Even Magnus Fjeldstad

Structural Separation of Video Streaming Providers

Master's thesis

NTNU
Kunnskap for en bedre verden

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Title:	Structural Separation of Video Streaming Providers
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Problem description:

The video streaming market consists of a few number of large, dominating firms and a number of smaller ones. The vast majority of the video streaming providers (VSPs) are vertically integrated and thereby also serve as content providers, internet service providers, and/or device providers. Studies and observations show that the participants in the market compete fiercely by offering exclusive content on their platforms. This focus on exclusive content may be liable to divert advancement in other areas, such as: Improved user interface design, new features, and quality of experience. By offering exclusive content, consumers are given a choice between only having access to a subset of all available content or subscribe to multiple streaming services. As new VSPs enter the market, they tend to pull out their content from other competing services. Consumers are thus forced to pay more for less content, while the user interface and features remain the same.

A possible way to regulate this market is to structurally separate the VSPs. More specifically, this means to separate their platforms from the content they offer. The intention is to eliminate exclusive content as a means of gaining a competitive advantage in the market. Instead, the goal would be to make interface design and technological features the primary means of competition.

The problem statements of this thesis are:

– How structural separation of platform and content in video streaming services can lead to features, interface design, quality of service, and quality of experience being the primary means of gaining a competitive advantage in the video streaming market.

– How structural separation of platform and content in video streaming services can benefit consumers, lower barriers to entry in the market, and preserve competition in the market.

Date approved:	2021-02-15
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Abstract

Movies and television series are now more numerous and available than ever before largely thanks to the emergence of video streaming services. The video steaming market features some intense competition with exclusive content as the primary way of gaining competitive advantages. Competition with exclusive content is enabled by vertical integration, meaning that video streaming providers are also content providers. This way of competing creates inconveniences for consumers, higher barriers to entry in the market, and stifles innovation and improvements. These problems can be solved with structural separation, which is an antitrust remedy which involves breaking up companies and imposing clear limits in which areas they are allowed to engage in. This thesis presents how the video streaming industry functions and what structural separations are.

By using design science methodology, I have designed a structural separation specifically suited to eliminate competition with exclusive content in the video streaming industry. My structural separation prohibits companies from owning both a video streaming service and video content. In addition, my structural separation prohibits video content providers form licensing their content to video streaming providers exclusively. As my structural separation would make all kinds of video content available to all kinds of video streaming providers, consumers would potentially only need to subscribe to one kind of video streaming service in order to watch all the content they want. No exclusive content would mean that existing video streaming providers would need to find other ways to compete, likely through features, technology, and design. New entrants to the market will not have to invest billions into acquiring exclusive content in order to compete on equal footing with existing participants, lowering the barriers to entry in the market.

The major contributions of this thesis is that it shows that there are major flaws in the video streaming industry and that it proposes a structural separation specifically designed to deal with those flaws. The proposed solution may be used as a foundation for actual implementation of regulations on the video streaming industry.

Sammendrag

Filmer og tv-seier er nå mer mangfoldig og tilgjengelig enn noensinne takket være framveksten av video-strømmetjenester. Markedet består av flere leverandører som hovedsakelig konkurrerer med eksklusivt innhold for å oppnå konkurransefortrinn i markedet. Konkurranse med eksklusivt innhold er mulig gjennom vertikal integrasjon, som betyr at leverandørene av strømmetjenestene også fungerer som innholdsleverandører. Denne måten å konkurrere på er upraktisk for forbrukere, skaper høyere inngangsbarrierer til markedet, og hindrer innovasjon og forbedringer. Disse problemene kan løses ved hjelp av strukturelle separasjoner, som er et antitrust-middel hvor man splitter opp selskaper og setter begrensninger på hvilke områder de kan operere i. Denne oppgaven presenterer hvordan video-strømmetjeneste industrien fungerer, og hva strukturelle separasjoner er.

Ved å bruke metoden design science, har jeg designet en strukturell separasjon som er spesifikt designet for å eliminere konkurranse med eksklusivt innhold i video-strømmetjeneste industrien. Min strukturelle separasjon forbyr selskaper fra å eie både video-strømmetjenester og innholdet de tilbyr. I tillegg, vil min strukturelle separasjon forby innholdsleverandører fra å lisensiere innholdet sitt til video-strømmetjenester eksklusivt. Siden min strukturelle separasjon vil gjøre alt mulig innhold tilgjengelig for alle mulige leverandører av video-strømmetjenester, så vil forbrukere potensielt kun trenge å abonnere på én tjeneste for å få tilgang til alt innholdet de ønsker. Uten eksklusivt innhold blir leverandørene av video-strømmetjenester nødt til å finne andre måter å konkurrere på, mest sannsynlig blir dette innen funksjoner, teknologi, og design. Nye aktører i markedet vil ikke trenge å investere milliarder for å få tak i eksklusivt innhold, noe som fører til lavere inngangsbarrierer i markedet.

De største bidragene til denne oppgaven er at den viser at det er store problemer i video-strømmetjeneste industrien og at den foreslår en strukturell separasjon som er spesifikt designet for å håndtere disse problemene. Den forslåtte løsningen kan bli brukt som et fundament for hvordan video-strømmetjeneste industrien kan reguleres.

Contents

Chapter 1

Introduction

In today's society, many people spend a significant amount of their time watching movies and television series. One of the reasons for this is that video content has become increasingly available through video streaming services such as YouTube, Netflix, Prime Video, Disney+ and many more. As the video streaming market is populated with several video streaming services both large and small, the competition in the market is fierce. Unfortunately not all competition is good competition, as the way video streaming providers compete against each other brings along disadvantages to consumers and serves to increase barriers to entry in the market.

So what kind of competition are we talking about here? Well, if you have ever used a video streaming service, you might have noticed that they all have different kinds of content. This is because the main strategy video streaming providers use for gaining competitive advantages in the market is to offer exclusive content. For example if you want to watch the television series "Game of Thrones", you would have to get a subscription to the video streaming service HBO. If you happen to want to watch five different TV series over the same time period, you might have to subscribe to five different video streaming services if you are unlucky. The reason why video streaming providers are able to exclude others from getting certain content is because they own it. Some video streaming providers own their own studios and can produce their own content, while others either buy content or acquire it through mergers and acquisitions. This competition with exclusive content creates increased barriers to entry in the market, as any video streaming provider who does not own their own exclusive content will be at a disadvantage. As video streaming providers use the majority of their resources on gaining more exclusive content, there will be less resources available for innovation or other improvements.

In the United States and many other countries, there are laws that protect consumers and the process of competition from unfair behaviors from companies in a market. In the United States these laws are called "The Antitrust Laws". Given how the companies in the video streaming industry competes, they are arguably

breaking antitrust laws. When companies are breaking antitrust laws, governments usually impose regulations on individual companies or entire markets. Structural separation is a an ancient antitrust remedy used to end anti-competitive conducts through either breaking up companies or impose clear limits to which areas they are allowed to engage in.

In this thesis I will present how the video streaming industry functions and identify some major problems with it. I will then demonstrate how these problems can be fixed using structural separations. I have designed my very own structural separation that is specifically tailored to address the problems in the video streaming industry. While my structural separation is designed by me, it is still heavily based on historical and present day events featuring structural separations.

This thesis revolves around demonstrating the validity of two claims which I have named problem statement 1 and problem statement 2 (PS1 and PS2).

- PS1: How structural separation of platform and content in video streaming services can lead to features, interface design, quality of service, and quality of experience being the primary means of gaining a competitive advantage in the video streaming market.
- PS2: How structural separation of platform and content in video streaming services can benefit consumers, lower barriers to entry in the market, and preserve competition in the market

1.1   Limitations

Applying structural separations to major stakeholders in billion dollar industries would require large amounts of time and resources. It will thus not be possible to realise any implementations or conduct any sort of testing. This thesis will therefore be completely theoretical. When assessing the effectiveness of my structural separation, I will use my own logic and reasoning based on my own knowledge and experience.

I have chosen to focus on the video streaming industry, because it is an industry which I am familiar with and I believe it has problems that can be solved effectively using structural separations. I have also chosen to only focus on western markets, as most video streaming providers are active in western countries such as the United States. This geographical focus is also chosen because other regions of the world may have different policies when it comes to market regulations.

I will also state that this thesis is written predominantly from an economical, business, and technological point of view. A big part of the thesis will however be

centered around law, which I as a civil engineering student have limited experience with.

1.2   Contributions

By writing this thesis I have contributed in expanding our current knowledge of the video streaming industry and structural separations. In terms of the video streaming industry I have pointed out several flaws that people should be made aware of. In terms of structural separations the thesis provides an example of how such remedies can be used to regulate an industry. While the thesis only looks at one particular industry, many of the same principles can be used to regulate other industries. I believe that the structural separation I propose in this thesis would bring significant benefits to consumers, competition and other stakeholders in the industry and that government authorities should consider implementing it. Finally, I hope that the ideas presented in this thesis will serve as a foundation for future works and open up discussions and bring back attention to structural remedies as a way to regulate markets.

