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Competing or aligning? Assessment for Telecom operator's strategy to address OTT TV

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Competing or Aligning?

**Assessment for Telecom Operator's strategy to address OTT
TV/Video services**

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Abstract

Up until recently, it was rarely direct competition between telecom operators, cable and satellite Pay-TV providers in digital TV/Video, as their business area were different and value chain was well established. However, technology advance has altered digital TV/Video landscape, made these Communication Service Providers (CSPs) cross other's area and opened door for new actor (OTT player) to enter the market. This triggers second change in the landscape, as it potentially bypasses CSP's role in digital media value chain.

There are generic potential options for telecom operator to address OTT service's treat, where the trend shows gradual shifts toward allowing or promoting. This study assesses telecom operator's reaction strategies to react to this digital TV/Video convergence trend. Our analysis reveals two typical relation patterns in the value network, used by telecom operators based on strategy options above, which are "point-to-point" and "point-to-multipoint" relation model. We explore the underlining motivations that based these strategies, as well as analysis of the eco-systems: actors identification, business roles and distributed responsibilities among them, where we use ARA (Actors, Resource, Activities) point of view to model these value networks.

Key words: digital TV/Video, multimedia services, mobile broadband, business model

I. INTRODUCTION

Video is a key driver in mobile data explosion, which was reported to have grown to 83 % in 2011. According to Allot, video streaming was the largest service accessed worldwide that occupied 42 % global bandwidth, derived from smart phone and tablet booming [1]. YouTube, for example, was responsible for 57 % global video streaming traffic by Q2 2011, equals to 24 % global bandwidth. Meanwhile, Netflix occupied ~ 95 % downstream traffic in Canada and ~ 20 % in US during prime time, from only 1.8 % of its subscribers. Digital video business grows across multiple and connected devices, and it is forecasted to catch other creative businesses, especially game and music.

Nevertheless, video is not representing a strong revenue stream for telecom operator for its own right. Up until recently, it was rarely direct competition between telecom operators, cable and satellite Pay-TV providers, as their business area were different and value chain was well established. Later, the technology advance altered the landscape, made these Communication Service Providers (CSPs) cross other's area. In addition, it also opened door for new actor (OTT player) to enter the market [2]. The CSP is no longer as the sole provider in digital TV/Video business, as the OTT TV/Video player bypass these CSP's role in the value chain, by competing with them using technological advance spurred by the increase of mobile device and broadband penetration.

Although CSPs' service is still not fully cannibalized yet, this definitely brings challenge, as it potentially becomes a main stream in the future. It gives the content owner more choices to monetize their copyright works via different distribution channels and exposes user to a wider freedom of consumption way. The OTT TV/Video business is currently generating much small revenue, ~8 billion globally, and relatively has also a lower quality and availability compared to existing digital TV/Video service offered by CSP. However, this market is growing fast and the quality issues are addressed through different approaches in application layer. This issue will become less important in the following years, compared to the advantages it offers through availability and simplicity.

Furthermore, there are also other considerable challenges, especially for telecom operator. The Internet services evolution and growth of smart phone penetration has triggers user to has a higher consumption demand and expectation for a better quality. This has also a potential to diminish revenue from existing voice and messaging services [3]. In addition, the increasing quality and coverage of network infrastructure, which is originally built by telecom operator to strengthen its core business, result to disintermediation of telecom operator's role as traditional digital TV/Video.

II. RESEARCH QUESTIONS

Indeed, it is clear that telecom operator has to find strategy domains to react to OTT TV/Video business. Nevertheless, digital TV/Video business model using online distribution channel is actually still unclear and the actors are testing variety strategies. Telecom operator in this ecosystem can take several position possibilities. According to [4][5], there are 3 generic general strategies pattern that telecom operator worldwide uses to address the potential treats from OTT service, where the trends across the globe shows the gradual shift toward 2 of them, which are "allowing" or "promoting". The "allowing" strategy is done by competing with the OTT player, while the "promoting" strategy is done by aligning with them. In this paper two research questions are discussed related to the potential positions above:

1. What are the technical and business motivations that underline this competing or aligning strategy?
2. What kind of interaction and relationship models between actors in telecom and Internet industry?

III. LITERATURES REVIEW

In order to analyze the research questions above, we need to see the problem domain in a multitude of perspectives, both in business and technical point of view. This is done by assessing different types of existing business model that are currently used to deliver OTT TV/Video service worldwide, before we can evaluate it from telecom operator's point of interest. However, despite of its popularity among researchers, there is no common consensus on how to define the business model and this term is often used to express different things. The work at [6] classifies various business models written in range of sources into three categories, which might be hierarchically linked to each other, as shown in Figure 1.

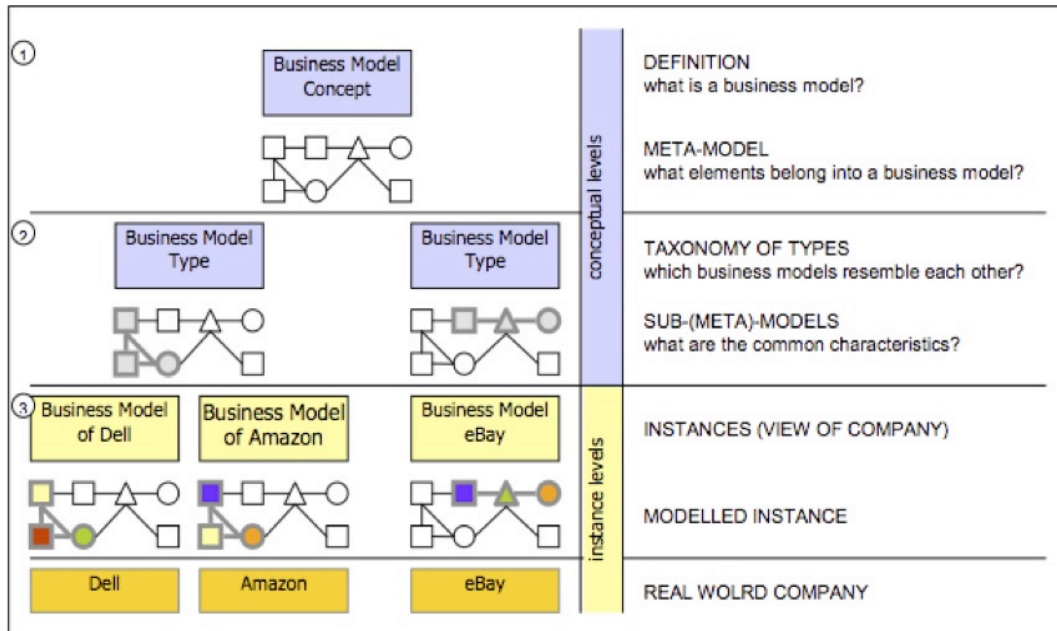


Figure 1. Business model concept hierarchy [6]

First, the business model is stated as a concept that can be used to describe various businesses (**Concept point of view**). This is the abstract layer, which is designed to answer the typical basic definition and/or the meta-model questions. The works in [7] and [8], for example, provide both concept and meta-model framework to express a business model. Business model is also often used to describe a set of business with common characteristics (**Taxonomy point of view**). In [17], for example, the classification of 9 generic forms of e-business models is proposed, based on value proposition and revenue stream. These are *Brokerage*, *Advertising*, *Infomediary*, *Merchant*, *Manufacturer*, *Affiliate*, *Community*, *Subscription* and *Utility model*.

