INDUSTRY BRIEF – VIDEO -STREAMING AND RELATED ACTIVITIES

The digital technology for sending compressed video content over the internet has transformed how we watch video content and has also changed how we play games, gamble, and interact with others on screens.[1] Analysis of the video-streaming industry involves evaluating many factors, including the means by which consumers access video content, the roles of multi-sided platforms, person-to-person transmission of content, and the continuing role of television.[2]

1. INTRODUCTION

Several factors have transformed how we watch video content, including (a) the digitization of video content, (b) the vast stock of smart devices with video capabilities,[3] (c) the development of multi-sided platforms for distribution, (d) the nearly 7 billion individual subscriptions that these platforms have sold to consumers (e) the importance of user-generated content, , and (f) the dramatic increases in download rates over the internet. (Refer to *The Advance of 5G* for a related discussion.)

Since the introduction of the iPhone in 2007, *exponential* aptly describes changes in how and what individuals watch and experience content on their screens. The extent of product differentiation and the diversity of technologies for creation of content, including AI, are also staggering.

In Section 2 of this industry brief, we begin with important observations about how the constraints on consumers regarding time and place have been loosened, if not eliminated. In Section 3, we offer several observations about the status quo. In Section 4, we consider the question, who has benefited from this industry transformation.

2. LOOSENING CONTRAINTS ON TIME AND PLACE

Prior to the 1950s, individuals, friends, and families watched video content at local movie theaters. Given that options were limited by location and time, the extent of product differentiation was limited. To win an audience, movies needed to fit popular genres – comedy, musicals, dramas,

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[1] wws.techtarget.com/definition/streaming-video

[2] Forbes' Chris Brantner offers on-going commentary on consumer use of cable TV and other options that "cut the cord." Rf., www.forbes.com/sites/chrisbrantner

[3] Estimates vary but there are over 13 billion smart devices and maybe half have video capabilities. See "Smart Phones – Statistics and Facts," *Statista*, June 6, 2023. https://www.statista.com/topics/840/smartphones/#topicOverview.

and "westerns." Saturday matinees were especially popular in US and in other countries.[4] In addition to movies, audiences were treated to short, animated films (cartoons), which have become an important type of video content in subsequent decades and encouraged the development decades later of sophisticated video games, like *Fortnite*.[5]

When content options were limited, large portions of US society and beyond watched the same movies. In 1954, the top three were *On the Waterfront*, *Rear Window*, and the *Seven Samurai*. In other countries, big hits also captured large shares of the screens, hearts, and minds. In France, for example, 1950s hits included *Les Enfant Terribles*, *Le Plaisir*, and *French Cancan*.

Television brought video into homes. TV began in 1935, when the Berlin public television station broadcast content for 90 minutes three times per week.[6] Broadcast television gained traction in the 1950s when governments allocated the radio spectrum to broadcasters.[7] In the US, the allocation of the radio spectrum by the government was designed so three broadcast networks could reach most viewers throughout the country.[8] So, at Thursday night at 8 p.m., families could choose a show on either ABC, CBS, or NBC. With typically only one TV, video consumption a shared experience for the household.

The initial purpose of Cable TV in Japan and US was to extend coverage to areas where populations could not receive over-the-air signals. (The histories of Cable TV vary by country. Hong Kong introduced it in 1957, but exited in 1993 when the government allocated the radio spectrum to a public broadcaster. It re-entered as a subscription-based service in the 1990s.[9])

According to many, the large up-front costs of installing cable – house by house, street by street, town by town – resulted in *natural monopolies* in cable TV and therefore requiring price regulation.[10] Whether one accepts the characterization, the vast majority of households were served by at most one cable operator.

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[4] The tradition was international if not global. (rf. https://filmstarfacts.com/2019/02/22/saturday-morning-matinees-1950s. See also https://www.enterprisenews.com/article/20160208/OPINION/160206486); Your Professor remembers going to "Saturday matinees" and two movies for $0.25.

[5] https://www.epicgames.com/fortnite/

[6] https://en.wikipedia.org/wiki/Norddeutscher_Rundfunk

[7] For example, the number of households in the US with televisions could be "measured in the thousands" in 1947 but reached 50 percent of households by 1955. (Rf. History of Television, Glolier Encyclopedia; Prof. Mitchell Stephens, NYU.)