1.3   Reading Guide

Chapter 2 presents relevant information regarding both the video streaming industry and structural separations in order to give the reader the proper foundation needed to understand my reasoning in the following chapters. Chapter 3 explains the chosen methodology for the thesis and present the structural separation I have designed. Chapter 4 contains a discussion about how my structural separation would affect the different stakeholders in the video streaming industry if they were to be implemented. Chapter 5 provides a conclusion as well as suggestions for future work.

Chapter 2
Background

In this chapter I will explain the necessary background material that is either necessary or beneficial to understand the discussion around the problem statements. I have decided to divide the chapter into three parts. The first part will be all about the video streaming industry. We will be defining what a video streaming service is, which companies are present, and how companies in this industry choose to operate. The second part will be all about structural separations. We will be defining what a structural separation is, the various types of structural separations, some history around it, and its status today. The third and final chapter will both summarize and tie the two previous chapters together and provide a motivation for why structural separations should at the very least be considered when regulating the video streaming industry.

2.1 Video Streaming

In the section, I will be using data collected by the consulting firm: Deloitte. They have conducted both an analysis of the video streaming industry as well as a survey with special emphasis on consumer behavior, attitudes, and opinions. Some of the results were published in an article, and I will use some of the results throughout the rest of the thesis, and I will refer to it as "the Deloitte analysis" and "the Deloitte survey". [ALLW21]

2.1.1 Video Streaming Industry: An overview

The video streaming industry is a digital market. A digital market can be defined as a mechanism for the trading of digital goods and services. Such digital markets consists of several stakeholders: Consumer (C), Application Service Provider (ASP), Content Provider (CP), Internet Service Provider (ISP), Infrastructure Provider (IP), and Device Provider (DP). The stakeholders form an ecosystem where each of them depend on each other either directly or indirectly. Consumers buy content from ASPs, internet services from ISPs, and devices from DPs. ASPs buys copyright

content from CPs and content and application delivery infrastructure from ISPs. ISPs buys infrastructure access form IPs. [OA18]
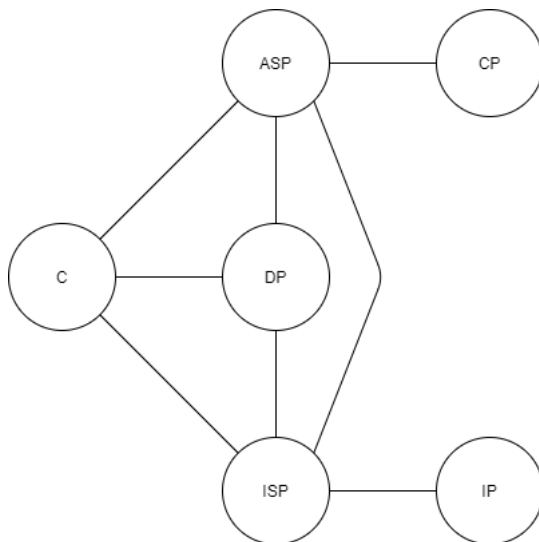
Figure 2.1: Stakeholders in a digital market.

In the context of video streaming, the ASPs are analogous to video streaming providers (VSPs). Video streaming providers are companies who own a video streaming service (VSS). A streaming service is a service that delivers some kind of content to its users instantly and continuously over the internet. When the content the service provides is primarily videos, it is a VSS. Most VSSs offer video-on-demand, which allows users to pick and choose what to watch and when to watch it. Some VSSs also offers live TV, which works just like traditional television (scheduled programming), only that the content is delivered over the internet, rather than over cable or satellite. Content providers are anyone who produces the videos that the VSSs offers, like movie studios and television studios. Device providers are any companies that produces devices which allows consumers to access VSSs. Examples of such devices are: computers, smartphones, smart-TVs, digital media players, gaming consoles, etc. Consumers, ISPs, and IPs are the same entities in the video streaming industry and retain the same roles as they do in the standard model. [Cho20]

2.1.2   VSPs and subscriber count

The video streaming market is comprised of several VSPs. VSPs are sometimes referred to as OVDs [Cho20], but this term will not be used in this thesis. Their associated VSSs have users ranging from several thousands, to many millions. We

can divide the VSSs into two different tiers. In the first tier we find VSSs which have more than 50 million users, and in the second tier we have the VSSs with less than that. Note that the number of subscribers that separates the tiers are more or less arbitrary, I have chosen 50 million because it is a rounded number and creates the biggest difference in subscriber count between the smallest VSS in tier 1 and the largest VSS in tier 2.

Figure 2.2: Divide between larger and smaller VSSs in terms of subscribers.

In tier one, we have four VSSs: YouTube (2 billion users [You]) owned by Alphabet Inc., Netflix (200 million users [Wal21]) owned by Netflix Inc., Prime Video (150 million users [Wal21]) owned by Amazon Inc., and Disney+ (95 million users [Wal21]) owned by Walt Disney Co. [Cho20].

In tier two, there are so many VSSs that it is almost impossible to mention them all. A few notable examples includes, but are not limited to: Hulu owned by Walt Disney Co., HBO owned by AT&T Inc., Peacock owned by Comecast Corp., CuriosityStream owned by CuriosityStream Inc., and Discovery+ owned by Discovery Inc., and Apple TV+ owned by Apple Inc.. [Cho20]

It is apparent that the market is largely dominated by the VSSs in tier one, which has many tens of millions of subscribers more than the VSSs in tier 2. YouTube has so many users, that it should perhaps be in its very own tier. While the video streaming market may resemble an oligopoly, the very presence of a large number of smaller VSSs can mean that the status quo of the market may be suddenly interrupted at any time. As i mentioned in chapter 1.3 "Limitations", the thesis is only focused on western markets, but I will mention here that there are large asian VSSs like Tencent Video who has 120 million subscribers [Wal21]. I have also chosen to focus on VSS with International Presence. Some VSSs are only present in one or a few countries. While these services may have a large influence on a national level, they have a very

limited influence internationally.

2.1.3   Business Models

Like all businesses, VSPs all have certain ways they capture value from their customers. For VSPs in the video streaming industry there are typically three different business models a VSS can use to capture value from its users. A VSS can be: ad-supported, subscription-based, and transaction-based. [Cho20]

Ad-supported VSSs earn revenue indirectly from users by showing them advertisements (ads) before, after and/or in middle of videos. VSSs who follow this business model are often made available to users for free, and instead get their money from advertisers. An example of an ad-supported VSS is YouTube. The very fact that YouTube is free to use, may possibly be one of the reasons why it has a lot more users than other tier 1 VSSs. [Cho20]

Subscription-based VSSs make money by requiring users to pay periodic payments (usually once a month or once a year) for unlimited access to their content library. Examples of subscription-based VSSs are Netflix, Prime Video, Disney+ and YouTube. Users of subscription-based VSSs are called subscribers. Most VSSs are subscription-based, because it ensures a predictable and consistent income for the VSP [ALLW21]. [Cho20]

Transaction-based video streaming services make money by allowing users to pay for permanent access or temporary rental of individual content. Transaction-based video streaming is the least used business model, and is usually used in VSS with multiple business models. That's right, a VSS can use several business models at one. One example is YouTube who uses all three at once. By default, when users are using the service they will be using the ad-supported part of YouTube. YouTube gives its users the option to switch to a subscription-based service, removing all ads. YouTube also allows users to buy and rent movies for a one-time fee, making YouTube a transaction-based VSS as well. [Cho20]

2.1.4   Competition

The video streaming market is filled with several VSPs both large and small. The industry is also a relatively young industry and the market has yet to mature and stabilize. A young market with many competitors may be volatile and highly susceptible to change. In order to improve their positions and keeping themselves alive, most VSPs are focusing on gaining small, temporary advantages due to the dynamic nature of the market. While the market does seem to stabilise around the large tier 1 VSPs giving the market oligopoly properties, the mere presence of smaller VSPs will always threaten to disrupt the status quo of the market. [RK20]

As in most markets, VSPs in the video streaming industry aim to both strengthen their position as well as weaken their competitors, and the VSPs have several means of doing so.

2.1.5   Competition with content

First of all is the acquisition and retention of content. Content is the single most important asset a VSP can have access to. Without access to content, their VSS would not be able to offer consumers anything of value. As consumers are primarily subscribing to VSSs in order to watch content, it it thus important for VSSs to have access to as much content as possible. The VSSs that have the most high quality content will likely be the one most attractive to consumers, which will also be the most profitable ones for VSPs. It is thus not surprising that VSPs spends most of their available resources in order to get more of it and hold on to what they already have. [RK20]

A VSSs can obtain its content in three ways: acquisition, licensing, and production. When acquiring content, the VSS is simply buying the content or the company who currently owns the content. An example is Disney+, who bought 20th Century Fox and Lucasfilm and thus obtained shows like the Simpsons and franchises like Star Wars respectively. When licensing content, the VSS pays the owner of the content a fee and is in turn granted permission to offer the content on its service. The show F.R.I.E.N.D.S for example is owned by HBO (AT&T), but has been offered on Netflix several times. Many VSSs either own or are partnered with content creators, who produce content for the VSS. Examples are Netflix, who has produced a number of successful original content like House of Cards [Cho20]. [RK20].

