Individual Project - Movie Analysis of Streaming Wars
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CIS 450

PROPOSAL

Project description:

I want to take a look at movies and tv shows available on platforms such as Netflix, Hulu, and Disney+ and discuss the value of each service according to the content that it provides. I want to use this to discuss what users want more of, and explore insights as I find information.

General question:

What content brings competitive advantage to streaming services such as Netflix, Hulu, and Prime Video? What advice can be given to the major powers in the industry?

Potential data sources:

https://www.kaggle.com/shivamb/netflix-shows
https://www.kaggle.com/ruchi798/tv-shows-on-netflix-prime-video-hulu-and-disney
https://www.kaggle.com/ruchi798/movies-on-netflix-prime-video-hulu-and-disney
https://www.kaggle.com/kevalm/movie-imbd-dataset

Tactics:

This will be a visualization and organization project primarily. I think my main task will be to display more efficiently what is being offered by each platform, and possibly point out areas of strength or weakness of each platform's offerings.

I would like to also use prescriptive analysis to discuss why some streaming platforms have competitive advantages and what content is most valuable to them.

I haven't found data that would allow me to drill into predictive analytics yet but I think that would be the next direction to take this project if possible.

I want to create a dashboard that allows my data to be quickly understood to a user.

If I can find sufficient data, I would love to do a regression on the average content rating of various platforms as new titles are released.

I will be working primarily with Tableau and Excel, focusing on visualizing the market as it exists now and where it may be going in the future.

Subscriber Growth

Subscriber growth information:

https://ir.netflix.net/financials/quarterly-earnings/default.aspx
https://thewaltdisneycompany.com/investor-relations/
https://ir.aboutamazon.com/quarterly-results/default.aspx

Using these three websites I was able to put together this table which represents some of the quarterly subscribers for some major services in the industry. I wasn't able to find quarterly subscribers for every quarter dating nearly as far as Netflix, but particularly some of the more recent data is most accurate.

QUARTER	NETFLIX	HULU	DISNEY+	PRIME
Q3 2011	21.5	1.5		5
Q4 2011	21.6			
Q1 2012	24.43			
Q2 2012	25.71			
Q3 2012	27.49			
Q4 2012	30.36			
Q1 2013	34.24			
Q2 2013	35.63			
Q3 2013	38.01			
Q4 2013	41.43			
Q1 2014	46.14			
Q2 2014	47.99			
Q3 2014	50.65			
Q4 2014	54.48			40
Q1 2015	59.62			
Q2 2015	62.71			44

Q3 2015	66.02			47
Q4 2015	70.84			54
Q1 2016	77.71			58
Q2 2016	79.9			63
Q3 2016	83.28			
Q4 2016	89.09			
Q1 2017	94.36			80
Q2 2017	99.04			85
Q3 2017	104.02			
Q4 2017	110.64			92
Q1 2018	118.9			
Q2 2018	124.35			95
Q3 2018	130.42			97
Q4 2018	139.26			101
Q1 2019	148.86	22.8		103
Q2 2019	151.56	25.2		105
Q3 2019	158.33	27.9		112
Q4 2019	167.09	28.5		
Q1 2020	182.86	30.4	26.5	118
Q2 2020	192.95	32.1	33.5	
Q3 2020	195.15	35.5	57.5	126
Q4 2020	203.66	36.6	73.7	
Q1 2021		39.4	94.9	150