The last common analysis style about business model is the “bottom-line” approach, where writers describe the real world business, such as the particular operating case or

firms' business model (**Instance point of view**). The work in [8] also matches with this category, as it assesses the implemented business models (Xerox's business model). Meanwhile, the work in [9] and [10] cover tele-economic calculation, with the objective to evaluate profitability and viability of a business model, which is radio access network investment for mobile broadband, based on amount of user and forecasted traffic demand (cost and revenue matrix).

There are also concerns raised that business model should also be seen as *cross-firm* collaboration in value network analysis. Focusing to only a single company's perspective is insufficiently suited to address the services that require multi-actors collaboration [11]. Telecom sector itself is also getting complex because there is multitudes of actor outside the industry, with different economic interests, enter the market [13]. Therefore, it is fundamental to identify prominent actors in this ecosystem, their roles, and understand their interaction. Numbers of works specialized to ICT field have broad business model analysis of traditional manufacture industry into variety of actors, interaction and strategy discussion, either in the concept, taxonomy and/or taxonomy point of view.

The work in [18] identifies these types of actor into application provider, application service provider, content aggregator, content integrator, content provider, infrastructure provider, network provider, service provider, and terminal manufacturer. In [20], there is assessment of 2 existing models for multi-actors analysis, one is based on system theory (MACTOR) and other is game theory (Allas model). The new model, MASAM, is then proposed to capitalize and overcome previous' strengths and weaknesses. The cooperation models used by telecom operator to interact with types of actors (partner, competitor and customer) are discussed in [16], using actor, relation, and activity (ARA) model. It focuses to 3 types of service (public mobile broadband access services, services and solutions for indoor wireless access, and mobile payment and ticketing services), by identifying main drivers of cooperation and how to organize it.

In addition, the common lines of reasoning of the partnership between actors are analyzed in [14], which are ***Co-specialization***, ***Cooption***, ***Learning and internationalization***. The *Co-specialization* motive is done in order to make the product optimal and economically scale through help of partner's specialized resource or knowledge, e.g. outsourcing and network sharing infrastructure. The *cooption* is intended to reduce or share risk and uncertainty in the environment, e.g. engagement in a temporary alliance with actor/s that was/were previously competitor (***coopetition***). The last motive is resources acquisition, which the targets are mostly knowledge, data, or customer access. This is also mentioned in [36] as "*accessing complementary asset*". This is done to leverage the existing business model and/or competencies.

The impact of the convergence that happens in the multimedia business was analyzed in [21]. This work explores how this convergence drives change in the competitive strategies of the media and communication actors. It also mentions about multitude of actors form different origins that may attempt to assume most favorable position, and it assesses strategic options that can be taken by these actors in the form of migration and integration. However, this work only point out actors' positioning in the value chain point of view, and actors' constellation in the value network were not covered.

IV. METHODOLOGY

The main objective of this work is to assess suitable options for telecom operator to react to OTT player, especially that offers OTT TV/Video service. In order to do this, we assess the degree to which OTT TV/Video threatens and/or complements telecom operator's Pay-TV service, and how telecom operator should react, based on values of the current implementations of OTT TV/Video business models worldwide, both from business and technology perspective. Video in this term is limited to entertainment aspect rather than communication (video chat, video messaging, video telephony, etc). We evaluate the current state of OTT TV/Video services worldwide, by exploring common characteristics that lie in business models used to deliver online TV/Video services, based on type of service, distribution, and revenue (Taxonomy point of view) [6].

However, there are not just different types of business model exist, but multitude of actors also involve as well that each play similar role in value chain. There have been also inter-relations between these actors that create different value creations in the ecosystem [15]. Therefore, we also review the landscape of the digital TV/Video ecosystem, by identifying these key actors, their relation model, and responsibility distributed among them, as well as drivers and challenges of the strategies used. This industrial background is structured as market maps that consist of telecom operators and other actors in media and Internet industry. In other words, we see the business model as value network of entities, and model it using ARA (Actors, Resource, and Activities).

Apart from those qualitative studies above, we have also undertaken interview sessions with key player in several organizations during February 2012 to March 2012. These interviews covered experts from telecom operators, OTT player, and in TV broadcasting in Sweden. It was done in order to get understanding of the context of these actors' decision, and validate our findings about current state of OTT media services business and each of these actors' strategy in their respective market. These contact persons are relevant due to their expertise and professional activities in telecom and media industry. And each of the interview session was around 1 hour, using semi-structured and open questions, which were framed using framework proposed in [8].

Table 1. Interviewee List

Name	Expertise	Position
Lars Roth	Telecom operator	Vice President Consumer at TeliaSonera
Andreas Liffgarden	OTT Music service	Global Head of Telecom business development at Spotify
Märta Rydbeck	TV Broadcaster	Head of broadcast managed services (Global Services business unit) at Ericsson.

V. EXPLORATORY FINDINGS

5.1. *Technological perspective*

To date, the advance of OTT TV/Video content delivery technology can be assessed in 3 point of views, which are **software**, **device**, and **network distribution** [22]. Digital video content has been available in the Internet since a decade ago, using best-effort mechanism and delivered through web browser. Since then, OTT TV/Video content delivery emerges to range of client-side technologies, such as using dedicated capable device (e.g. Apple

TV, Roku, etc), client-side software application (e.g. Hulu, Voddler, etc) and/or simply using downloadable content that can be played offline with DRM or DRM-free (e.g. Roxio CinemaNow, etc).

In addition, range of devices have been also delivered to the market to support this, which is not just through mobile devices, but also consumer electronics (e.g. Blu-ray disc player and game console), dedicated STB-like devices, USB dongle-based device, and Hybrid STB, with capability to receive online TV/Video content through broadband connection. In network distribution point of view, the available distribution mechanisms have been done via close and open network (CDN, P2P, best-effort), Pay-TV (managed delivery) or Hybrid approach. CDN and P2P technology have become common options used to deliver OTT TV/Video content. Some OTT TV/Video players nowadays are also using hybrid distribution (both CDN and P2P) to further overcome quality and latency issues.

Based on that understanding, the digital TV/Video service can be categorized as pure Pay-TV, pure Internet TV/Video, and Hybrid Pay-TV and OTT TV/Video (bundling). However, since the underlying network used in the OTT TV/Video service is a public open network, the full end-to-end QoS control still cannot be guarantee. The CSP in this case has a better technical capability compared with other actors (CDN provider), as they only able to reach the edge of CSP's network, results on no guarantee in the final stage delivery of the content. In contrast, the CSP's CDN able to provide deep caching as the content is transmitted through their network infrastructure, by avoiding as much as possible upstream point of contention.

5.2. *Business perspective*

The actors in the OTT TV/Video ecosystem are actually still testing a wide variety of business models. This can be mapped into different combination of services, distributions, and revenues models, as shown in Table 1.