It is normal for VSPs to spend most their available resources on obtaining and retaining content. For the VSPs that own Netflix and HBO, high quality content is the primary way for them to attract new users and keep existing ones. The exception seems to be YouTube, who is the only one of the major VSSs who don't produce the majority of their content themselves, as part of the philosophy behind the service is that it is supposed to be a platform for which users and independent content creators can share their content. As a consequence YouTube spends most of their resources on marketing. [RK20]

Some VSS have decided to specialise and focus on acquiring and offering specific kinds of content. CuriosityStream for example only offers documentaries on their platforms, and other VSSs offers sports on their platforms. There is also some innovation relating to content in the video streaming industry. Netflix experimented a few years ago with interactive videos, such as Minecraft Story Mode and Black Mirror: Bandersnatch.

Other areas of competition

Subscription-based and Transaction-based VSSs have the option to compete with each other with prices. Prices vary greatly in the video streaming industry depending on the content. Most VSSs who only offer video on demand typically cost between 6 and 15 dollars a month, while certain VSSs that offer live TV may typically cost as much as 50 to 60 dollars a month. Some VSSs grants subscribers discount when purchasing yearly subscriptions instead of monthly. These prices have mostly stayed consistent the past decade, which suggests that pricing is not an active part of the competitive dynamics in the video streaming market [RK20]. There is however a VSS that is priced significantly lower than most other VSSs, namely CuriosityStream which is currently priced at 2.99 dollars. For comparison, one could get almost half a year of CuriosityStream for the price of a single month of Netflix. [Cho20]

VSPs can compete with each other through features. By features, I mean any sort of additional functionality a VSS has that is not critical the storage and delivery of content. Prime Video for example has a feature which shows users which actors are currently on screen when hovering over them, if applicable it will also show the music which is currently playing. Another example is Netflix and YouTube which allow users to download certain content for offline viewing. Most VSS also have personalized algorithms that is able to recommend videos to users based on their viewing history. Another feature that most VSSs have implemented is user profiles. User profiles allows multiple people to share a single subscription, which is quite useful for families.

VSSs can also compete with user-interface and design. Consumers are interested in good looking and intuitive user-interfaces that makes it easy for them to navigate and otherwise use the service. Human resources is also crucial for gaining an edge in the market. Some VSSs make contracts and partnerships with famous directors and actors, and also hire key personnel like market analysts or business executives. [RK20]

Some VSSs are also part of bundles. Bundling is the practise of combining several products and services into a single product [OA18]. Prime Video for example comes along with Amazon Prime membership, which have all sorts of other benefits. YouTube Premium also gives subscribers access to YouTube music as well as ad-free viewing.

As a side-note, it might be worth mentioning that because VSSs have become such an integral part of people's daily life, VSPs are not only competing against each other but also against other forms of entertainment such as video games. As entertainment has become abundant in today's society, companies in the entertainment industry are not only competing for the consumers' money, but also their time and attention

[ALLW21].

2.1.6   Acquiring and retaining consumers

For all VSSs, having many subscribers is always desirable. More subscribers equates to more revenue, which may lead to increased profits. It is thus very important for VSPs to attract new users and there are several methods and strategies to capture the attention of potential new users.

VSPs use advertisements and word of mouth to spread information about its VSS's existence. A consumer seeing a cool advertisement or hearing about cool content from friends, family, or co-workers are likely to check out the service at some point. Some VSSs even advertise its competitors, for example ad-supported YouTube has previously put advertisements on videos about the upcoming season of Game of Thrones, which is only available on HBO. Subscription-based VSSs have a paywall, and consumers will have to access whether or not the price is right for the amount of benefits they will get form the services. Ad-supported services usually have no such paywall, and consumers can use the service immediately. Subscription-based VSPs are aware of this and usually offers new users access to their services for free for a limited time (usually 2 weeks or 1 month). According to the Deloitte analysis, a VSP can spend up to 200 dollars per year on marketing to acquire a single subscriber. This would mean that a consumer would have to be subscribed for 1-2 years in order to make it worth it. [ALLW21]

In the Deloitte survey people were asked: "Why did you subscribe to a specific streaming service(s)" [ALLW21]:

- To watch a broad range of shows and movies (51%)

- To watch new, original content not available anywhere else (45%)

- To watch previously released content not available anywhere else (27%)

- To get an ad-free viewing experience (17%)

- To access shows and movies appropriate for children (16%)

- To get a free trial or discounted rate (24%)

- It came bundled with other services I want (15%)

Not surprisingly, people are mostly subscribing to particular VSSs because of the content it offers. Gaining users is however only the first step for a VSP. The second and perhaps harder step is to make sure that the new users are satisfied

and wants to continue using (and paying) for the service. There are no barriers to exit regarding VSSs, a user can at anytime stop using the service by ending their monthly subscription. With many services and no barriers to exit, people are constantly switching between services, starting and ending their subscriptions at need. [ALLW21]

In the Deloitte survey, people were asked why they canceled their subscription(s) [ALLW21] :

- It was too expensive (36%)

- Free trial/discount ended (35%)

- To replace it with a new paid subscription service (17%)

- I have access to the content I want via free, ad-supported streaming video service (14%)

- I finished watching the show, or series, that led me to subscribe in the first place (24%)

- Lack of new content I am interested in watching (11%)

- Lack of live sports (13%)

- Content I liked to watch disappeared from the platform (17%)

Based on these answers, we see that people don't like paying for access to content they don't like. While access to exclusive content may be enough to make consumers subscribe to a VSS, it is not necessarily enough to keep them. Once users have finished watching the content they subscribed for, why should they stay subscribed? A common process is that consumers will subscribe to a VSS and receive a free trial. This free trial is usually enough time for the consumers to watch the content they were interested in. Once they have watched the content they cancel the subscription before it converts to a payed subscription. This consumer has now consumed the product without paying anything. This is a major problem for VSPs: How can they incentivize their users to continue using the service? [ALLW21]

Deloitte also asked people what would convince them to stay subscribed to a VSS [ALLW21]:

- Being able to switch to a reduced cost, ad-supported version of the service (28%)

– The release of an exclusive new movie or series I want to watch (27%)

– The ability to purchase new movie release the same time they are released in theaters (23%)

– Ability to add more profiles, so multiple people can watch at the same time under the same account (22%)

– Ability to download and watch content offline (17%)

– Getting discounts on related merchandise and entertainment (18%)

– Ability to watch shows and movies together with others through a social platform. (18%)

Again, it seems like people want access to new exclusive content. It thus makes sense for VSPs to make sure that they are able to keep releasing new content on a regular basis. People also want to pay less. When there are lots of interesting content available, a consumer would be willing to pay more, but while there is little interesting content, a consumer might not want to pay anything at all. Then there are several points where people say they would like more features like being able to watch content offline, being able to watch content with others, sharing profile with others. It's interesting to consider that VSPs are using a lot of resources in order to attract users by satisfying their need for new exclusive content, while neglecting their demands for unique and innovative features.[ALLW21]

2.1.7 Vertical Integration

The video streaming market is populated by vertically integrated companies. While VSPs are by definition application service providers (ASPs), many VSPs have started producing their own content, making VSPs content providers as well [Cho20]. The majority of the large VSPs offers their own original content on their VSSs including: Netflix, HBO, Prime Video, Hulu, YouTube, Apple TV+, Disney+, Peacock and many more [RK20]. By owning content, VSPs are able to decide who gets access to that content. In some cases a VSP will decide to make the content available exclusively on their own VSSs, while in other cases they will license the content to other VSPs for a fee. Some VSPs like Prime Video and Disney+ have their own studios, which produces content for their VSSs [RK20]. Other VSPs like Netflix do not have their own production studios, but hires other studios to produce content for them [RK20]. VSPs are not only producing their own content, but also acquires existing content by acquiring companies who own the content. An example is Amazon, who recently acquired the studio MGM [Bø21]. MGM is a large producer of movies and television series and owns famous content such as the James Bond movies and the Rocky movies [Bø21].