Figure 1.1

Using this data, I created a preliminary graph to start to look for more information:
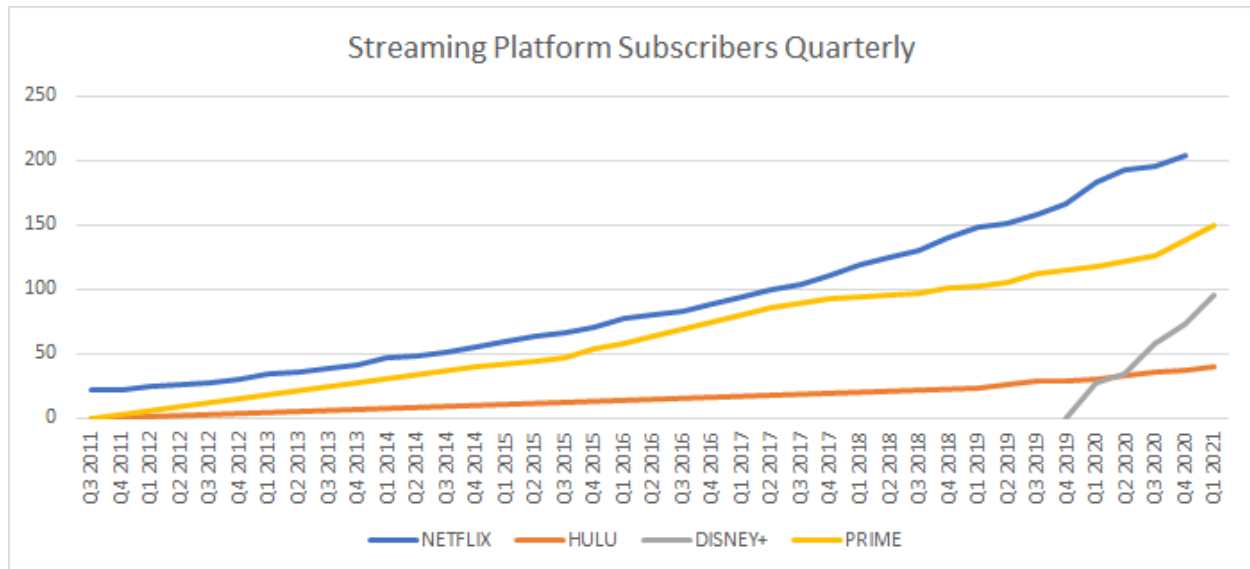
Figure 1.2

My first observation here is that Disney+ is a hot and rising platform, and definitely has the momentum to eventually compete directly with Netflix. I also noticed that, according to this graph, Prime Video is most similar to Netflix, which I don't think accurately represents the industry.

Looking deeper into this error, I found that, according to market.us, in 2020, Amazon Prime Video had roughly 50 million users, contrary to the Amazon Prime subscriber count of 118 million. Essentially, this chart was misleading because it displayed generic Prime users as users of Prime Video. The service is bundled together as one price, but it isn't always used by all members.

To account for this error, I took 50M as a fraction of 118M to create a ratio of 0.43 prime video users to overall prime subscribers.

Next I wanted to bring these results into Tableau for better visual understanding. I created a pivot from the data that I had and imported the data into Tableau. Figure 1.3 was my result.
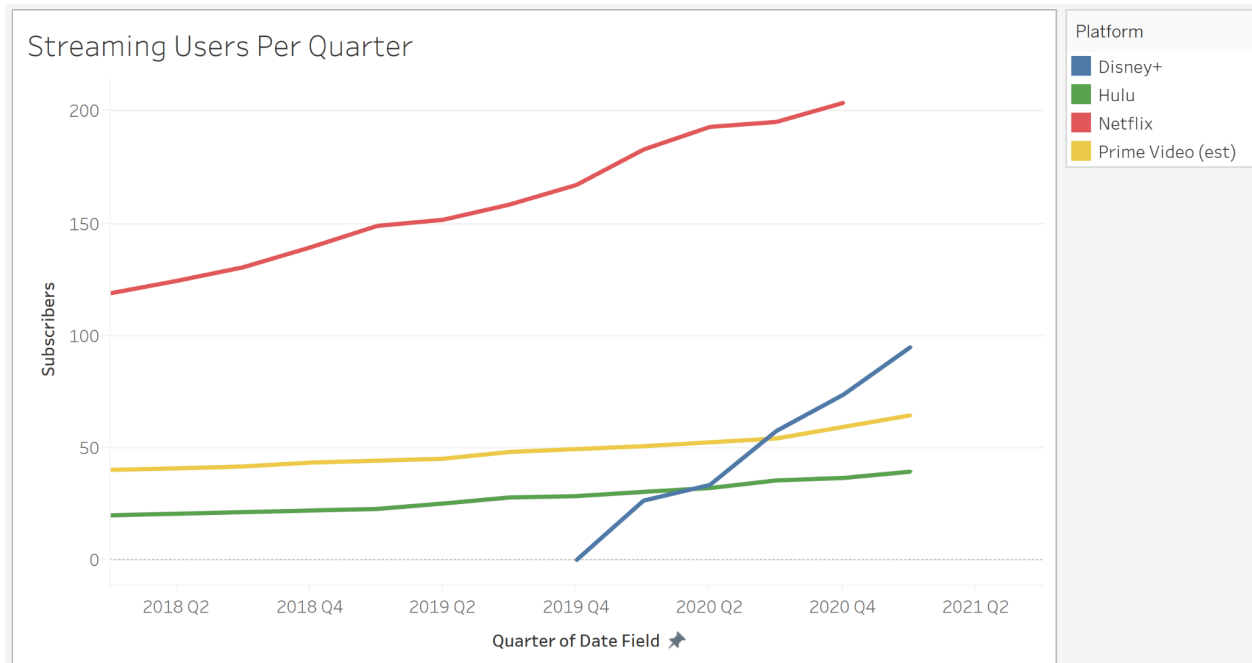
Figure 1.3

