preferred direction. For example, Netflix used the extensive collection of its customers' viewing behaviour data to help produce the hit show "House of Cards" (Carr, 2013a). However, the decision to share the data with the content creator lies with the content aggregator. Using Netflix as an example again, there is no way of knowing even how many viewers their shows have, and this makes the playing field uneven because traditional broadcaster's viewer ratings are public in the U.S. (Pomerantz, 2013). Demographic and contact details would also facilitate managing customer relationships between and during the viewing of episodes.

3.3.4. New Opportunities

Easy access to the content via Internet on a multitude of devices also has changed the way that viewers consume content. As viewer behaviour changes, content needs to adapt. Especially those viewers who spend much time with social media and are technologically apt are changing not just the content delivery method but also the content itself. More and more often viewers binge-view an entire series or at least watch several episodes back to back. The old staple of a series, the end cliffhanger, is obsolete for people with these new viewing habits. New story formats are being created, and scripts are adapting by becoming more complex with longer story arcs and deeper characters (Steel, 2013). As viewing behaviour is more precisely monitored through Internet viewing, scripts are adapted in order to keep the masses watching. Many scripting professionals see this as a homogenization of stories and less creative scripts as the quantity of the audience leads content, not originality.

3.3.5. Discussion

The new Internet-based aggregators provide a new release window for content, which can be financially profitable. New technology also allows for small-scale content windowing, e.g., a tier system can be used in content release where the most valuable top tier customers receive the content a few days before the following tiers. As a benefit to the customer, the lower price would allow more viewers to enjoy the content, albeit with a delay.

As the importance of product placement increases, audience size and viewer ratings also become more important for the content creator. The more detailed data can be valuable also to the content creation process, particularly if the motivation is to generate hit shows. Providing detailed viewer behaviour data to the content creator can be a competitive advantage to the aggregator.

4. Predictions

Above, we discussed online video aggregation from business models, viewer, content creator and advertiser points of view. It is important to note that not all value can be described in terms of flows of money and flows of content; there are different kinds of values that aggregators can offer to these groups.

4.1. Viewer

The power of the viewer will become even stronger than it is now. The role of gate-keeper, which is usually associated with the aggregator, will shift to the viewer. With linear television, it is easy to choose what to watch, as the choices are limited to what programs the TV stations broadcast at a given time. The mental workload for choosing what to watch is much higher on a service that provides access to thousands of titles at a time, such as Netflix. There is an obvious conflict as the vast selection attracts people, but at the same time the arduous process of selecting repels them. This conflict was also recognized in Deloitte's 2012 report (Deloitte, 2012) which quotes psychologist Barry Schwartz: "Choice is cherished but choosing is a chore."

The content will start to reflect the fragmentation of consumers: with linear television shrinking to mostly news and live events, there will be specialized, personalized online schedules. We predict that the existence of a personalized TV schedule will ease the transition from a linear service to a nonlinear service and further the development of habitual watching. When personalized, the TV schedules will cater to a variety of individuals who have different motivations for viewing television. Serendipity and being exposed to content, which you do not actively choose, will be marginalized. Only big players such as YouTube might still be able to introduce wildly different points of view to the consumer.

Even though the role of linear television broadcasting as the glue of the society will diminish, people still want to bond over content. This will happen via social media connectivity of content aggregators and services which enable viewers to discuss content as it unfolds as in the golden age of linear broadcasting. Janne Paalijärvi, spokesperson of the Pirate Party in Finland emphasizes social aspects: "Adaptive and intelligent user interfaces will be more popular. These UI's have social networking functionality like recommendations, group watching, and chat."

4.2. Advertiser

The role of advertisements will become less noticeable to the end user and at the same time more pronounced to the content creation side. Commercial breaks, such as in linear television nowadays, which are already skipped whenever possible, will become obsolete. Instead, surreptitious advertising will become the norm – anything from product placement to whole pieces of content that are carefully crafted to en-

force a brand message. Producer Riina Hyytiä explains how the influence of product placement and sponsors is growing: "Sponsors are becoming more important as producers look for multiple sources of funding, because production costs are rising with audience expectations."

Paavo Tervonen, head of online video at Sanoma and Nelonen News, wants viewers to tune into their services – whatever their needs, from entertainment to news – and says that video advertising is highly productive and there is great potential for growth. Advertisements will be better targeted. It will not be uncommon for the content creation process to happen fully in an advertising agency where choices are made based on user data rather than artistic vision. Separating advertisement-driven messages from other content will require better media literacy skills from the viewers. The aggregator also can provide data to the advertisers and content creators about their content; this could be a competitive advantage for the aggregator.

4.3. Content Creators

Privacy will become a luxury. The big data state of mind will flourish, and therefore everything about a person's viewing behaviour will be turned into numbers to guide content creation. Viewers who value their privacy will choose piracy instead of letting people know their viewing habits – not out of financial necessity but out of concern. In the words of Janne Paalijärvi, the spokesperson for Pirate Party of Finland, "If harassment of piracy services continues, some form of encrypted p2p is likely to become dominant design. After this chasing single p2p users will become next to impossible." This is also true for people interested in certain topics, such as some subdivisions of pornography. Being able to not share all of your data with the content aggregators requires either enough technical knowledge or money to buy a service to hide your viewing patterns. Most of the population will not be worried about sharing their data, and this data will be well utilized by aggregators, advertisers and content creators.