Since VSPs may act as both ASPs and CPs, a more accurate model of stakeholders in the video streaming industry would be:
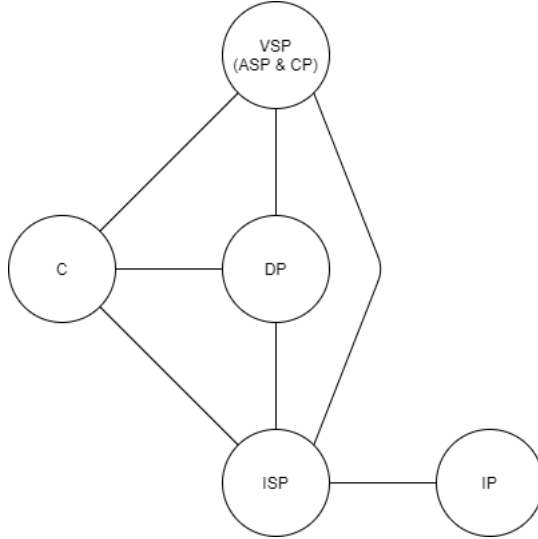
Figure 2.3: Stakeholders in the video streaming industry

As offering exclusive content is currently the most effective way for VSPs to both acquire and retain consumers, the way to stay ahead of the competitors is to have as much exclusive content as possible. VSPs who do not own any content of their own will be at a competitive disadvantage. It is thus very hard for any new entrants to succeed in the video streaming market, as they would need to produce or acquire content in order to compete. The only new entrants that have a chance of succeeding in this market seems to be large well established content providers like The Walt Disney Co., who already owns a vast collection of content.

Vertical integration does not end with the fusion of ASPs and CPs. Some VSPs have integrated into other areas of the industry making them assume the role as other stakeholders in addition to being both an ASP and a CP.

All VSPs are dependent on information technology services like cloud computing and content distribution networks (CDNs). These technologies enables them to store their vast content libraries and deliver the content to their subscribers. Companies who provide such technology can be considered as infrastructure providers (IP). Several VSPs have parent companies that operates/provides such technologies: Amazon who owns Prime Video, also provides Amazon Web Services (AWS). Alphabet who owns YouTube and Apple who owns AppleTV+ also own their own content delivery

networks. Some VSPs like Netflix does not have their own CDN, and instead uses Amazon's AWS. This puts Netflix at a direct disadvantage compared to its competitor Prime Video. While Prime Video may enjoy the use of AWS without costs, Netflix will have to pay for it. Strangely when Netflix started out, it actually had its own CDN but decided to switch to AWS later on. Apparently the costs outweigh the benefits in this case. [Cho20]

VSPs rely on internet service providers (ISPs) to deliver its content to users. Some VSPs are also ISPs like AT&T who owns HBO, and Comcast who owns Peacock. Some ISPs may offer their customers free access to their associated VSSs, a type of bundling. [Cho20]

Some VSPs also produce digital media players, making them a DPs as well as ASPs. DPs are able to decide what applications will be available on their devices, which enables them to exclude competitors or require them to pay a fee for being included. [Cho20]

In order to understand the power and efficiency that comes with heavy vertical integration, consider the following example: Amazon produces a new television series through its own production studio: Amazon studios. When finished, the series is made available through Amazon's VSS: Prime Video. Prime Video uses Amazon Web Services to store content and deliver it to consumers. Consumers may choose to watch content on Prime Video using Amazon's media player, which consumers can buy on their e-commerce store: Amazon.com. Through vertical integration, Amazon essentially operates at every single level of the video streaming industry's value chain. [RK20]

VSPs are not only integrating vertically, but also horizontally. AT&T (owner of HBO) and Discovery Inc. (owner of Discovery+) recently merged, combining their content and other assets. [MR21]

2.1.8 Regulations

In the United States today, there are no regulations in place that specifically targets VSSs and VSPs In the United States, the Federal Communications Commission was created to regulate the telecommunications and television industries in 1934, and continues its functions today. The FCC recognises that VSSs are similar to television and has considered regulating VSSs similarly to television. The FCC does however not typically involve itself with content or information transmitted over the internet. It is possible that in the future the FCC will decide to include VSSs in their regulations. [Cho20]

Although there are no specific laws and regulations that restrict VSSs, general

antitrust laws still apply. In cases of anticompetitive behavior a VSP may face charges by the U.S Department of Justice (DOJ) and the Federal Trade Commission (FTC). An example is AT&T, who in 2016 wanted to acquire Time Warner Cable Inc. and Bright House Networks LLC. The merger was approved by the FTC and DOJ on the condition that they didn't make it more difficult for other VSSs, to obtain content. The merged company later asked for this condition to be removed, as they claimed the video streaming industry was flourishing, making the restriction obsolete. [Cho20]

2.2   Structural Separation

Structural separation is a traditional key antitrust remedy that have been used several times throughout history. In this section, I will provide an overview of antitrust and anti-competitive conduct. I will then explain what structural separations are and how/why they are used. After that I will present some historical cases where structural separations have been involved. Finally I will talk about the state of structural separations today.

Please note that I have previously written a project about structural separation in a different context, and this section is mostly based on that project [Fje20]. The structure, sources, and points mostly remain the same, but has been reviewed, expanded, and rewritten.

2.2.1   Antitrust and anti-competitive conduct

Ideally, a free market consists of several firms competing against each other in order to create the best products and services for consumers. The process of competition yields multiple benefits for society such as lower prices, improved quality, innovation, and variety. The interests of consumers does not always align with the interests of companies however, and some companies might choose to execute certain actions in order to lessen the competition in order to increase its position. Fortunately, governments are aware of this conflict of interests and strive to protect both consumers and the process of competition. Governments thus have a set of laws which prohibits certain actions that may result in harming either consumers or competition. These laws are collectively named the Antitrust laws. [Com]

In the United States antitrust laws comes in packages called "acts". Each acts usually focuses on a specific type of indicative conduct. At the core of antitrust there are three acts: The Sherman Act, The Federal Trade Commission Act, and The Clayton Act. The Sherman Act was the first antitrust law and was passed in 1890, and generally outlaws any attempts at monopolization and restraint of trade. The Federal Trade Commission Act was passed in 1914, and focuses on prohibiting

any unfair or deceptive methods and practises. The Clayton Act was also passed in 1914, and is focused on prohibiting any mergers and acquisitions that may harm competition. Throughout the years, several other such acts have been passed which outlaw more specific conduct. In the United States, antitrust laws are mainly enforced by the Federal Trade Commission (FTC) and the U.S Department of Justice (DOJ) Antitrust Division. Antitrust laws are made vague and general on purpose, and companies accused of breaking them are judged case-by-case. [Com]

There are many types of actions a company in a market can conduct that may be considered as breaking the antitrust laws. One example is cross-subsiding, where a company active in several markets uses the profits made in one market to cover the losses of another. A company being cross-subsidised are not required to make profit, and may use unfair methods of competition such as predatory pricing. Predatory pricing is the practise of setting prices below the cost of producing a product [Kha16]. This gives the company a big advantage in the market as they are able to offer products and services at significantly lower costs than companies who are not cross-subsidised. Another type of anti-competitive conduct are mergers and acquisitions. While mergers and acquisitions can promote efficiency and scale, it is usually harmful to competition. When one firm acquires another, the acquiring firm will gain every asset of the acquired firm, strengthening its own position in them market and getting rid of a competitor in a single stoke [GL20]. Vertically integrated companies who control essential platforms, networks, or facilities that other companies rely on may conduct a number of different anti-competitive actions like denying access to competitors or prioritising their own products and services [Kha19].

2.2.2 Structural Separation: An antitrust remedy

The enforces of the antitrust laws have a number of different ways to make sure that companies are obeying the laws and that they are not engaging in anti-competitive behaviours. Structural separation is a type of antitrust remedy which aims to change how firms in a market function and how they are organized. There are different forms of structural separations, and they may be used for different purposes. [Kha19]

Structural separations can be used specifically on a single firm, or generally in a market affecting multiple firms. Structural separations usually involve breaking up companies into smaller parts in order to preserve competition. For example, if a market is dominated by one large company, a way to increase competition would be to structurally separate them and force it to split up into two companies, thus changing the market form a monopoly to a duopoly. In the case one company controls an important platform, network, or facility for which its competitors rely on, a structural separation may be implemented which prohibits any company in that market to own any of those facilities, breaking up the company and thus

removing conflicting interests. By removing large dominating companies and freeing up essential platforms, networks, and facilities, structural separations can be used in order to eliminate conflicts of interest, prevent cross-financing, increase diversity, and prevent concentration of power. [Kha19]

2.2.3   Structural separations in history

Structural separations have long been a key remedy in regulations of various markets, and has proved itself as a useful tool to antitrust enforcers. Throughout history structural separations have been used in several industries to varying degree of success. [Kha19]

One example is the railroad industry in the early 1900's in the US where six firms together owned 90 percent of the total anthracite coal resources. The railroad companies started to prioritize their own coal, while the remaining independent companies either had to use what carts were left, or in some cases being denied service all together. Congress deemed this conduct anticompetitive and created the Hepburn Act in 1906, which separated the function of transportation form the function of ownership over goods. Something known as the "commodities clause" was introduced which forbade a railroad from carrying any goods which they themselves had produced or had any interests in. This proposal was met with large protests from the railroad companies, and eventually a compromise was reached. Railroads were allowed to own commodities that they transported, but only to a certain degree. The degree of a control a railroad had on their goods would be judged on a case by case basis by the court. The common carriage principle was also introduced. The idea was that transportation, intermediaries, or distribution hubs was to handle all kinds of goods that flowed through them equally. [Kha19].