As I noticed earlier, this chart makes it very clear that, although there are other streaming platforms out there, Disney has strong potential against Netflix, while other services like Prime and Hulu are in a league of their own.

I also want to incorporate the vast difference in revenue per user of each platform. In Figure 1.4 you will see a table of the average revenue per user in 2020, according to statista.com and blacklingo.com.

Platform	Monthly Revenue Per User
Netflix	$10.82
Hulu	$13.51
Disney+	$5.63
Prime Video	$8.99

Figure 1.4

I altered the graph I made earlier with a Calculated Field in Tableau to create Figure 1.5 below.
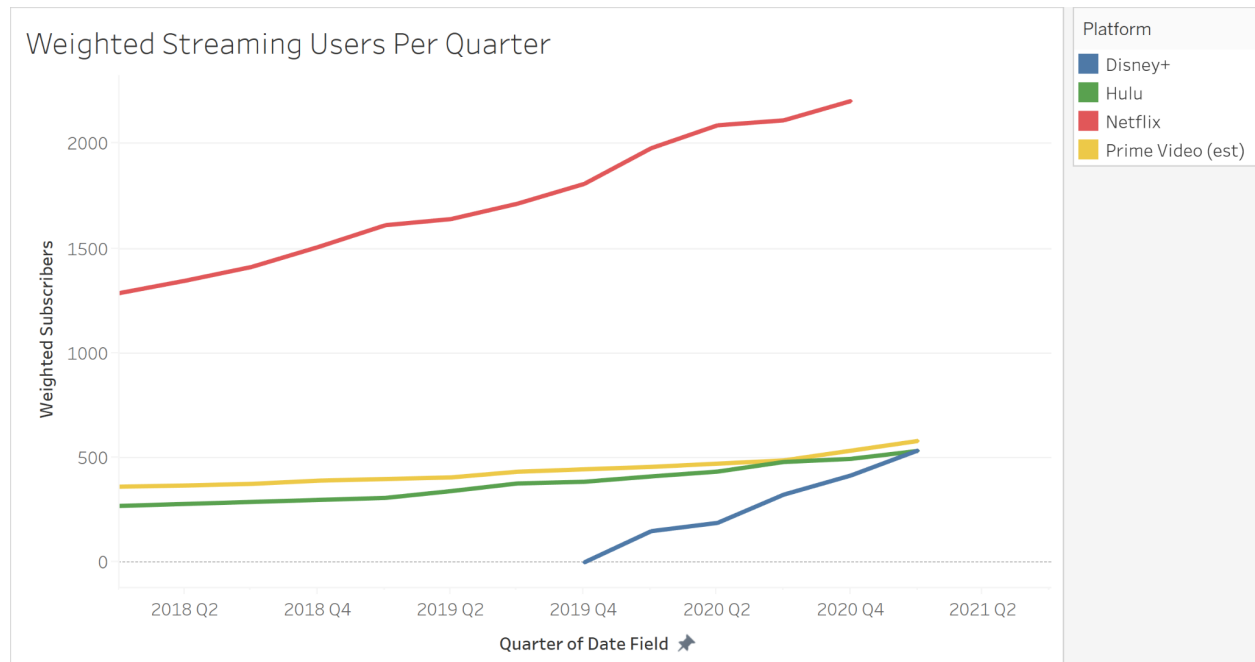
Weighted Streaming Users Per Quarter