[8] See Shelanski, Howard A. and Peter W. Huber, "Administrative Creation of Property Rights to Radio Spectrum," J. of Law and Economics, vol 41, No. S2 (October 1998), pp. 581-609.

[9] https://en.wikipedia.org/wiki/Cable_television_by_region#Hong_Kong

[10] https://www.economicshelp.org/blog/glossary/natural-monopoly/

Cable TV operators could, of course, add many channels to their service at minimal marginal cost. Cable TV, therefore, embodied economies of scale and scope . Those economies encouraged the development of large numbers of channels with an expanding array of content. In 1979 Ted Turner became a television mogul in part because he marketed context from a local broadcast station, channel 13 in Atlanta, Georgia to cable operators around the US.[11] When the Weather Channel was introduced in 1982 by Frank Batten, Sr., many thought it was a joke. But there was a market for people who did not want to wait for regular weather reports on news channels. Others just enjoyed watching weather reports from around the country and beyond.

> With these developments, therefore, came highly *differentiated* video content and market *segmentation*.

Starting in 1985, consumers gained additional means of accessing video with the advent of retail outlets like Blockbuster Video that rented movies that could be played on DVDs connected to televisions. Early on the best DVD players manufactured by Japanese firms cost over $1000; now they cost under $50.[12] A dwindling population still uses DVD players and rents movies from retail outlets, including kiosks, e.g., Redbox, that are scattered around many towns and cities.[13]

Netflix got its start by disintermediating brick-and-mortar retailers. Consumers could search Netflix's website, decide what they wanted to watch, and then order cassettes by mail. After viewing, consumers would return movies in the mail.[14]

3. SIMILAR CHANGES IN GAMING AND GAMBLING

Until recently, people gambled in private settings, by placing bets with "bookies", and by going to places like Las Vegas and Macau where gambling is legal. The same forces that changed video streaming have changed gambling. Now, individuals can bet on virtually every sporting event on specialized platforms, e.g., FanDuel, from any place, and whenever they choose to do so.

The same story applies to games. Playing bridge or chess in the "old days" meant going to a place where the activities would be organized. Fun games like pinball required going to retail spaces with games where one could spend a fun afternoon with ten dollars in quarters. In addition to becoming available "anywhere and anytime", games have become much more sophisticated and profitable for major game developers.

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[11] https://en.wikipedia.org/wiki/TBS_(American_TV_channel)

[12] https://en.wikipedia.org/wiki/DVD_player

[13] https://www.redbox.com/movies

[14] https://interestingengineering.com/the-fascinating-history-of-netflix

4. THE VIDEO STREAMING INDUSTRY TODAY

Given that consumers are not limited by location and time, they now access hyper-differentiated video content through multiple means and can watch whenever they want.

How much video content do we consume? US consumers are up to six hours a day.[15] Data on Chinese consumers is hard to estimate given that video consumption is highly integrated with other internet-related activities. Though somewhat dated, the analysis by Barclays is worthy of review.[16] It claims that mobile user engage increased from 3.3 hours per day in 2017 to 4.1 hours in 2018. Long and short videos account for the largest single activity.

Video-streaming services, which fit the definition of multi-sided platforms, are a global phenomenon. Netflix had a subscriber base of 193M worldwide as of April 2020 after record growth in Q1 when the Covid-19 pandemic began.[17] Large subscriber bases allow platforms to realize economies of scale and scope. Netflix offer hundreds of movies, series, documentaries, and old television shows. Consumers have many options and typically subscribe on a monthly basis, e.g., $16 per month.[18] The prices vary greatly and reflect some degree of price discrimination across countries and means of distribution, i.e., through cable TV or personal devices. The costs of switching and the cost of adding are low. Consumers who have Netflix can add or switch to Disney + and ESPN +, HBOgo, Hulu, Apple TV+, in less than 10 minutes. Many services are offered without a fee but with advertising. Amazon Prime is effectively free Amazon Prime users.

The combination of rivalry among platforms, declines in prices, and massive increases in output (time spent watching video) indicate that consumer surplus has increased by a staggering amount.

Conversely, it is not clear that video streaming services have much market power because of these four factors:

1. Consumers have lots of options to view content, including streaming services, YouTube, Facebook, and TikTok.
2. Switching costs are low.
3. Entry costs are relatively low.
4. Suppliers offer products are differentiated and so rivals can gain users by offering local and innovative content.