Another example is structural separations of television networks. The television industry was growing rapidly in the 1950s and the industry was eventually dominated by 3 networks: ABS, CBS, and NBC. The companies owned most of the country's television stations and even produced their own programs. Essentially these 3 companies was in control of the whole industry, from production to distribution. There were still independent content producers, but as these companies had full control of distribution, they were usually at the mercy of these 3 companies and contracts was signed on their terms. The FCC determined that these companies were enjoying monopsony power. The power the television networks wielded was so mighty, that they substantially limited the numbers of programs available to the public, thereby limiting the programs diversity. An order was eventually passed that prohibited networks from production and syndication in the television market. By separating production and distribution, the FCC intended to end their power. Later on after pressure form the television network industry, and the emergence of new

technologies such as cable, satellites, VCR, and direct broadcast had opened up the market and decreased the networks' powers. The rules was then eventually rendered obsolete. [Kha19]

In the 1960s, the computer industry was growing, and along with it was data processing. This market was characterized by low entry barriers, competitiveness, and innovation. There were however growing concerns that the mighty telecommunication companies would get involved in this market and ruin these good characteristics. These concerns was brought up, and regulations were set in place. Telecommunications companies were allowed to establish new subsidiary companies in the data processing market, but were not allowed to enter the market themselves directly. They could make deals and partnerships with the subsidiaries, but they were not allowed to deny other companies access to their own facilities and services. [Kha19]

In the following years, when large tech companies started establishing themselves and growing rapidly, certain anticompetitive conducts were observed and investigated. IBM, a leading producer and provider of computer hardware and software at the time were starting to bundle their hardware and software. This meant that IBM software could only run on IBM hardware, and IBM hardware could only run IBM software. During the trial period, IBM started to change their behavior significantly. They started to unbundle their products, and stopped engaging in mergers and acquisitions. Their new products featured an open design, where several parts were produced by other companies. These machines could run all kids of software. This effectively resulted in the emergence of a whole new software industry, giving birth to large software companies that are present today. The IBM case was eventually dropped, since IBM were no longer engaging in any conduct that could be considered anti-competitive anymore. Even though the case against IBM "failed" on the surface, it turned out that just the threat of structural separation is enough to make even large companies like IBM change their ways. [Wu19] [Fje20]

In the following years, an antitrust case came to afflict Microsoft. The main issue was how the company bundled their internet browser Internet Explorer together with their operating system Windows. Microsoft was accused of anticompetitive behavior and faced trial by the department of justice. Structural separations were considered, in the form of splitting Microsoft into two companies, one who owned the operating system, and one who owned the internet browser and other application programs. The case ended with a settlement. [GK01]. [Fje20].

In recent time, antitrust have in several ways been absent. This might perhaps be do the Chicago school of thought which goes something like this: "As long as prices remain low, there is no harm". This line of thinking started to receive some criticism, where critics are pointing out that the Chicago school is by and large

ignoring competition. Several structural separations in the past has also suffered from problems. One problem is that they have failed to target the source of the problems they were supposed solve. Another problem is that such separations have been too difficult for antitrust authorities to oversee. As a result structural separations have been largely abandoned, and the fact that antitrust itself have been absent has not helped. [Kha19].

Today, antitrust is on the rise again and has turned its attention towards big tech companies like Google, Amazon, Facebook, Apple, and Microsoft [Kha19]. These companies have integrated across multiple business lines and are active in several markets [GL20]. Take Google for example who might be best known for its search engine to most people, but Google is a lot more than just a search engine. Google is also operating as: mapping and navigation services (Google Maps), advertising network (AdSense), web browser (Chrome), mobile operating system (Android), and more [GL20]. The companies are also engaging in mergers and acquisitions, which strengthens their own position in the market and removing competitors. These companies can be large rivals or new startups, it makes no difference [GL20]. Facebook for example acquired Instagram, one of its biggest competitors at the time [ABC+20]. These companies also operate platforms for which thousands of people and companies depend on [Kha19]. Amazon for example has their market place where companies might list their products for consumers to buy. The problem here is that Amazon also sells their own products there as well, and uses predatory pricing, cross funding, exclusion, and integration in order to beat the competition [Kha16]. As the owner of the platform, Amazon also has access to data about other products and sales on the platform which other companies does not [Kha16]. As big tech companies continue to grow and integrate, they are receiving more criticism about how their practises are "thwarting competition and stifling innovation" [Kha19]. Governments and organizations around the world are beginning to agree with this and has begun to counter these companies with regulations and sanctions. The EU is working on sanctions against Google [Eco20] and American supreme court justice Clarence Thomas recommends social-media companies to be considered common carriers [Mel21]. As more and more governments are starting to work on sanctions against big tech, antitrust will probably also become more central in the struggle. Together with the rise of antitrust, perhaps even structural separations will see the light of day again?

2.2.4   Warren's Separation

Structural separation is gaining a foothold in modern American politics. American senator Elizabeth Warren wants to separate big tech companies. In her and her administration's view, big tech companies such as Google, Amazon, Apple, Microsoft, and Facebook have grown too large and powerful. These big tech companies are

using their power to solidify their position within their associated markets and drive competitors out of them. Whether by exclusion, mergers and acquisitions, or predatory pricing, smaller tech companies seems to have a harder and harder time to stay competitive. With fewer participants in the market, the less competitive the market is likely to be. As competition is one of the driving forces for innovation, society as a whole may be missing out on major technological progress. Warren and her administration believes that the dominant position of big tech companies today is too solid for the problems to be solved on their own, government intervention is needed. [War19]

Warren's solution is to make a law that would structurally separate platforms and platform participants. Any large tech platform would be labeled as a "Platform Utility" and would be broken apart from any participant on the platform. It would become illegal to own a platform and any products offered on that platform at the same time. If this legislation was passed platforms like Amazon Marketplace would not be allowed to sell their own products on their platform, they would either have to create a new independent company, sell them to another company, or shut them down. As a second step, regulators committed to reversing and preventing anti-competitive tech mergers would be appointed. This would mean that Facebook, WhatsApp, and Instagram would be broken into separate companies. [War19]

The intended effects of such a separation would be to weaken large tech companies and thus indirectly strengthen smaller and new companies, which would increase competition and create a more fair innovative market. [War19]

2.3   Bringing it all together

In this section I will attempt to summarize what I've talked about in the two subsections, and argue why structural separations is a good fit as regulatory remedy for the video streaming industry.

The video streaming market is filled with both large and small VSPs competing for consumers' resources. While this creates competition in the market, the means of competition does not particularly benefit consumers. VSPs mostly compete by having access to exclusive content. This form of competition splits content among several different VSSs, making it necessary for consumers to use multiple VSSs in order to watch all the content they are interested in. Furthermore it increases barriers to entry in the market, as VSS without access to original content will be at a disadvantage to the ones that do. The focus on exclusive content may be liable divert attention in advancements in other areas as well, such as improved features and user interface. In other words, innovation is being halted. As companies continue to engage in mergers and acquisitions, the number of participants in the market

decreases and power becomes increasingly concentrated, which will give dominating participants in the market the ability to strengthen their position even further.

The way the video streaming industry functions today is inconvenient for consumers, does not incentivize innovation, and lessens competition. One might thus argue that the companies participating in the video streaming market is breaking the antitrust laws, or is at the very least working against the spirit of them. Since vertical interactions are the root of the problems in the video streaming industry, structural remedies are well suited to deal with them. The structural separation should target the VSPs, as they are the stakeholders who have integrated vertically, acting both as an ASP and a CP.

In order to understand how the separation of platform and content in the video streaming industry can work, we can take a look at a closely related industry, namely the music streaming industry. Like the video streaming market, the music streaming market consists of a few large ASPs with many subscribers such as: Spotify (144 million subscribers), Apple Music (68 million subscribers), and Amazon Prime Music (55 million subscribers) [Wal21]. A crucial difference is that music streaming providers are only operating as ASPs and does not typically own the content they offer. Music streaming services like Spotify functions as an open platform for which content creators can share their content. As any content creator can share their content on the platform, Spotify has access to the vast majority of music out there. Consumers can typically access all the content they are interested in by just subscribing to a single service. As new entrants to the music streaming market will only need to develop and market their own platform, there are also lower barriers to entry in this market compared to the video streaming market in this regard. As music streaming providers are not competing against each other with content, they have to rely on other areas of competition such as features, quality of service, and user-interface design. If the music streaming industry is able to function without ASPs using exclusive content as the primary means of competition, why shouldn't it work for the video streaming industry?

2.4   Related Work

The purpose of this chapter is to present the most important references I have used in this thesis. I will also explain how my thesis is different from what others have written about. My thesis combines two different topics: The video streaming industry and structural separations. The video streaming industry is a relatively young industry and has only existed in a little more than a decade, and thus there is not much material written about it (at least in terms of competition and business). In contrast structural separations have existed for over a century, but has largely been abandoned today, which means that there is little new material written about

it. If there is little modern material written about both of these things, it will come as no shock that nobody has yet written about how the video streaming industry can be structurally separated and what effects that will have on the industry and our society.