Table 2. Service and Distribution models in the digital TV/Video

Service model	Distribution model	Revenue model
Ownership	Content download, physical purchasing	Rental, retail
Access	Streaming (Live/TV, on-demand, catch up TV, user-generated)	Rental, subscription, retail, Subsidied
Integrated	Combination	Combination

As can be seen, despite the variation, the actors in many cases combine multiple kinds of service, distribution and revenue model. However, streaming is currently the primary delivery model used, as we can see it based on amount of user, as shown in Figure 2 below. This is because it offers an instantly satisfying form of access compared to the download-based, especially for long-form contents and mobile device. There is also different usage pattern, where the 'on-demand' or personalization aspect is prominent, with exception only in live event programs, e.g. sport competition or concert.

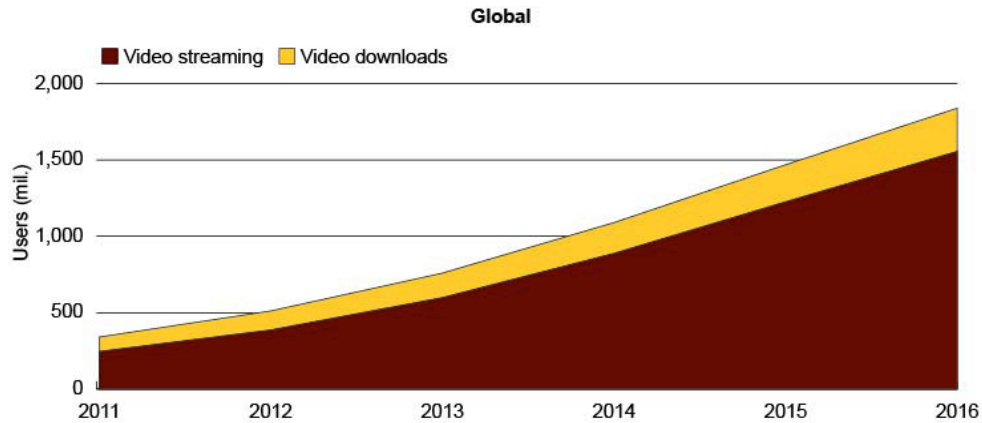


Figure 2. Global mobile video users 2011-2016 [18]

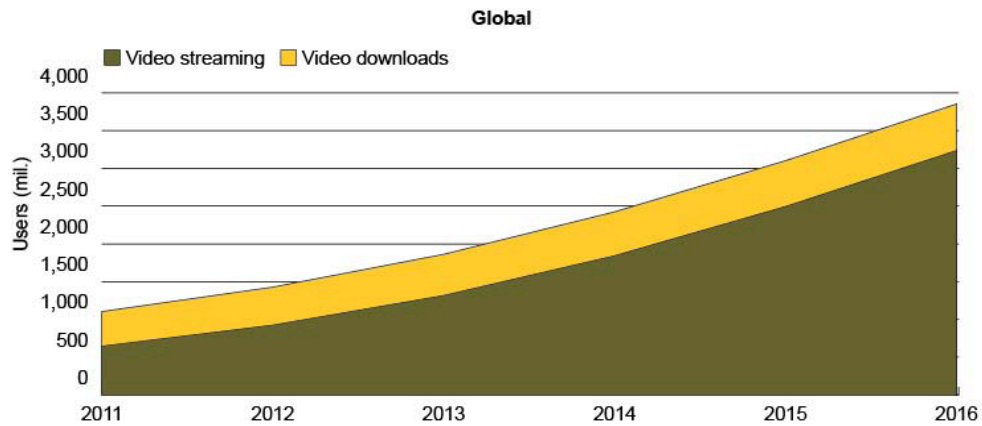


Figure 3. Global mobile video revenues, 2011-2016 [18]

Moreover, there is also other pattern of tendency toward less viewing-time, especially in the viewing access through mobile devices. This can be seen from a small download user and revenue share from total percentage of user and revenue worldwide in mobile. Indeed, this trend is likely to continue in the future and some TV/Video content retailers and service providers have started to offer digital locker feature (see retail revenue model discussion). Moreover, different with the OTT Music business, the actors in the OTT TV/Video business are still “mimicking” the traditional distribution model through physical bundle distribution (see rental and retail revenue model discussion).

In the sections below, we discuss the revenue models used in the OTT TV/Video service, as mentioned in Table 1. We assess significant success factors from each of it, as well as one that have emerged/will emerge.

a. Rental model

In the rental model (Pay-per-view / PPV), user pays for the ability to access the TV/video content over period of time. Beside the download-based (ownership service model) or streaming-based content (access service model), user might also rent this copyright works as physical bundle (e.g. VHS/DVD/Blue-ray disc, etc), and then returns it via mail or drops it off in person to the nearest kiosk. Several prominent players that use this revenue scheme as part of their business model e.g. Netflix, Amazon watch instantly, Vudu, Voddler, etc. The availability of high interest and new release video

content are extremely important in this model, rather than the TV programs and older release video contents [30].

b. Retail model

In the retail model (One-off Payment or Electronic Sell-Through / EST), user buys the TV/video content. This is also still mimicking the traditional model, where the copyright work is offered either as a physical product or download-based content (ownership service model). Several prominent OTT TV/Video players that use this revenue scheme as part of their business model e.g. Amazon VoD, iTunes, etc.

This is classified in [17] as *Utility model* (pay-as-you-go approach), where the fee is based on actual usage rates, which in this case is the number of copyright work bought. Some players have also offered the digital-locker feature, where user can store the content s/he has bought in the cloud and access/download it anytime later. Here, the availability of the high interest video contents are important, rather than the release date aspect, as the transaction is driven more by user interest in viewing the content multiple times [30].

c. Subscription model

In the subscription model, user pays for regular period of time (daily, monthly, annually, etc) to get access to the copyright works. The same model is also mentioned in [17], as one of generic forms of e-business model. Several prominent OTT TV/Video players that use this revenue scheme as part of their business model e.g. Netflix, Hulu Plus, LoveFilm, Amazon Prime, etc. The key success factor in this model is different with retail model, as the size of content library turn as the most important factor to attract subscriber [30]. Although some contents have lasting popularity, the continuation of update library and rotating the availability of popular titles are necessary to help retain viewing interest.

d. Subsidized model

In the subsidized model, user does not pay to get access to the copyright works as other revenue channel supports the business. The same model is also mentioned in [17]. Several prominent OTT TV/Video players that use this revenue scheme as part of their business model e.g. Youtube, Hulu, etc. Typically, service provider is paid by the brand partner based on the advertisements fee delivered to the viewer, either as a non-video advertisement (banner), pre-roll, or placed at intervals within content delivery. It is typically calculated using CPM (cost per mile) mechanism, where the fee is based on the number of advertisement viewed and viewers reached by that advertisement.

Consequently, the OTT TV/Video player, which uses this revenue model, needs to get a large user on as many as possible in order to leverage revenue. Some service providers also add pinpoint delivery features, either based on location, genre, etc to add value or differentiation to the advertisement delivery. The trend also shows that the revenue stream generations from the subsidized-based would potentially overtake the “paid-by-user” models in the OTT TV/Video’s revenue source worldwide, as shown in Figure 4. This model is predicted to dominate the revenue share in a long run, due to the better availability and quality of network infrastructure across the globe, and less significant factor of ownership model (using Retail model).