Future consumers will consume more and more video content in shorter bits. A typical episode in a typical series will be less than ten minutes, and these often will be binge-viewed (Thorpe, 2013). With the advance of mobile, non-disruptive technologies, such as the recently introduced Google Glasses, will make it very easy to tune in to watch video content while, e.g., commuting or waiting for someone – gaps that are currently filled by reading items on a smartphone. The omnipresent high-speed Internet will no longer present boundaries to image quality, long buffering times will be a thing of the past, and switching between devices will be easy.

Society as a whole will be divided further by their media consumption. Those who have enough education, technological know-how and funds can, and will, pay for quality content, distinguish between advertisements and actual content and, if they wish, hide their digital fingerprints. On the other hand, those who cannot afford or do not see the need to pay for content will consume advertisements and blatant

product placement as actual content. The worldviews and values of these two groups will be vastly different, as will the business models that cater for them.

4.4. Business Models

We recognized some important key features of the business models presented above. The most important advantages and disadvantages are presented in Appendix 1, Table 1. We predict that the underlying business models will not change dramatically. Advertisers will still fund the commercial channels, but the advertisement is embedded in the content. This means that the aggregators do not need to license the content, but the advertisers pay both: the content creators for the content and the aggregators to spread their message.

Users want convenience from their video content provider so that they do not need to make choices regarding what to watch. One way to achieve this is by focusing on a particular niche. Topi Lintukangas, CEO of SEK & Grey predicts that aggregators will gather around a theme. This will enable advertisers as well as content creators to reach viewers who are specifically interested in a certain topic, e.g., cooking or surfing. Information security and trustworthiness in itself can be enough of a team for some viewers, but most aggregators will have to aim at branding themselves as trustworthy. Petteri Pulkkinen, Content Delivery Specialist at Mediatrade, says that, as content will be available on various platforms anytime, aggregator branding will determine which aggregator people will turn to. He explains that viewers will turn to the aggregator that manages to reach their hearts (branding), wallets (trustworthy billing) and living rooms. The most trustworthy aggregator brand will win. A new Swedish aggregator Magine also emphasizes trustworthiness towards content creators. The firm wants to gain the support of content producers by making fair distribution and copyright contracts.

Our prediction is that leading aggregators in the future will not compete with multiple theme-centric platforms. Instead, the ease of use is created by utilizing user-based data. Users and viewers will adapt to more sophisticated recommendations or customization algorithms enabled by user data. Advertisers also will want their share of the data and will give their business to those aggregators who provide user data as a part of the deal.

According to Finnish industry representatives, another important aspect, especially in Europe, is catering to local audiences, as opposed to trying to attract viewers globally. CEO of Finnish Elisa Viihde, Kirsi Valtari, says their advantage is local content in the local language: "There will always also be local markets. Viewers want local content; this is the differentiator for local aggregators." Producer Riina Hyytiä agrees that local aggregators are of utmost importance for local production: "The only significant advantage for local producers is language. Producers must search wider for funding, so local aggregators become involved in content production."

Those aggregators who provide content created by advertising agencies for international audiences will have a far wider audience and more stable revenue stream than those focusing only on quality content or exclusively on local content. Additionally, the ability and willingness to adapt to big and small changes in user behaviour in a flexible way will make sure that an aggregator will both attract new users and retain old customers.

5. Conclusion

With the advancements in technology and the Internet, media is undergoing a rapid transition from traditional cable TV to online broadcasting, and in this regard the role of content aggregators has become more significant. In this report, we presented the demands of viewers, content creators and advertisers for the future business model of online video content aggregation.

We found that viewers wish to attain different goals by consuming video content. In the future, viewer fragmentation is expected in terms of what content is consumed, when, where, with which devices and how it is paid for. In other words, different people want different things, and aggregators should be prepared to cater to vastly different needs and desires. Furthermore, we found that habit is one of the main reasons why people watch television, and aggregators must design their service accordingly. Our findings suggest that a personal TV schedule based on the behavioural data of the individual will attract the viewers of traditional linear television and facilitate the development of habitual television watching.

Our investigation revealed that the content creation process is becoming more data-driven, and providing the content creators with accurate behavioural viewers' data can be a competitive advantage to aggregators. Furthermore, the trend of increased product placement in video content can lead to financing productions solely with product placement. The aggregator can then provide the product placement financed content for free to the viewers, while charging them for premium content. Content creators will want aggregators to provide them with extra value, like channels committed to extra footage and archives of certain popular programs.

In the future, advertising will become more complex for advertisers, yet they will have more choices. There are multiple platforms and modes of advertisement delivery; prices for ads reflect their impact more accurately than before (auction-based pricing, pay-per-view/click, etc.). Advertising also will be more measurable and data-driven. The advertisers can test multiple variations and make ads that hit the right target with maximum effect. On the downside, however, customers are becoming more demanding towards the ads and will choose to skip them if they can, unless the ad delivers real value to them (either informational and/or entertainment).

All home devices will become Internet enabled, and the traditional distribution channels, terrestrial, satellite and cable, will not be upgraded to support new tech-

nologies like 4K. Because of the flexibility of the Internet, we will see many more innovative business models for online video content aggregation in the future. The most striking factor for these business models will be the value and convenience to viewers. The value and convenience include the needs and motivations of the viewers, their preferences, personalization, watching habits and culture.

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