Figure 1.5

I think the biggest difference noted is that all of Netflix's competitors are competing at around the same spot, to an even greater extent than what was shown in Figure 1.3. Although Disney+ is clearly climbing at an alarming rate for Netflix, they still have a lot more ground to cover.

It should be noted that average monthly revenue has changed for each company throughout the years. For example, while Netflix's monthly revenue per user has climbed while Disney Plus' has dropped as it has expanded its platform to EMEA audiences. It follows that Figure 1.5 does not accommodate for that fact, but it does display the general relationship between the bigger powers in the streaming industry.

Regarding Disney's low revenue per user, I would imagine that this is currently as low as it is to maintain a strong entrance into the market. They should continue to attain more paying customers who are connected to a living collection of content before raising their revenue per user. Netflix seems to have done this in the past 5 years, growing their revenue per user by 25.66% since 2016, according to their financial statement in 2021.

Box Office Values

Thus far, my exploration has made indications about the streaming market without looking specifically at what each platform provides to their subscribers.

I wanted to look more into the influence of content on the success of each platform, but found it difficult to find a measure of intellectual property between various streaming platforms. Initially, my plan was to use iMBD or Rotten Tomatoes scores to judge a movie, but posited that highly rated content doesn't signify popularity, relevance, or enterprise success for each business.

I decided that, in order to find a higher level look at Netflix's competition with Disney, I would use the box office success of films that have been a part of Netflix offerings, but whose contracts have ended and are now on the Disney+ platform instead. I used the following sources to create a table in Excel:

https://www.whats-on-netflix.com/leaving-soon/disney-movies-leaving-netflix-in-2020/
https://www.boxofficemojo.com/

Title	Studio	Date Added	Removal Date	Box Office
The Finest Hours	Disney	2016-09-06	2018-03-06	$52,099,090.00
Zootopia	Disney	2016-09-20	2018-03-20	$1,023,792,558.00
The Jungle Book	Disney	2016-11-30	2018-05-30	$966,554,929.00
Captain America: Civil War	Marvel	2016-12-25	2018-06-30	$1,153,561,649.00
Alice Through the Looking Glass	Disney	2017-01-11	2018-07-11	$299,457,024.00
Finding Dory	Disney	2017-02-01	2018-08-01	$1,028,570,942.00
Pete's Dragon	Disney	2017-03-14	2018-09-14	$143,695,338.00
The BFG	Disney	2017-04-06	2018-10-06	$195,243,411.00
Queen of Katwe	Disney	2017-04-25	2018-10-25	$10,367,161.00
Doctor Strange	Marvel	2017-05-30	2018-11-30	$677,796,076.00
Moana	Disney	2017-06-20	2018-12-20	$643,350,998.00
Dangal	Disney	2017-06-21	2018-12-21	$303,723,636.00
Star Wars: Rogue One	LucasFilms	2017-07-18	2019-01-18	$1,056,057,720.00
Beauty and the Beast	Disney	2017-09-19	2019-03-19	$1,264,064,831.00
Guardians of the Galaxy Vol 2.	Marvel	2017-12-05	2019-05-05	$863,756,051.00
Pirates of the Caribbean: Dead Men Tell No Tales	Disney	2018-01-02	2019-07-02	$794,881,442.00
Cars 3	Disney	2018-01-31	2019-07-31	$383,930,656.00
Coco	Disney	2018-05-29	2019-11-29	$807,817,888.00
Thor: Ragnarok	Marvel	2018-06-06	2019-12-06	$854,189,384.00
Star Wars Episode VIII: The Last Jedi	LucasFilms	2018-06-26	2019-12-26	$1,332,698,830.00
Black Panther	Marvel	2018-09-04	2020-03-03	$1,347,597,973.00
A Wrinkle in Time	Disney	2018-09-25	2020-03-25	$132,675,864.00
Avengers: Infinity War	Marvel	2018-12-25	2020-06-25	$2,048,359,754.00
Solo: A Star Wars Story	LucasFilms	2020-01-09	2020-07-09	$392,924,807.00
Ant-Man and the Wasp	Marvel	2019-01-29	2020-07-29	$622,674,139.00
The Incredibles 2	Disney	2019-01-30	2020-07-30	$1,243,089,244.00
Christopher Robin	Disney	2019-03-05	2020-09-05	$197,744,377.00
The Nutcracker and the Four Realms	Disney	2019-05-28	2020-11-28	$173,961,069.00
Ralph Breaks the Internet	Disney	2019-06-11	2020-12-11	$529,323,962.00
Mary Poppins Returns	Disney	2019-07-09	2021-01-09	$349,546,142.00