First off are the sources that have been the most crucial for my understanding of the video streaming industry. The master thesis "Streaming wars: competitive dynamics in the video industry" written by Janne Rajala and Aleksi Korhonen in 2020 [RK20], have been vital for my understanding of how the different video streaming providers compete against each other in order to gain competitive advantages. In their thesis they collected data and information from various sources (news articles for example) and compiled them together, and by using their competitive dynamics framework, they analysed and information/data in order to gain insights. Some of these insights have been used in this thesis. Similarly I have used the report: "Competition among video streaming services" written by Clare Y. Cho in 2020 [Cho20] to gain even more information and insights into how competition in this industry is conducted. The difference between what these people have written and my thesis is that their work was only focused on competition in the video streaming industry, and were not primarily focused on the flaws of the industry and much less about how those flaws could be corrected. Structural separations were not mentioned at all.

Next, there are the sources that have been crucial for my understanding of antitrust and structural separation. The article "The separation of platforms and commerce", written by Lina Khan in 2019 [Kha19] gives a thorough description about what structural separation is, its history, and its state as an antitrust remedy today. This is the article that has inspired me to write about structural separation as a topic. Next is the guide "Guide to antitrust laws" written by the Federal Trade Commission [Com] about antitrust and anticompetitive conducts. Last but not least there is the article "Here's how we can break up big tech" written by Team Warren in 2019 [War19]. This article is the main inspiration for my own structural separation which is largely based on the structural separation that Warren proposes. While these three articles gives an in depth description of antitrust and structural separations, they do not mention anything about how it can be used to regulate the video streaming industry.

I would also like to mention that this thesis is a continuation of a project that I have written before [Fje20] which also included structural separations, only in a different context. In that project I wrote about why structural separations should be considered when regulating big tech companies like Google, Apple, Facebook, Amazon, and Microsoft. That project had however nothing to do with the video streaming industry. Structural separation have not changed significantly since the

time I wrote the project, and thus the section in this thesis which is about structural separations are based on some of the same articles as the project was. I have however included more information from those articles in this thesis and rewritten the content to better fit the nature of this thesis.

For this thesis I have chosen Design Science as my methodology. Design science is all about artefacts in context. Artefacts can be a great many things like: software and hardware components, techniques, methods, concepts, process, and so on. A context can also be many different things like people, organizations, business processes, values, goals, norms, and much more. Design science consists of two parts. The first part is about creating/designing artefacts and the second part is about putting those artefacts in a context and evaluate the effect the artefact has on the context. For my thesis the artefact I've created is a structural separation in the context of the video streaming industry. [Wie14]

The reason for designing an artefact is to improve some aspects of the context it is applied to. Design science problems are therefore improvement problems. When improving something, it is beneficial to look at the stakeholders related to the context. The stakeholders are basically anyone that is affected or can affect the context. It is also important to set certain goals so we know whether or not improvements actually has occurred. For my thesis stakeholders would be: video streaming providers, device providers, content providers, and consumers/users. [Wie14]

The heart of design science is the design science cycle. It consists of three steps (see figure 3.1). The first step is called problem investigation, where you investigate all the different aspects of the context and try to identify which problems need to be solved in accordance to your goals. The second part is called treatment design, where you based on your knowledge about the problem and context, design an artefact to fix the problems. The third step is called treatment validation, which is where you access whether or not the design treats the problems. These three steps may be cycled through any number of times until an artifact that solves all or most problems have been found. Doing the first step over again can lead to knew knowledge, where you could discover new problems, which again may require a completely new artefact or a modified version of the existing artefact (second step), and of course step three would have to be performed again to see if it solves the problems well. [Wie14]
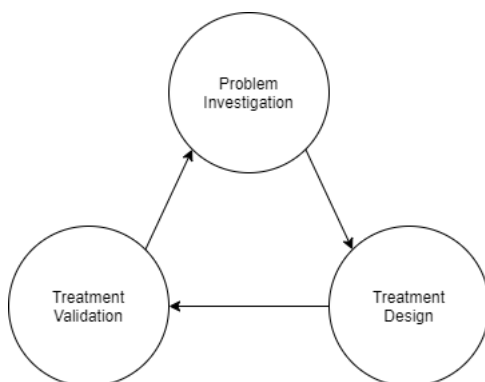
Figure 3.1: The three steps of the design science cycle

When working on the first step in the design science cycle I have conducted a combination between literature review and personal examination. The literature I have read consists of reports, master theses, books, and websites. I have also been doing some examination of my own, by subscribing to various VSSs in order to understand what they offer and how they work. The information I have gathered in the first step in the design science cycle has been gathered and presented in the background chapter and serves as a foundation for the next two steps. The final artefact I have designed in step two will be presented shortly in this chapter. In the next chapter I will present the final version of step 3, where I will discuss how my artefact will affect different stakeholders and access how well the artefact satisfies my research goals. In this thesis the research goals are the problem statements of the thesis.

The artefact I propose to solve the problems in the video streaming industry is a structural separation that is heavily inspired by Warren's Separation (see chapter 2.2.4), with some slight modifications in order to suit the video streaming industry. All video streaming services will be labeled as video streaming platforms, and the content these services offer will be designated as video streaming content. A law will be passed that says that it is illegal for a single company to own stocks or have any ownership interests in both a video streaming platform and video streaming content. Any companies who owns both of these things will have to sell one of the two assets, or break up into separate companies where one company owns the platform and the other owns the content. In order to hinder video streaming providers and content providers from making exclusive agreements with each other, another law would have to be passed where content providers are required to offer license agreements to any video streaming provider able to pay. Content providers would also be required to offer licensing agreements at the same price to every video streaming provider.

An implementation of my structural separation would change the relationship between user, device, VSS, and content. Figure 4.1 illustrates how the relationship between these are today without any structural separation. A user can use any type of device (denoted by a diamond shape) to access a number of different VSSs. Each VSS have their own associated exclusive content. In order for users to access both content 1 and content 2, they would have to use both VSS 1 and VSS 2. If both of them are subscription-based they would have to pay for both services.

Figure 4.2 illustrates how the relationship between these would be if my structural separation was implemented. A user would now still be able to use any device to access a number of different VSSs. The difference here is that the user is able to (at least potentially) access any content through any VSS (now denoted by a diamond shape). The consumer will in this scenario be able to access multiple groups of content for the price of a single VSS.

At least two different business models can be used by content providers after implementing my structural separation. One business model would be a licensed-based one, which is the business model most independent content creators in the video streaming industry use today. In the licensed-based business model, CPs sells their content to VSPs for a limited period. Another business model is an open-platform one, which is used by CPs in the music streaming industry. In the open-platform business model the service functions as an open platform for which content providers can share their content. The service provider pays the content creators based on how many views/listens the content gets. The same business model could work for content providers in the video streaming industry as well, however it would require major changes to how VSSs function.
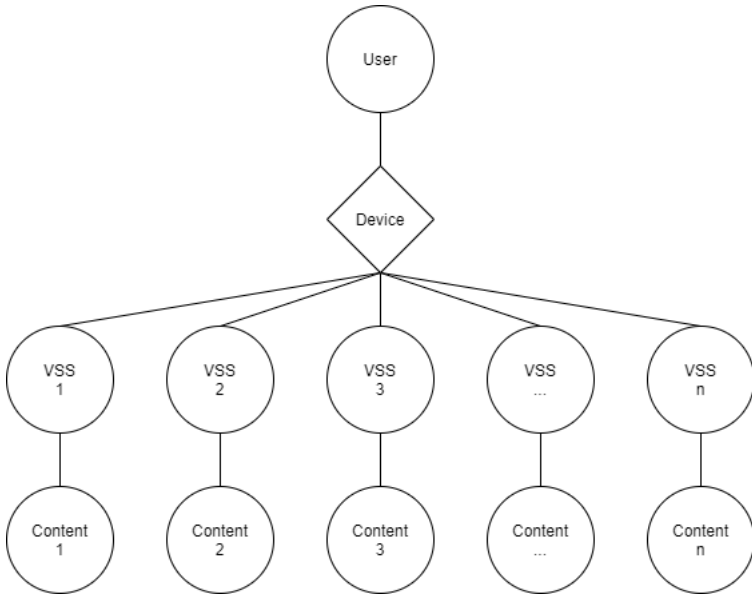
Figure 4.1: The relationship between user, devices, VSSs, and Content today, before structural separation
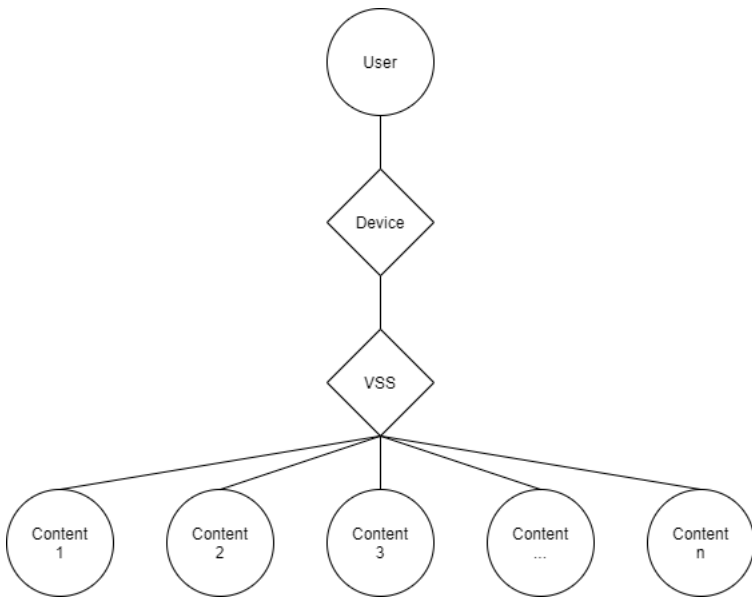
Figure 4.2: The relationship between user, devices, VSSs, and Content, after structural separation

4.1   Effects on VSPs

My structural separation would severely affect VSPs, which is of course intentional. It would affect large and small VSPs both and would incur economic, strategic, and technological changes.