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15 https://techcrunch.com/2018/07/31/u-s-adults-now-spend-nearly-6-hours-per-day-watching-video/

16 China Internet: Mobile User Engagement Surges, Equity Research, Barclays.

17 https://www.statista.com/statistics/250937/quarterly-number-of-netflix-streaming-subscribers-in-the-us/. Netflix momentum continued into Q2 with 10.1M new subscribers, rf. "Netflix Sees Boom, Names Co-CEO" WSJ, p. A1, July 17, 2020.

18 https://www.pcmag.com/picks/the-best-video-streaming-services

Regarding (4), these other platforms reflect the importance of content generated by individuals. The ability to produce a video on one's smart phone at zero cost and then upload it to one of these platforms means that the world is now full of producers and directors.

In contrast to ride-sharing, eCommerce, and payment systems, intellectual property plays an important role in the video-sharing industry. Ownership rights to the "first run" and subsequent runs are typically sold to distributors. Are property rights strong? There is no single answer, but it is useful to consider that property rights depend on two factors: (i) the ability of owners to exclude others from use, and (ii) the ability of owners to transfer the property for use to others.

5. WHO HAS BENEFITED?

The massive increase in consumption indicates that the biggest beneficiaries of the technological innovations have been consumers. (A fun exercise is to try to estimate the gains in consumer surplus over the last 5 decades, which requires a rough estimate of total viewing hours and average prices per hour.)

Who on the producing side benefitted? The choices are (i) content developers, (ii) multi-sided platforms, and (iii) distributors. Consumers have choices among streaming services – Netflix, Hulu, Prime Video, etc. Of note, while many view Netflix as "dominant", its global subscriber base is about 230 million as of Q2 2023.[19]

Most consumers choose to receive content though the internet although cable remains a factor and distribution via satellite may become more of a factor. That leaves content. Content like the World Cup and "hit" scripted dramas command premia. The same is true for hit games like Games of Thrones. But competition is keen, including from user-generated content. So, it is hard to make a good case that any participants on the supply will earn above-normal profits.

6. GOING FORWARD?

Industry dynamics will change with the shift to 5G and the expected dramatic decreases in download times. Non-internet means of streaming less important. But which platforms in what regions will take advantage of 5G? Will the subscribers they gain remain loyal as others catch up?

A policy issue concerns whether video platforms can "vertically integrate" and in which direction. If a producer of content integrates *forward* into the streaming business, that might be viewed as enhancing competition in video streaming.[20] If, however, a platform vertically integrates backward

[19] https://www.sta?sta.com/sta?s?cs/250934/quarterly-number-of-ne?lix-streaming-subscribers-worldwide/

[20] A standard rationale for vertical integration is to reduce so-called double marginalization whereby two firms both charge markups. See Carlton and Perloff for a discussion.

into content production, that might be viewed as a means of replacing independent content producers. (The jargon is not that bad. "Forward" means closer to the final customer. "Backward" means further away and typically involves the supply of inputs.)

The FTC's effort to block Microsoft's $85B acquisition of Activision failed in July 2023. We can expect more vertical integration of content and platforms. For further discussion, see the *Brief on Vertical Integration by High-Tech Platforms*.

Recent developments

1. In February 2024, Reliance Industries and Disney formed a joint venture to create one streaming platform in place of Viacom18 and Star India. Reliance is India's largest private company and the largest conglomerate, with assets across virtually all industries.[1] The immediate consequence will be the creation of one centralized TV and digital streaming platform for entertainment and sports content in India.

Readings:

Darrell M. West, The Evolution of Video Streaming and Digital Content Delivery, Brookings, 2014.

Spilker, H. S., & Colbjørnsen, T. (2020). The dimensions of streaming: toward a typology of an evolving concept. Media, Culture & Society, 42(7–8), 1210–1225. https://doi.org/10.1177/0163443720904587.

Christopher McFadden, *From DVDs to Streaming: The Incredible History of Netflix*, Interesting Engineering, March 1, 2023.

[1] https://thewaltdisneycompany.com/reliance-and-disney-announce-strategic-joint-venture-to-bring-together-the-most-compelling-and-engaging-entertainment-brands-in-india/, https://www.thehindu.com/business/reliance-disney-sign-binding-pact-to-combine-media-businesses-in-india/article67896451.ece.

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