Figure 2.1

In Figure 2.1, I used the worldwide box office number, or the revenue from its theatrical premiere across the world, to suggest the value of each title.

Once again, I brought this table into Tableau to get a better understanding of how much intellectual property Netflix has lost to the opening of Disney+. First I created this chart to best display which films were most significant, colored by recency of their removal. You'll notice that some of the most successful films were not removed until later on, after Disney Plus' release.
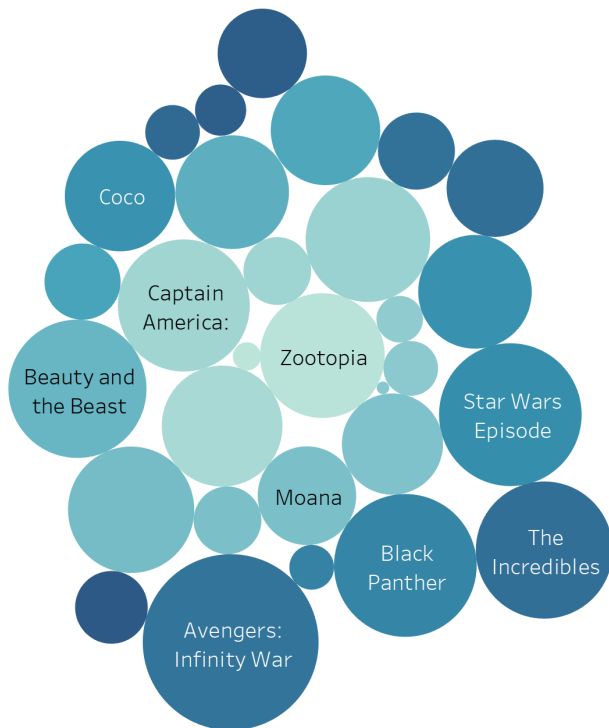
Most Successful Movies Taken Off Netflix

Figure 2.2

In Figure 2.2, the size of the bubble denotes the box office revenue, while the distance from the center represents the date that it moved from Netflix to Disney+.
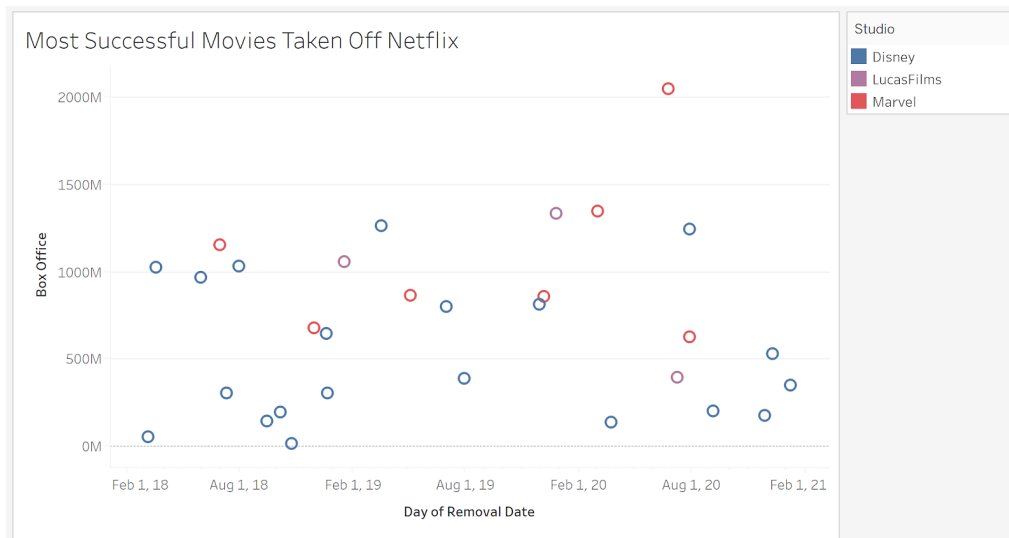
Figure 2.3