For vertically integrated VSPs acting as both ASPs and CPs, being split into two different companies would be a huge loss for them. Their respective VSSs have many millions of users and their content is worth many millions of dollars. By losing their most valuable asset, they will no longer be able to rely on their exclusive content in order to stay ahead of the competition. VSPs will have to reinvent themselves and find new ways to distinguish themselves from their competitors, if not they risk becoming commodities. Commodities are products/services that are from a consumer's point of view indistinguishable [OA18].

The situation is very different for VSPs who purely act as ASPs. These VSPs would not lose anything if my structural separation was implemented, but would indirectly benefit form my structural separation as it weakens the strongest competitors in the market. While there are very few VSPs who are purely ASPs in today video streaming market, my structural separation should encourage more new entrants to the market as the large, dominant companies in the market are weakened. New entrants will also be able to fully focus on their VSS, and will not have to bother with acquiring or producing content.

While competition with exclusive content is no longer possible, content might still play an important role in a VSPs competitive arsenal. If the prevailing business model is the license-based one, a single VSP will only be able to get a subset of all the existing content. Licensed content costs money and VSPs will have to be careful when deciding which content they should buy. VSPs who knows their users well would be able to select the best content for them. Perhaps VSSs will try to appeal to certain groups of people and specialise in offering content from certain genres. A VSP may for example buy a lot of content in the fantasy and sci-fi genres, trying to appeal to users who likes those genres.

Aside from content, there are still other ways for VSPs to compete. By improving existing technology and introducing new technology, VSPs can try to give consumers new superior ways of entertainment. Competing through visual design and user-interface is also a possible. By improving design and technology, VSPs might be able to reduce subscriber churn. When VSPs compete with exclusive content, consumers have high incentives to use the VSS in the short term but not in the long term. Once the exclusive content have been watched, there is little that keeps the consumer from unsubscribing. A consumer who picked a VSS because of useful and interesting features and/or its good-looking and intuitive design is probably more likely to keep

on using the VSS long term. VSPs may develop social features similar to what Spotify has done, allowing users to interact with each other. In case of social features, VSPs might be able to benefit from strong network effects. If a VSS has many users and have social features, the service would be perceived as more valuable to individual users [OA18].

VSPs can also compete with prices. A VSP might be able to attract a lot of users simply by having the lowest price. If VSPs fail to distinguish themselves in any of the ways described above, they would be commodities and consumers would go for the rational option and pick the VSS that costs the least. It is possible that VSPs would favor the ad-supported business model as it enables VSPs to offer access to their VSSs for free.

It is difficult to predict exactly how VSPs would adapt to my structural separation and which kind of competition would be favored. Most likely a combination of each of the aforementioned areas will be utilized, but it is also possible that new areas will be invented or discovered. Some areas of competition seems to be contradicting each other. If VSPs focus on developing new technology they would need more money, which may cause an increase in price. If VSPs lowers prices this might lead to lower revenues which will hinder them from developing new technology.

4.2   Content Providers

My structural separation would also affect content providers. The effects can be positive or negative depending on which content provider we look at. My structural separation will also bring some benefits to content providers.

For large content providers like Walt Disney Co, who owns their own video streaming service (Disney+), the structural separation would be disadvantageous as they would have to renounce ownership of their platform. These content providers will no longer be in charge of one of the major bottlenecks in the market. Losing their VSS platform would be a huge economic loss, as these companies have spent a lot of resources developing and marketing these services. The company will also lose any future revenue from users subscribing to their VSS. They would also lose their ability to gather information about their users' viewing habits, which is used to determine what sort of content people like, so that they can produce more of what the users want. Even though these large content providers would lose a lot of resources with my structural separation, it would most likely not be detrimental. Large content providers have only recently entered the video streaming market, and have been able to survive just fine for many years. The Walt Disney Co. have been around for decades, while Disney+ have only been around for a couple of years.

Content providers who do not own their own VSS will not lose anything from my structural separation. These content providers will indirectly benefit as their competitors are weakened. As the largest and most dominant content providers' positions would be weakened, the barriers to entry in the market should be lower, making it easier for new entrants to compete.

My separation would bring some benefits to content providers, no matter if they are big or small. Content providers will no longer be tied to a specific VSS, but can instead license their content to multiple VSSs. Potentially they would be able to earn more revenue from licensing, as getting paid my multiple VSSs is better than getting paid by only one. Content providers will also be able to freely produce the content they wish to make, and will be less pressured to give in to any demands a single VSS would've made. Producing content will however become more risky, as a content provider may produce content that no VSS would want to buy. This problem can be mitigated if the structural separation leads to an increase in the number of VSSs in the market.

4.3   Device providers

Today, a consumer is able to access any VSS using any device. After structural separation, VSPs will be looking for ways to distinguish their VSS from other VSSs. One possible way of doing this would be to vertically integrate in the other direction, becoming device providers instead of content providers. As i previously mentioned, some VSPs like Amazon have already done this.

If most VSPs started making their own devices, they could make it so that their VSS is only available on their own devices. This would create a structure like the figure illustrated below:
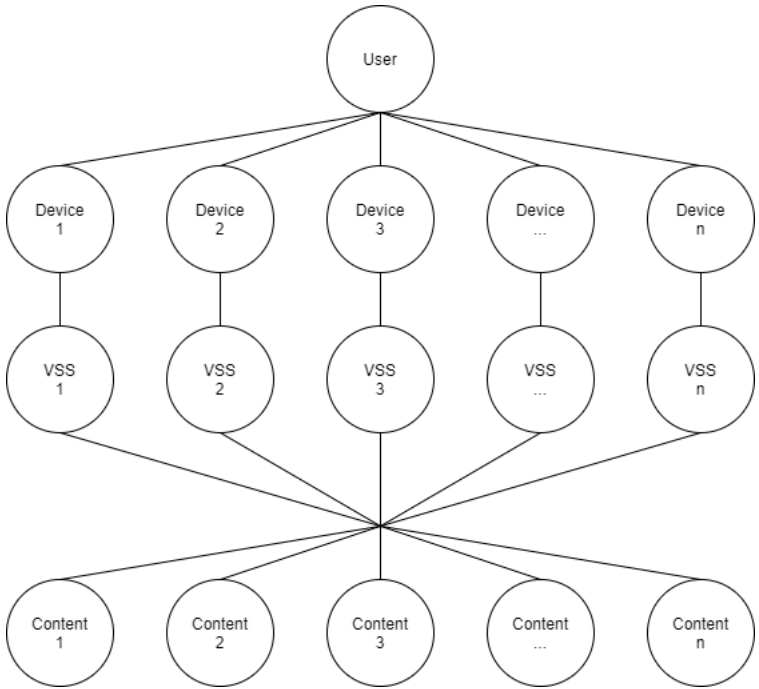
Figure 4.3: The relationship between user, devices, VSSs, and Content if VSS decide to integrate vertically into exclusive devices

In this case a consumer would have to buy one specific device in order to access a specific VSS. The VSSs themselves would still be able to access any content. This scenario would be highly beneficial for VSSs as they would earn money from selling devices and would introduce lock-in effects on consumers. This scenario would be unfavorable for consumers though as they will have to pay more without getting better service.

While this structure would be beneficial for VSPs, it it unlikely to happen. Many consumers access VSSs through general purpose devices such as laptops, desktop PCs, and smartphones. If a VSP decided to make their VSS only available on their own device, then its users would be incentivized to switch to a VSS who is available on their preferred devices. A VSP is thus more likely to lose users, which may end up being a lot more costly than the additional revenue they would get from selling devices and the added value of lock-in.

If in any case this scenario were to happen and it would cause problems to consumer welfare or competition, then my structural separation could simply be extended to include no devices as well content providers. If the scenario I have

described does not happen, I believe that device providers will be largely unaffected by my structural separation.

4.4 Consumers

Consumers will be the stakeholders which gains the most from my structural separation.