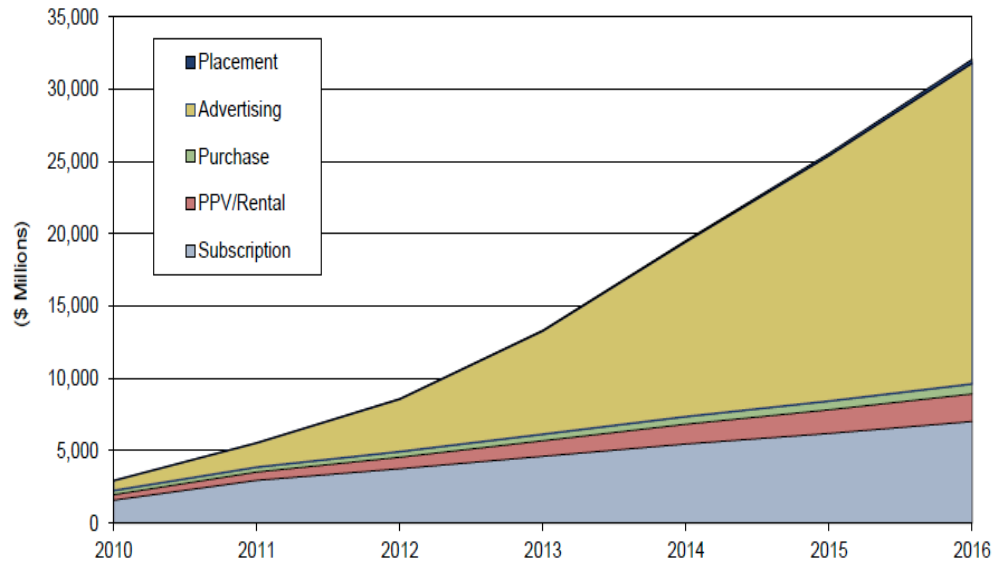


Figure 4. Revenue share from the digital TV/Video [32]¹

5.3. Qualitative Interviews

a. Strategic Alliance between Telecom operator – OTT media player

Strategic alliance is a bilateral and/or multilateral contract and understanding among firms, which mostly used to develop or commercialize new technology [36]. This can be done using vertical or horizontal cooperation, with equity or non-equity model. Also according to this, one form of horizontal cooperation is collaborating with competitor, which is also mentioned by [12] and [14] as *co-option*. This might sounds contra-intuitive, but cooperating with competitor may also benefits in several cases, especially in the ecosystem that has a rapid innovation characteristic.

During the research phase, we have conducted interviewed with Lars Roth (TeliaSonera) and Andreas Liffgarden (Spotify). Spotify and TeliaSonera are currently having agreement in delivering digital online music service to Sweden and Finland. This non-equity strategic alliance is a two-years exclusive deal, which was started in 2009 and then renewed in 2011 for the next two years forward. Although, their strategic alliance is in the digital music business, this can gives us a better understanding about interaction between telecom operator and OTT media player.

They call this strategic alliance as a “*compiling service*”, which makes TeliaSonera a sole exclusive telecom operator in Sweden to use Spotify brand within its products branding and marketing [37]. This is done by bundling and offering promo of free access to “Spotify Premium” plan with TeliaSonera mobile pre-paid and post-paid subscription². Lars Roth mentioned that they have tried to unlock digital music business by building and delivering their own product to the market (Telia Musikbutiken), as he mentioned below,

“We need to have a value that is strong enough so people choose us”,
as well as,

“We actually started with our own service; much more like Spotify...It was under brand, but it was not great... We tried that for half a year and realized that we

¹ In this figure, the revenue share from placement model is separated with the advertisement model

² “Spotify”, available <http://www.telia.se/privat/minasidor/noje/spotify>

needed to spend all our communication explaining 'what the service was', 'how it works', and 'why you should get it'. (At the end) the perception and value we gained from (offering) six months for free was pretty low".

From this statement, it is clear that TeliaSonera previously have put a huge effort in delivering their own digital music service to the market, but still failed in gaining market and other values as they expected. In addition, TeliaSonera main competitor has also launched similar service to the market³. Lars Roth addressed this issue as below,

"Spotify is extremely oriented building the brand through the product. We can't really do that, because our competitor is following us quite fast".

Andreas Liffgarden also mentioned that there are **"cultural differences"** between telecom and media industry that makes *direct collaboration* between telecom operator and media industry does not really work. This brings a need for a *"bridging actor"* that aggregates the objectives of both telecom operator and media content owner. The main objective of the content owner in this case, according to Andreas Liffgarden, is to monetizing their copyright works continuously in a scale based.

Both Andreas Liffgarden and Lars Roth stated that there is no direct agreement between TeliaSonera with content owners in their strategic alliance. However, TeliaSonera was involved in discussions with content owners in order to get discount arrangements for licensing fee of the copyright works, so TeliaSonera be able to offer 6 months free offering of "Spotify Premium" plan within its bundling offering.

In Spotify side, its relation with TeliaSonera is proved to increase its own customer based. At the time when this agreement was launched, Spotify was still young brand and had small market segment. This drives them to acquire customers directly to a higher value subscription ("Spotify premium"), which is still the core of Spotify's revenue source. Lars Roth mentioned about TeliaSonera's role as a telecom operator to this,

"In order to get end-to-end deliver to their service, they (Spotify) need a good network... The other reason is, what we have done in giving trust to new company, it is enormous. Telia is the most trusted brand overall in Sweden. When we pick up a partner, we more and less say this is a partner you can do business with. And also, since we are billing provider for them, we charge our customer and get the money to them...Also our bills are one of the most paid in Sweden, with lowest bad debt as well. So this is a really good channel (in order) to have a continuous relation with customer, especially when they have problem when they do that with credit card".

Indeed, the data shows that during the first term of agreement, Spotify subscriptions through TeliaSonera have increased by ~ 300 %. It was acquired up to ~ 25 % of "Spotify Premium" in Sweden, and IFPI also reported a substantial increase in the digital music sales during that year [38]. The detail of revenue sharing model is not officially announced though, but our interview with Lars Roth informed that TeliaSonera gets some chunk of the profit, which is got from the fee paid by every "Spotify Premium" subscribers that are acquired through TeliaSonera bundling offerings. In addition from this interview, it was also revealed that most of the profit goes toward the content owners. This is also mentioned in [36] as a possible characteristic in a strategic alliance, where distribution of the profit may not be fully equal among alliance partners.