Alongside these results, Figure 2.4 shows a chart to represent the cumulative loss across multiple different properties of Disney.
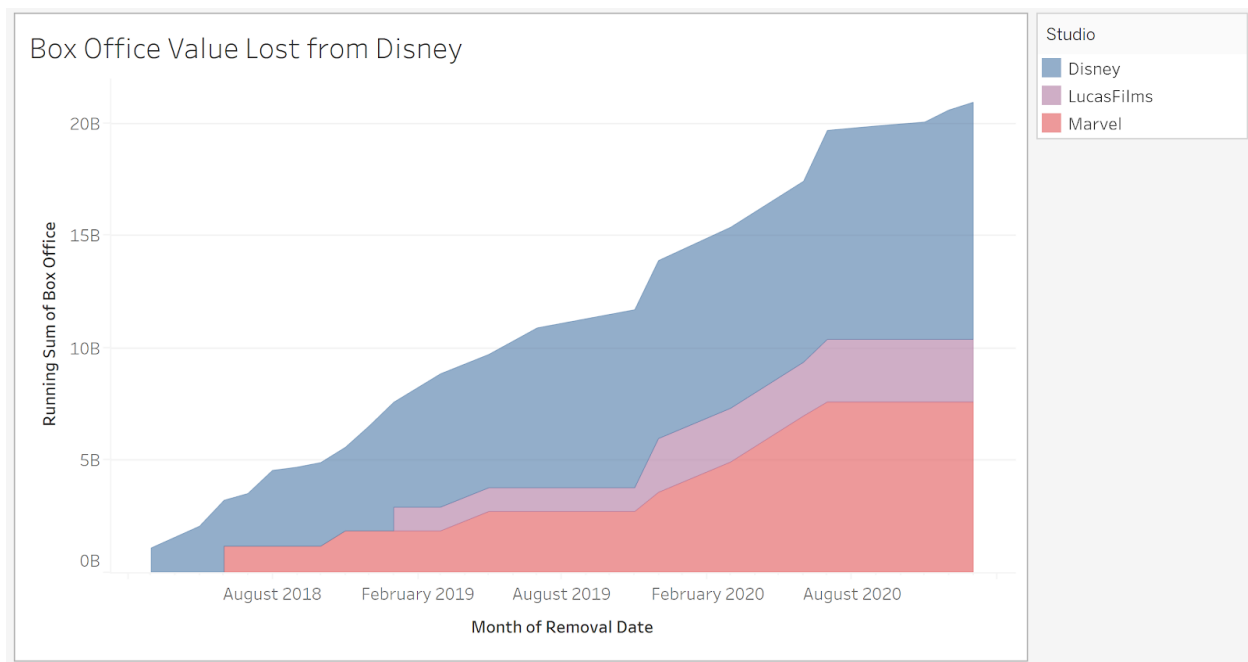

Figure 2.4

As Figure 2.4 shows, Disney has slowly been pulling content out of Netflix since 2018, but it has now accumulated to over $20B box office value of Disney owned films.

The main limitation of this data is that the box office success may not actually signify value to a company. Although a movie may have performed well in theatres, some fade into obscurity completely while other content that may have performed poorly in theatres, or even content that has never performed in theatres can draw audiences to purchase a subscription.