My structural separation would decrease the number of VSSs a consumer would have to subscribe to in order to watch the content he or she would want to watch. In case of the licensed-based business model, consumers still might end up having to subscribe to multiple services in order to watch what they need, but VSPs are free to adapt and get the content consumers want. In any case companies would prioritise getting the most popular content. In any case, a consumer would probably need to subscribe to fewer services after my structural separation than they would have to do today. If the open-platform business model prevails, every VSS should be able to offer consumer any content. This would mean that using only one VSS would be feasible in order to watch the content the consumer wants.

As VSPs will be incentivized to innovate and improve their services, the consumers will naturally benefit. It is hard to say whether or not VSSs will be more or less expensive. If VSPs focus on innovating and improving their VSSs, prices are likely to increase in order to support the development. With an increased number of participants in the market due to lower barriers to entry prices should also be kept down. Different strategies might develop. Perhaps some services have simple design and functionality, but is low cost, while some VSSs have lots functionality but cost more. Consumers might also enjoy more high quality content. The market would have an increased number of content providers due to lower barriers to entry. Many participants in a market leads to greater diversity. With loads of different content, it is more likely that consumers will find content they enjoy.

Chapter 5

Conclusion

The purpose of this thesis has been to show the following:

- PS1: How structural separation of platform and content in video streaming services can lead to features, interface design, quality of service, and quality of experience being the primary means of gaining a competitive advantage in the video streaming market.

- PS2: How structural separation of platform and content in video streaming services can benefit consumers, lower barriers to entry in the market, and preserve competition in the market

In chapter 2, a presentation of both the video streaming industry and structural separations have been done. The presentation of the video streaming industry identified that the video streaming industry is populated by video streaming providers who are competing with exclusive content enabled by vertical integration. Competition through exclusive content creates an inconvenient situation for consumers as they are forced to use multiple VSSs in order to watch content from different content groups. The video streaming market also has high barriers to entry as any new entrant will have to develop a VSS as well as acquire or produce exclusive content in order to compete.

The next step was to present structural separation and design my own structural separation through design science. The rest of the thesis was spent discussion what kind of effect my structural separation would have on VSPs, CPs, DPs, and consumers.

Based on the discussion, I would say that problem statement 1 (PS1) was partially demonstrated successfully. While my structural separation would probably increase the importance of features, interface design, quality of service, and quality

of experience as competitive means, they would not necessarily become the primary means of competition. It turns out that CPs may adopt two different kinds of business models which affects competition. In the licensed-based model, content would still probably be the primary means of competition. In the case of the open platform model however, features, interface design, quality of service, and quality of experience would be the primary means of competition.

Problem statement 2 (PS2) has been successfully demonstrated. Structural separation weakens the strong and problematic VSPs in the market, which lowers the barriers to entry in the market, which invites new entrants to the market. An increased number of participants in the market competing on equal footing is good for the preservation of competition. Consumers gain several benefits form my structural separation. First of all VSSs are likely to have more content of interest to the consumer, which reduces the number of VSPs the consumer needs to subscribe to. Further more consumers would also benefit from new innovative features and improved design and technology. Consumers may also enjoy better content, as the content provider market will be more diverse.

5.1   Future Work

When working on this thesis I have mainly done so from a business, economic, and technical point of view in accordance with my own academic background. As i stated earlier in the thesis I have limited experience when it comes to law. For those who have studied or are studying law and would like to further study this topic may analyse my proposed structural separation using the legal method or something similar.

My work here can also be used as an example on how structural separations could be used to regulate a market/industry. Students may use my thesis as inspiration for using structural separations to regulate completely different markets. It is also of course possible to work on the exact same market and problems that I have worked on here, using different sort of antitrust remedies. There are two types of antitrust remedies: structural and behavioral. In my thesis I was purely focused on structural remedies, but perhaps behavioral remedies can work just as well or even better. One may also choose to write about the same remedy as I did, only that you wait a couple of years. This thesis was written during the first half of 2021. The video streaming industry is a relatively young industry and may still be subject to massive changes, who knows how the industry will work in the future. The video streaming industry may even be subjugated to regulations in the future, it might be interesting to take a look at how my solutions compares to those regulations if they were to take place. If by chance someone who works with regulations of the video streaming industry were to read this, this thesis may serve as a foundation for how this market

could be regulated. As this thesis is purely theoretical, it would be beneficial if someone were to actually further investigate the possibilities of actual realisation and implementation. I am however certain that the remedy I proposed is possible, based on the historical events I presented. In the case someone would disagree with my analysis of how this separation would affect the different stakeholders in the industry, that someone would be more than welcome to point out what I have done wrong and propose an improved solution or a completely different one.

References

[ABC+20] Elena Argentesi, Paolo Buccirossi, Emilio Calvano, Tomaso Duso, Alessia Mar-
          razzo, and Salvatore Nava. Merger policy in digital markets: An ex post assessment.
          Journal of Competition Law & Economics, 17(1):95–140, 2020.

[ALLW21] Chris   Arkenberg,   Danny   Ledger,   Jeff   Loucks,   and   Kevin   West-
          cott.   How   streaming   video   services   can   tackle   subscriber   churn.
          https://www2.deloitte.com/us/en/insights/industry/technology/video-
          streaming-services-churn-rate.html, January 2021. Accessed: 2020-04-21.

[Bø21]   Eivind Bøe. Amazon kjøper hollywood-studioet mgm for 70 milliarder kro-
          ner. https://e24.no/naeringsliv/i/Ln2mVq/amazon-kjoeper-hollywood-studioet-
          mgm-for-70-milliarder-kroner, May 2021. Accessed: 2021-05-28.

[Cho20]   Clare   Y.   Cho.   Competition   among   video   streaming   services.
          https://fas.org/sgp/crs/misc/R46545.pdf, September 2020. Accessed: 2021-04-21.

[Com]   Federal Trade Commission. Guide to antitrust laws. https://www.ftc.gov/tips-
          advice/competition-guidance/guide-antitrust-laws. Accessed: 2020-04-24.

[Eco20]   The   Economist.   Google,   antitrust   and   how   to   best   regulate   big
          tech. https://www.economist.com/business/2020/10/07/google-antitrust-and-
          how-best-to-regulate-big-tech, October 2020. Accessed: 2020-10-08.

[Fje20]   Even M. Fjeldstad. Structural separation, the end of gafam dominance? Project
          report in TTM4502, Department of Information Security and Communication
          Technology, NTNU – Norwegian University of Science and Technology, Dec. 2020.

[GK01]   Richard J Gilbert and Michael L Katz. An economist's guide to us v. microsoft.
          Journal of Economic perspectives, 15(2):25–44, 2001.

[GL20]   Axel Gautier and Joe Lamesch. Mergers in the digital economy. *CESifo Working
          Paper*, (8056), 2020.

[Kha16]   Lina M Khan. Amazon's antitrust paradox. *Yale lJ*, 126, 2016.

[Kha19]   Lina M Khan. The separation of platforms and commerce. *Columbia Law Review*,
          119(4):973–1098, 2019.

[Mel21]   Jessica Melugin. Should social-media companies be considered 'common carri-
          ers'? https://www.nationalreview.com/2021/04/should-social-media-companies-
          be-considered-common-carriers/#slide-1, April 2021. Accessed: 2020-05-03.

[MR21]   Synnøve Meisingset and Ida G Riisnæs. Gigantavtale mellom at&t og discovery er
          i boks. https://www.dn.no/etterbors/medier/strommetjenester/tv/gigantavtale-
          mellom-att-og-discovery-er-i-boks/2-1-1011401, May 2021. Accessed: 2021-05-28.

[OA18]   Harald Overby and Jan Audestad. *Digital Economics: How Information and
          Communication Technology is Shaping Markets, Businesses, and Innovation.*
          CreateSpace Independent Publishing Platform, 2018.

[RK20]   Janne Rajala and Aleksi Korhonen. Streaming wars: competitive dynamics in
          the online video streaming industry. Master's thesis, Jyväskylä University School
          of Business and Economics, 2020.

[Wal21]   Omri Wallach.   Which   streaming   service   has   the   most   subscrip-
          tions? https://www.visualcapitalist.com/which-streaming-service-has-the-most-
          subscriptions/, March 2021. Accessed: 2020-05-04.

[War19]   Team Warren.   Here's   how   we   can   break   up   big   tech.
          https://medium.com/@teamwarren/heres-how-we-can-break-up-big-tech-
          9ad9e0da324c, May 2019. Accessed: 2020-04-06.

[Wie14]   Roel J. Wieringa. *Design Science Methodology for Information Systems and
          Software Engineering.* Springer-Verlag Berlin Heidelberg, 2014.

[Wu19]   Tim Wu. Tech dominance and the policeman at the elbow. *Columbia Public Law
          Research Paper*, (14-623), 2019.

[You]   YouTube.   Youtube   for   press.   https://www.youtube.com/intl/en-
          GB/about/press/. Accessed: 2021-06-08.