³ Partnership between Telenor with WiMP

b. Broadcasting industry

Apart from interview session regarding strategic alliance between telecom operator and OTT media player above, we also have set up interview with Märta Rydbeck. She was interviewed as an expert in digital TV broadcasting business, due to her previous role as Director of Distribution and Affiliate sales at TV4 until December 2011. During this interview, the main problem that the TV broadcasters are facing when delivering the content in multi-screen strategy, beyond the traditional Pay-TV distribution channel (set-top-box) is revealed. This is called as “*advertising dilemma*”, as explained by Märta Rydbeck:

“(For TV channel) it (mobile channel) is of course a revenue stream, but it does not bring more value to watch it on the mobile (mobile TV) rather than set up box. Actually currently it bring less value, because the TV channels have not sort it out how to deal with advertising on the mobile yet... because, if I watch [name of a TV channel] here (mobile phone), and I watch an advertisement that run on [name of a TV channel], It does not get calculated as a view, I do not get calculated as viewer. Because there is no measurement system today that takes into account the (number of) advertisement that is broadcasted here (mobile phone)... all the measurements set up today are at home (set-top-box). So it is big problem if you look at the increase of both on demand viewing or linear type of viewing on mobile today for TV channel. So people start to switch at their home, to watching only on their mobile and we don't sort this out... The TV channels are facing big problem”.

Indeed, it is not surprising that the TV broadcaster, as a content owner, also makes an attempt to directly reach their viewer directly in the digital distribution, by delivering their own online channel, by passes telecom operator's traditional role that exists in Pay TV ecosystem. In this case, the TV broadcaster acts as OTT TV/Video service provider and provides its own billing relationship with the viewer. Märta Rydbeck addressed this strategy as below,

“(Up until recently) a lot of distribution (channels) are by the operator, so obviously the operators are not so happy with [name of a TV channel] extending beyond its manage network, going over the top... And [name of a OTT TV service] where [name of a TV channel] builds its own customer is huge threat for the (telecom) operator. They obviously want that content in their own network. We said ‘if that is in your platform, we do not get any of the advertising (revenue)’. I mean we are talking PC distribution (digital online distribution in fixed broadband)... ‘It needs to be played in our service, so can calculate on the advertising, whether we have free channel or we have billing relationship with our own customer’”.

From this discussion we can get the glimpse of position bargain that the actors in broadcasting industry can take in the value network. Lars Roth mentioned this happens in music industry as well,

“If you have Michael Jackson, no one else can compete with other Michael Jackson”.

This clearly means that the content owners are the key in the value chain, because there are the main actor, who owns the content / holds the copyright. This makes the TV/Video as same as the music industry have a completely different characteristic with other businesses, where the resource is locked to a party, and no one can have the same

resource. The term of resource in this case is the copyright work. Märta Rydbeck also addressed this issue in the content owner point of view, as she mentioned that as below:

“We (TV Channel) are delivering content that is the significant value to mobile TV of mobile operator or mobile operator that delivers TV”,

as well as,

“[name of a TV program] was the first channel to ask distribution revenue from the operator, all channels until then have been free or charge, or even (several) channels have to paid to get distributed. So we reverse the business model at that time, and said (to telecom operator) ‘if you want to bring content to your subscriber, you have to pay for it as an operator’. This was such a big thing, and they were very upset with [name of a TV program] at that time. They threw [name of a TV program] out of the network, and (said) ‘you will not get distributed anymore’. But the thing is people like the channel, so the operator came back and said, ‘how much do you want.’ The negotiation started”.

According to Märta Rydbeck, this first reversing business model was driven by the fact that the TV channel are actually currently getting less value from mobile distribution channel, compared to traditional pay-TV distribution channel due to “*advertising dilemma*” mentioned above. Thus, it is necessary for them to find a new kind of revenue stream to solve this, especially to respond on the increase access to the content through mobile device. In the Eurosport case, it was done by requiring telecom operator to pay for the content they distribute through their mobile-TV channel. Märta Rydbeck mentioned this issue as below,

“That is why the TV channel, at least [name of a TV channel] and also [name of a TV program] said, ‘ok if you want to distribute channel on the mobile, you better pay us a lot more that you do when you have it at home”,

as well as,

“When it comes to other distribution channels, the priority is of course (still) toward more traditional distribution channel. But we are, as TV channel, is always interested in providing the content where the consumer is. So, if the consumer is here (mobile device), you want to provide the content here, but we need to fine right business model”.

This discussion also revealed the importance of revenue stream from advertising channel, as what we also found in the market report, mentioned previously. Märta Rydbeck stated that,

“... The local advertising is very very profitable for [name of a TV channel] and it is a growing business. The local advertising market for TV is huge in Sweden, and the only competitor in term of local advertising today is the local news paper or local direct mailing, and so on... It (local advertising) is considered more valuable, more expensive, and more (delivery) times... There are lots of TV channels, that have regionalize version, they are facing the same (advertising dilemma) problem”.

VI. VALUE NETWORK ANALYSIS

According to the finding above, it has been obvious that there are not just TV cable, satellite provider and telecom actors that run the digital TV/Video business, as later other actors from a range of industries also able to provide similar TV/Video content directly to end user. As we will evaluate the impact of OTT TV/Video to telecom industry and how the industry reacts to this recent situation, we need to first identify the prominent actors involved in OTT TV/Video business and get an understanding of their roles. By understanding the roles of all key actors, we can explore the established value networks, where each of actors contributes their “core competencies”, create different constellations and value creations. We do this by identifying their prominent relations and then model it using ARA point of view.

6.1. Actors

Despite the dramatic changes in the industry’s landscape, the majority of the actors in the music industry still fulfill their traditional roles, as.

a. Content Owner

The Studios and TV broadcasters are match in this category. They own the copyright of the content and are compensated for the usage of that. The actors in this category are either general TV broadcaster, movie-based content owner (e.g. HBO, Disney, Sony Pictures / Crackle, Universal, Discovery Channel, etc), news-based content owner (e.g. BBC, ESPN, ABC, NFL, Showtime, etc), sport-based content owner (NBA, Major League baseball, etc).

b. Collecting Society

The collecting society (copyright collective, copyright collecting agency or licensing agency) is the organization that handles management rights, and usually operates per country based. The work in [18] classifies this kind actor as content integrator in mobile service provisioning. These rights might include selling and negotiating license fees, enforcing rights and prohibit usage of copyrighted works, collecting royalty payment and distributing it to the content owners, etc. In other words, it acts as a point of contact to acquire licenses and avoid cumbersomeness for third party to navigate multitude of rights holders.

c. Content Aggregator

The content aggregator (content distributor) is the organization that supplies TV/Video content from ranges of content owners and distributes it to the TV/Video content retail and service provider. It obtains range of legitimate rights either directly from content owners itself or via collecting societies, and aggregates the licenses to distribute it. In other words, this actor provides one-stop-shopping services, which is the established negotiation with the broadcasting companies and assures the availability of the content. This is consistent with the finding in [18] that also mentions similar roles in mobile service provisioning.

d. TV/Video retailer and service provider

This party provides video content to the viewer, as the end actor in the value chain. The service provider's role was previously held by the CSP that provides variety of TV/Video contents to their own subscriber via their closed network infrastructure, which often bundled with other service features. Nevertheless, the technology makes it possible for multitudes of actor to play role as a retailer and or service provider of the digital TV/Video content. Nowadays, any parties from range of industries might hold this role, which were previously might never seen in traditional TV/Video business.

These actors can be categorized into three types, which also can be found in the OTT Music business as indentified in [33], as below:

- **Pure player**

This actor has the TV/Video service as its core business, which means they simply mimic and expand the role in the traditional era into the digital and online era. Such examples of the pure OTT TV/Video players are Hulu, Netflix, Voddler, etc.