Clearly this loss is something that Netflix needs to balance in order to remain competitive. I wanted to see how these changes are affecting audiences on a global scale, and which platforms are garnering attention despite box office numbers.

Furthermore, this data does not account for the amount of overlapping customers between services. According to Artie Beaty of Cord Cutter News, 55% of streaming subscribers use more than one service at the same time. In many cases, competitors are sharing the same customer base, meaning that the main competition is on the 45% of users who select only one service.

Top Googled Content

Next, I took a look at top searched TV and Movies of the last 3 years according to Google:

https://trends.google.com/trends/?geo=US

I decided to use Google searches as another metric of success because this specifically highlights the relevance of each piece of content baked on audience interests.

Using this information alongside data from Hulu, Netflix, Amazon, Disney, and other streaming platforms to show which platforms offer the most relevant content. Using Tableau, I generated this visual:

Top Googled Content							Platform
		Content / Year					Null
	Movie			Show			Disney+
Rank	2018	2019	2020	2018	2019	2020	HBO Max
1	Black Pant..	Avengers: ..	Parasite	Roseanne	Game of Th..	Tiger King	Hulu
2	Incredibles 2	Captain Ma..	1917	Altered Car..	Stranger T..	Big Brother..	Netflix
3	Deadpool 2	Joker	Black Pant..	Haunting o..	When They ..	Money Heist	Prime
4	Avengers: I..	Toy Story 4	365 DNI	American I..	Chernobyl	Cobra Kai	Showtime
5	A Quiet Pla..	The Lion Ki..	Contagion	Lost in Spa..	The Mandal..	The Umbrel..	Starz
6	A Star is Bo..	It Chapter ..	Tenet	Cobra Kai	The Umbrel..	Emily in Pa..	
7	Bohemian ..	Frozen 2	Enola Holm..	Castle Rock	Euphoria	Ozark	
8	Venom	Once Upon ..	Harley Qui..	Westworld	Dead to Me	The Queen'..	
9	Hereditary	Midsommar	Mulan	Insatiable	Surviving R..	Outer Banks	
10	The Nun	Scary Stori..	Jojo Rabbit	On My Block	The Boys	Locke & Key	

Figure 3.1

I noticed that, while Disney seems to be dominating popular movies of the last few years, Netflix is definitely controlling the top TV shows of the time. In order to showcase the trend I noticed more dramatically, I created stacked bar charts of each category:
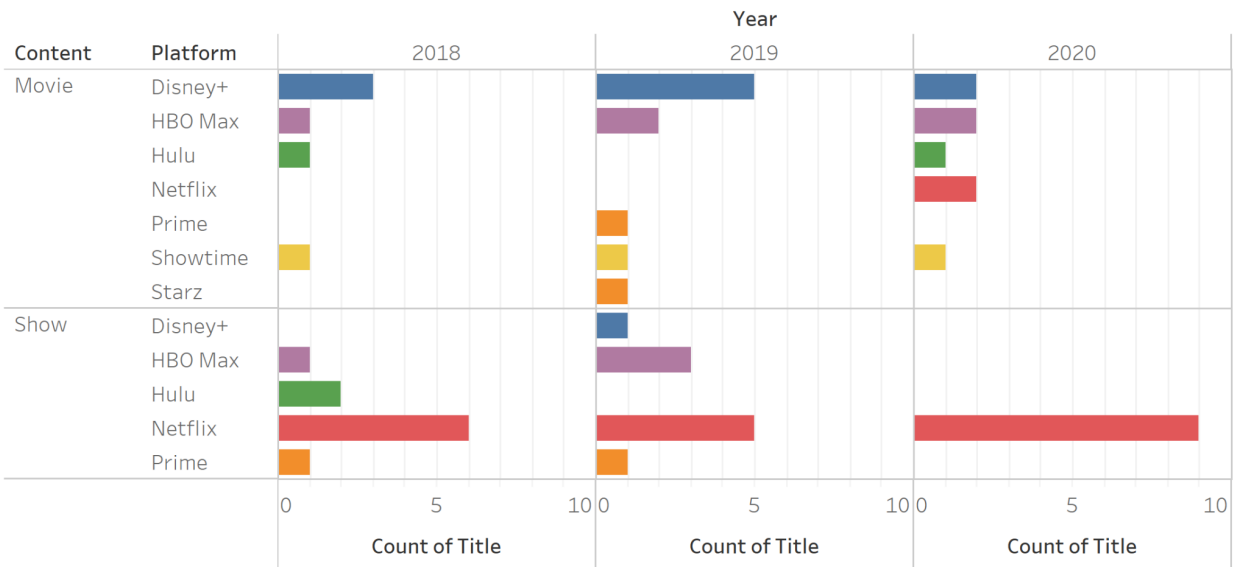
Top Googled Content