- **Diversified player**

This actor previously runs the non-TV/Video business. It enters the media industry in order to expand its brands and broaden consumer presence, which is possible following the advantage of the digital and Internet technology. This kind of actor comes from the various industries, such as Amazon, Wal-Mart, Google, Apple, etc.

- **Vertically integrated player**

This actor also previously runs non-TV/Video business. It typically owns platform or infrastructure as based of its core product or service offerings. It integrates TV/Video services into its business in order to increase the value and drive demand to these core offerings. This actor may also come from the various industries, such as cable provider (e.g. Comcast, Time Warner), satellite provider (e.g. DISH Network, Direct TV), telecom operator, or mobile device OEM and OS provider (Apple, Nokia, etc).

6.2. Relations and Networks

The relation between actors inside TV/Video industry in the digital/online era is visualized in Figure 5 above. This is the value network of the “core actors”, which is still same with the traditional distribution era. Here, the copyright works belongs to the Studio and TV broadcasting. The artists' roles are less relevant to be discussed, because they do not hold the copyright. In the case of movie content, the Studio grants the licenses for distribution to the content distributor and/or aggregator, which then grant it to other actors in the value network.

These parties determine how many copies that have to be made and do screening process to the prospective buyers, e.g. Cinema Theater or other content aggregators. Put differently, the studio company is behind the wall. Märta Rydbeck stated this as below:

“We (TV broadcaster) pay to (name of a collecting society) for a right that can not be cleared, for a right that is transferred by the owner to an exclusive organization that can negotiate with TV channel. So in order to distribute TV in Sweden you always have to have agreement both with the right owner of the content, but you also need the (name of a collecting society), if you are in Sweden for example”.

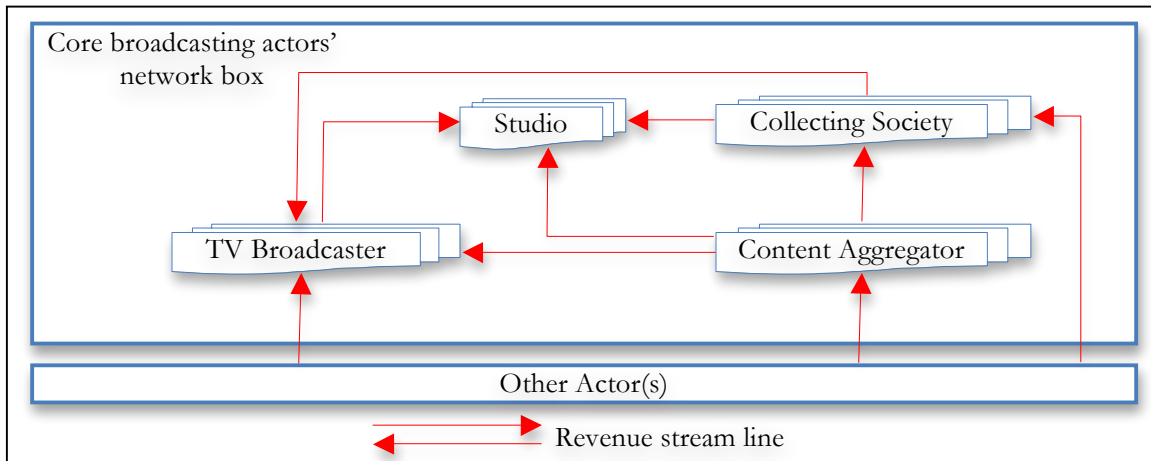


Figure 5. Actors and relations in the digital TV/Video industry's core network
Nevertheless, this is mostly not the case with the TV broadcasting industry, as they directly set up the engagement with the user. As far as we can identify, this “Core network” exist in every models that we will discuss further. Our findings show that the change and variation in the value network happen outside this “core network”, as discussed below:

a. The Direct-to-fan model

Following the rising of online access through range of connected devices, the studio and TV broadcaster also seek opportunity a direct access to their viewers and act as OTT TV/Video service, e.g. SVT play in Sweden, or several TV broadcasters in the UK that launch open platform called Canvas, which enables any broadcasting actors to use it as delivery platform. There are two paths on the implementation, by either collaborating with CE, Mobile device OEM, and OS provider and/or creating their own platform that enables TV/Video content delivery, as shown in Figure 6.

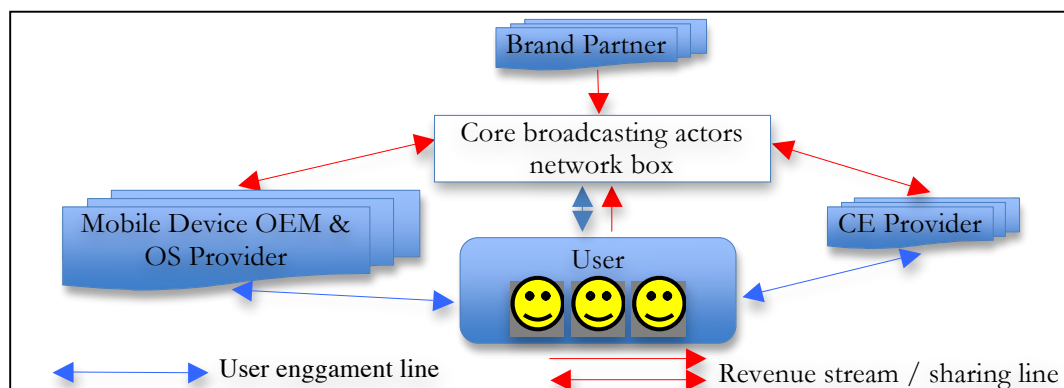


Figure 6. Typical actors and relations of the “Direct-to-Fan” partnership in the digital TV/Video

However, despite the opportunities offered by the online distribution, not all the studio and TV broadcaster attempt to shift to this “Direct-To-Fan” model. Some still see advantages of establishing delivery service through collaborating with other actors in the industry. The telecom operator, have strength over several factors in this circumstance,

e.g. billing and direct relationship with the viewer, capability to reach mass-market through infrastructure and marketing campaign, ability to offer end-to-end quality of the content, investment to acquire desirable content, and flexibility to leverage the service through a range of bundling and revenue streams.

b. The Point-to-point model

In this model, the content owners do not directly engage with the end user. Multitude of retailers/service providers, as discussed above, obtains the license, either directly from the content owners, or via the collecting society and/or content aggregator. They then provide the service or product platform to deliver TV/Video content to the end user. Figure 7 below shows the typical actors and their relations in the digital TV/Video industry using the point-to-point model.