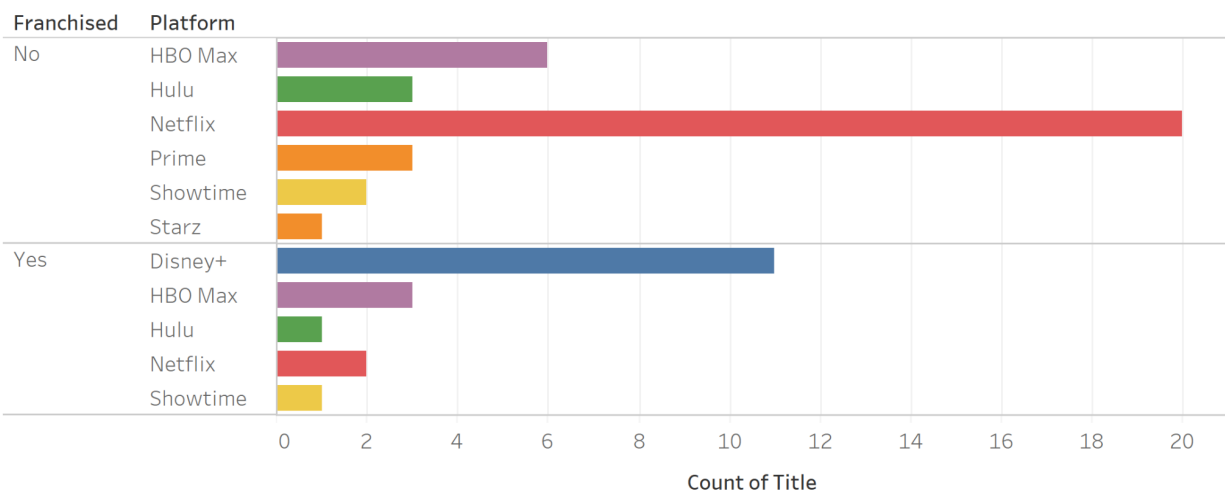*Figure 3.2*

Franchised Content

Figure 3.3

I also wanted to include a statistic about the franchised properties that were most popular for each platform. While Netflix seems to be dominating in new original TV shows, Disney is dominating by making franchises and long term familiar brands and characters.

Final Thoughts

In doing this research, I've seen different strengths and weaknesses of each platform overall. I think certain companies thrive in some ways but not others. It's clear that Disney+ has high potential if they make certain moves moving ahead.

To make recommendations for each brand;

Disney+ needs to implement new original TV shows for a wide or global audience. In order to make competition against Netflix, they must realistically pierce through the monopoly that Netflix has on popular television.

Netflix needs to continue to make contracts for award winning, relevant, and successful films in order to stay competitive. Their original content is dominating the market and should be continually updated and advanced to replace the lack of relevant backlog of movies or TV.

Hulu and Prime need more heavily funded TV shows that are relevant and interesting enough to stay competitive to the different kinds of offerings that Disney+ and Netflix offer.

My initial purpose was to explore the competitive advantages that each streaming platform has to offer. I was able to find different qualities of each company and create clear benchmarks for the industry and where some platforms excel while others fall short. These answers, although they don't go as deep as an internal report would, helped me reveal the state of this competitive industry.