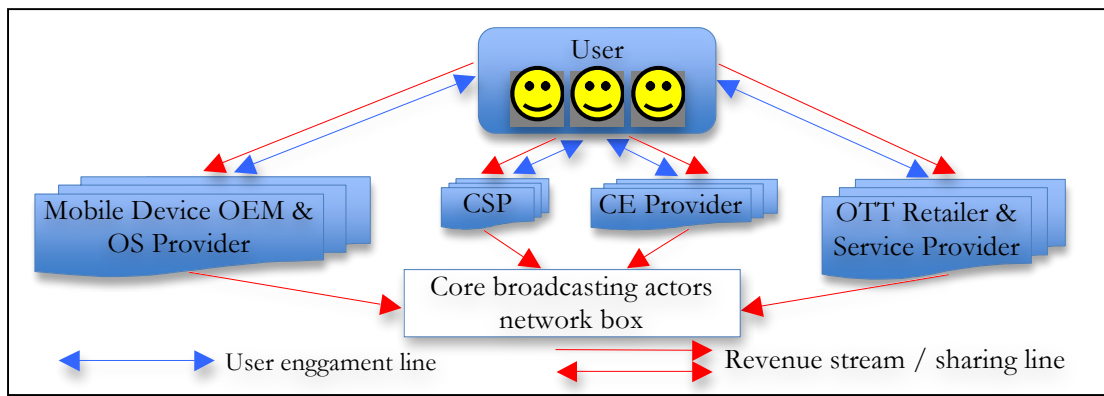


Figure 7. Typical actors and relations of the “Point-to-Point” partnership in the digital TV/Video

In the beginning of the digital distribution, the only value chain exists was the ‘Pay-TV’ where the CSP occupied the market space. As in the traditional era, the viewer only had a choice of what channel to subscribe, but not the content itself. The revenue is split between the CSP, content owners, and/or content aggregator [25]. Each typically receives 40-35%, 60% and 5% respectively from total revenue share [28]. Then, multitude of actors from different industry entered the market and distributed digital TV/Video content via open network (Internet), by passed CSP’s role in traditional digital TV/Video business. This was previously triggered by the content aggregator, e.g. BBC, HBO, etc and leveraged by the Internet players, e.g. Netflix, Hulu, etc.

The CE provider, especially TV manufacture, then also took a role in this ecosystem [24], e.g. Panasonic (Vieracast), Philips (Net TV), etc. The CSP also made a move as a respond to plateau trend in their pay-TV business, as well as to leverage their role in the value chain following the competition from the OTT players [23], e.g. BSkyB (UK), Telmex (Columbia), Modern Times Group (Sweden), etc. This matches with the finding in [34], which mentions type of constellation models used in converged mobile Internet services as “**Telco centric**”, “**Device centric**”, “**Aggregator centric**”, and “**Service/Content provider centric**”.

c. The Point-to-multipoint model

The content owners in this model still play behind the scene, but there is an actor that acts as the bridge between these content owners and other actors outside the core media industry. This actor typically also reaches its own user, thus takes a central position in the value network. In other words, the actors form the horizontal strategic alliance in the ecosystem [36], as they collaborate with other actor that was previously competitor [12][14]. Figure 8 below shows the typical actors and their relations in the digital TV/Video industry using the point-to-multipoint model, where the Internet player becomes the “bridge” actor, e.g. Google (OTT player) partnership with Sony (CE Provider), Voddlar (OTT player) partnership with Tele2 (CSP), etc.

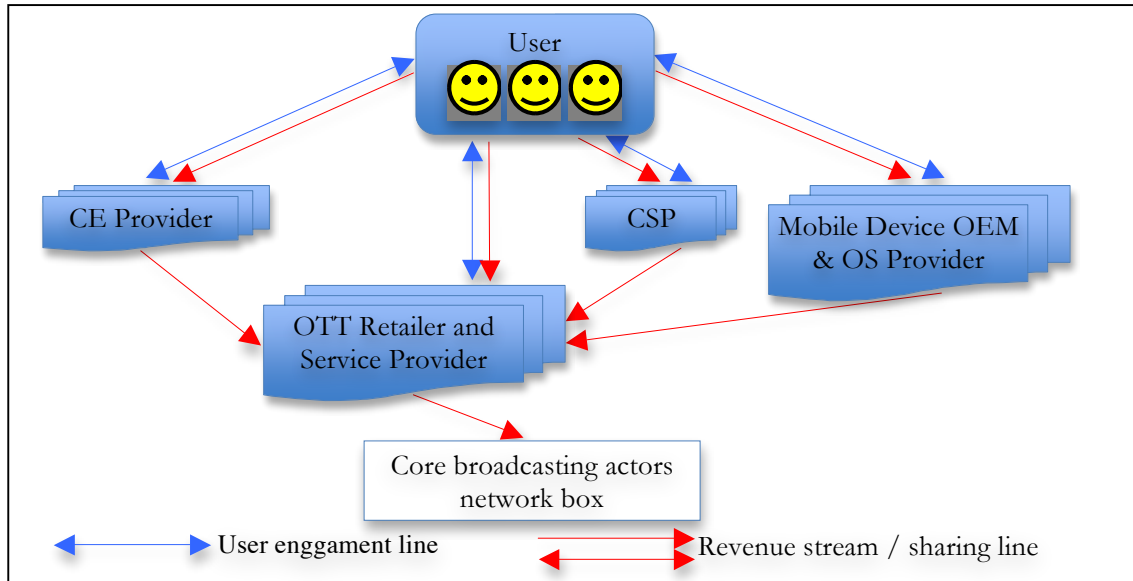


Figure 8. Typical actors and relations of the “Point-to-Multipoint” partnership in the digital TV/Video

As can be seen, range of actors in the group of “Diverse player” and “Vertically integrated player” can collaborate with the “Pure player group. This means, these actors become part in “Aggregator centric” or “Service/Content provider centric” constellation. Here, we can see an alternative position that telecom operator’s (CSP) can take in online TV/Video business, apart from setting up the “Telco centric” model as mentioned in point-to-point model previously. The CSP, for example, can use the opportunity to work with other player in executing “second screen” offering, which is a part of “multi-screen convergence strategy”, complements their existing Pay-TV service.

VII. IMPLICATIONS

The telecom operator is confronted with at least 3 options to react to this emerging service, which are to **do nothing**, or enter the OTT TV/Video business, by either **competing** or **aligning** with OTT player. We evaluate each of this option, by considering key thread-off factors, the landscape of OTT TV/Video business and nature of broadcasting industry, as well as value network in OTT TV/Video ecosystem (actors, roles and relations), as discussed previously.

a. “Do nothing”

The telecom operator can choose to not involve at all in OTT TV/Video value network, leaves the potential of provisioning of the service to OTT TV/Video players and/or focuses to its existing Pay-TV business. This option is suitable for telecom operator that operates in the markets with network infrastructure (broadband) and/or smart mobile device penetration (smart phone and tablet) does not take off yet. In other words, the market as overall is not ready for this service yet.

Nevertheless, this is not strategic for the telecom operator that operates in the market where the OTT TV/Video has taken off. This service is in contrast with OTT music, as the bandwidth requirement from music is low and even the highest-quality music streaming likely only needs 320 kbps. The telecom operator still could tolerate the impact from OTT Music service, especially if the opportunity to gain benefits from the service is small, either because the licensing fee is high or the potential profit is low. This is not the case with OTT TV/Video service due to its “data hungry” characteristic. The impact of content delivery to the traffic load is significant (e.g. Netflix case in North America).

Indeed, the disadvantage of being a “dump-pipe” for telecom operator is extremely high because of OTT TV/Video service. By choosing this option, telecom operator would also miss the opportunity to utilize the long-term benefits from this service. These benefit factors could be as an objective for telecom operator to react to this digital media services, as these are more valuable for their key business in a long term, rather than just to acquire some chunk of the revenue generated. These benefits are:

- Reducing churn rate,
- Acquiring market share,
- Increasing ARPU.

The churn rate can be reduced by exposing user with premium access to OTT TV/Video content and other unique features, which will be canceled once that user stops the subscription plan with their telecom operator. Using this, OTT TV/Video service and telecom operator’s subscription plan are formed as a sticky bundle. The market share can be acquired not just by exposing user with excellent quality TV/Video service, but also by exclusively bounding telecom operator’s and OTT TV/Video service’s brand. Telecom operator can also reduce cost of acquiring new subscriber, because it boosts its brand value as well. Last, telecom operator can increase their ARPU from subscription data plan by turning existing or new user to a higher value subscription, where OTT TV/Video service is bundled into it.

b. “Do it alone” (Competing strategy)

According to the discussion above, telecom operator is not just posed to the issues of managing the traffic, but also to how generate revenue from it. Nevertheless, getting OTT TV/Video retailers and/or service providers to pay for the data traffic generated has found to largely illusory [18]. In respond of this, telecom operator might launch its own brand OTT TV/Video service. In other words, it becomes a retailer and/or service provider (Vertically integrated player) and competes directly with OTT TV/Video actors (Pure and/or Diversified player). Here, it has to acquire license from content owners to distribute content and becomes part of point-to-point constellation (“Telco centric”).

This option might feasible for the telecom operator that has or able to gain sufficient resource to develop, maintain and deliver its own OTT TV/Video service, and/or would

like to move their existing Pay-TV service with multi-screen strategy. However, this is a high-risk approach because the media services (entertainment) are not telecom operator's core business. According to the findings mentioned previously, the revenues directly generated from users are insignificant and the majority still comes from advertisement. This happens because there is still a low tendency from user to pay for the content, and this is predicted to remain. Even if the number of user acquired is high, there is still low possibility for telecom operator to generate large profit, as majority of revenue generated will go to the "core-broadcasting actors" (content owners).

The telecom operator also has to invest in content licensing, platform development, maintenance and marketing. These factors might not be able to make the OTT TV/Video business worth for telecom operator. In addition, telecom operator also has several weaknesses in correlate with the challenges posed in the OTT TV/Video business. Their vertically organization and mass-market approach make them slower in deployment life cycle, as well as when adapting to emerging user's demand and competitors. We can compare this with the nimble culture of OTT TV/Video actors (Pure player). Their focus to the TV/Video business and capability to work in a horizontal partnerships make them has a better flexibility to adapt to the emerging business.

c. "Collaborating" (Aligning strategy)

The telecom operator can collaborate with a good brand OTT TV/Video player in their market and becomes part in the point-to-multipoint model constellation. Although this option sounds counter-intuitive, telecom operator can get share from revenue generated and more importantly still get the 3 indirect benefits mentioned previously, by cross selling this OTT TV/Video service with its core offerings (e.g. triple-play or quadra-play bundling). This option more makes sense for telecom operator, because it offers a similarly compelling OTT TV/Video service but with opportunity to gain at more reasonable and less effort in term of cost and time. Lars Roth regarding TeliaSonera strategic alliance with OTT media player stated: *"They (Spotify) have a super strong brand, we do not need to explain anything, just say Spotify and people (will) get it"*.

In [21], it is also mentioned that the keys in multimedia business is not just user acceptance factor, but also company's core competency. By using this option, telecom operator can reduce effort to develop, maintain, and deliver the service, as it gives an established platform and licensing agreements. They can focus to core telecom services and/or existing pay-TV offering, and share risk with partner in delivering OTT TV/Video service to the market. In return, the OTT player can expand its user based efficiently on a scaled size. Its tie with the big players would potentially give a significant advantage over branding strategy as well as associated telecom services (e.g. integrated billing), as we have found from TeliaSonera – Spotify strategic alliance.

Telecom operator can also take an active role and create a more respective bargaining position in partnership, e.g. by getting involved in licensing process with content owner, enhancing efficiency and end-to-end quality in content delivery (resell CDN), etc [26][27]. Using this, it may bargain for a larger percentage in revenue sharing and/or bulk discount to acquire licenses, e.g. when offering free access during promotion, as we have found from TeliaSonera – Spotify strategic alliance. In this case, a short-time agreement (**non-equity model**) can be used [35][36], so if the partnership form and/or service do not take off or profitable, both can review this agreement and exit at the end of term. There is

also a possibility of a joint venture (**equity model**) and/or become part of shareholders in OTT TV/Video firm [36]. Nevertheless, it demands a higher investment and riskier compared with non-equity model option above [35].

Indeed, OTT TV/Video service is also still viewed as a complementary to broadcast sources, and mostly chosen for catch-up and alternative sources [29]. It has also been found that although mobile device's role in online TV/video business is increasingly important, it still holds a small part of the whole picture ("second screen" device): enhancing experience, helping discovery and social activity. The proportion of TV/Video content in smart phone and/or tablet relatively remains low, especially for long-form content, due to screen size and quality issue [17]. It happens because TV/Video service is different with music, which is naturally suitable for mobility and 'background' access [31]. Thus, this is suitable for telecom operator and OTT player that would like to expand to hybrid-TV (Pay-TV hybrid, Internet TV hybrid) and/or multi-screen offering strategy.

VIII. CONCLUSION

In this work, we have mapped multitudes of actor involved in service digital online media service, which together they form different types of constellation in the value network, as well as the prominent service, delivery and revenue model run by these actors.

Our findings reveal that advertising is the most important revenue channel in digital TV/Video business, which is mostly delivered using access service (streaming). This combination makes the landscape of digital TV/Video business different with digital music industry. The value network analysis and lesson learn from the dynamic of interaction between OTT media player, TV broadcaster and telecom operators also lead us to conclusion that being a part in point-to-multipoint partnership with the well-known OTT player is the potential position that telecom operator should take in provisioning TV/Video services. This should be taken by the telecom operator that run in the market where the broadband penetration is high and OTT media players have entered the market, as the threat of being a "dump-pipe" provider is high TV/Video business ecosystem.

This work is part of on going master thesis research "Business models for Mobile broadband media services", where we especially put Indonesia telecom market as a case study [39]. Here, we also had interview sessions with local industry actors in Indonesia, including mobile operators and mobile service provider, as well as conducted survey to Indonesian mobile users, in order to get understanding of their characteristic toward mobile media services. Our finding reveals that Indonesian mobile users generally have low willingness to pay, but a positive intention and perceive to use OTT TV/Video, especially through their mobile device. However, there is still little focus from the local actors, and especially the MNO, to monetize this need.

We have identified that these MNOs are currently playing dominant role due to high dependency among people to mobile, and low PC ownership and fixed broadband penetration, as well as bank account penetration. Indeed, It would be interesting to study this issue further in the economic and market-based system point of view. One of the examples is predicting the outcome of complex interactions among actors, if the prominent (international) OTT players enter the market in such circumstance. The approach could be to do a micro-economic analysis, e.g. the game theory modeling. This can be used to predict and analyze the further forms of strategy and interaction between these identified actors in the value network of the OTT TV/Video business.

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