Netflix: A Competitive Long-term Growth Strategy

BSAN 383: Business Intelligence

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Business Understanding

Netflix, Inc. is a globally renowned streaming media business headquartered in Los Gatos, California. The company was co-founded by Reed Hastings and Marc Randolph in 1997. At that time, movie rental stores such as Blockbuster were leading the home entertainment market. Netflix's original business model offered customers an easy way to rent DVDs by mail. It eliminated the need to drive to a physical store location to pick up the rentals. Customers could instead browse a wide array of movies and television show titles on Netflix.com, launched in 1998, and select the disk(s) to be shipped directly to their doorstep. A year later the company switched from the pay-for-use model to a subscription model giving subscribers unlimited access to DVD rentals without the hassle of due dates or late fees. Netflix also created a personalized movie recommendation system that leveraged subscriber generated data to predict their movie preferences. The website was improved over the years to better serve each customer. In 2007, Netflix introduced its online movie and television streaming service. Three years later, Netflix launched its unlimited, stream-only service plan in the USA and Canada. Beyond the multiple business model changes, Netflix continues to innovate and improve its services by adding new features and to expand reaching customers across the globe (Hosch, 2020; Netflix, 2021a).

Timeline of Other Milestones

May 23, 2002: Made its initial public offering (IPO)

Netflix (NFLX) became a publicly traded and owned entity with shares going for approximately $1.00 apiece on NASDAQ (Netflix, 2021a).

The line chart from Google Finance shows the stock performance of NFLX over time (Google Finance, 2021). The bar chart of financial performance shows significant increases over the past five years. For 2020, revenue and income were $25.00 B and $2.76 B, respectively. Compared with 2019, revenue grew by 24.01% and net income increased by 41.91% (Google Finance, 2021). See *Figures 1 and 2*

2003: Patented the subscription rental services

2008: Offered additional streaming options

Netflix partnered with businesses selling consumer electronics to expand streaming capabilities to Blu-ray players, Xbox 360, and TV set-top boxes (Netflix, 2021a).

2010: Introduced streaming on mobile devices and kids experience

2011: Netflix button added on remote controls

2013: Created first original content and introduced Profiles and My List features

2014: Introduced streaming in 4k Ultra High Definition (HD)

2016: Netflix increased its offerings to 130 new countries and introduced the Download feature for viewing content offline

2017: Introduced interactive storytelling and Skip Intro button

2018: Netflix won Emmy Awards for 23 series and rolled out PIN protection feature

2019: Netflix won four Academy Awards

2020: Launched Top 10 lists and introduced the Netflix Party

Netflix Party, a Chrome extension, was released near the beginning of the COVID-19 pandemic in March 2020 providing subscribers a way to host online tv watch parties. Netflix Party was later renamed to Teleparty as the updated extension also worked with Disney Plus, Hulu, and HBO (Netflix, 2021c).

(Netflix, 2021a)

Subscription Model

Customers are able to choose from one of the three subscription plans. Each plan includes unlimited movies and TV shows and the ability to view using laptop, TV, phone, and tablet (Netflix, 2021b). Below is a summary of the three plans and pricing for the United States:

1. Basic plan ($8.99/month)
   - 1 screen can watch on one time
   - 1 device can have downloads
   - No HD or Ultra HD available
2. Standard plan ($13.99/month)
   - 2 screens can watch on simultaneously
   - 2 devices can have downloads
   - Only HD available
3. Premium plan ($17.99/month)
   - 4 screens can watch on simultaneously
   - 4 devices can have downloads
   - HD and Ultra HD available

(Netflix, 2021b)

Annual Revenue and Subscriber Count

Netflix revenue and subscriber dataset found on Kaggle (Netflix Revenue and Subscriber) were used to build the two bar charts 1) Netflix Paid Streaming Membership by Region 2) Netflix Revenue by Region. All four regions have experienced increases in subscriptions and revenue from 2018 to 2020, however some markets are larger than others. The USA and Canada region is the company's main market with 289.89M paid streaming memberships and $11.46B revenue in 2020. Europe, Middle East and Africa follows close behind with 249.16M paid subscribers and

$7.77B revenue last year. Two smaller but still important markets are Latin America and Asia-Pacific. See *Figure 3*

- The United States and Canada is the leading region with over 250M subscriptions annually and between $8.28B and $11.46B in revenue each year.
- Europe, Middle East and Africa region follows with paid streaming membership and revenue in 2018: 132.31M and $3.96B, 2019: 185.90M and $5.54B, and 2020: 249.16M and $7.77B.
- Latin America ranks as the third performing region with subscriptions climbing from 94.25M to 116.23M to 144.29M. Revenue also grew from $2.24B in 2018 all the way to $3.16B in 2020.
- Asia-Pacific consistently performs well with paid streaming memberships of 35.83M, 55.80M, and 91.32M in 2018, 2019, and 2020, respectively. Revenues in the region more than doubled from 2018: $0.95B to 2020: $2.37B.

Business Opportunity and Pressures

It has been nearly 25 years since Netflix was created and the business continues to thrive. Netflix is currently available in 190+ countries and 30+ languages. The success of the company can be attributed to several factors. First and foremost, the strategic decision was decided and implemented to update the business model from mail-order to online streaming (Morgan, 2019). This decision transformed the way consumers viewed media content by increasing convenience and flexibility (The Media Lab, n.d.) Secondly, Netflix provides a vast array of original content to meet the needs of its subscribers by purchasing billions of dollars of content each year. Approximate spending in content over the last few years was as $13 billion in 2018, $15.3 billion in 2019, estimated $17.3 billion in 2020 (Morgan, 2019; Spangler, 2020). Thirdly, the platform provides content without advertisements and commercials creating for an uninterrupted viewing experience. Last but not least, users receive personalized recommendations based on their own tastes/preferences, others with similar preferences, and title information. Netflix leverages machine learning and artificial intelligence to gain valuable insight and enhance its business. Meanwhile, users benefit from the time and energy devoted to analytics when they use the platform (Costa, 2020).

The PESTEL framework is often used for identifying business pressures. Its acronym stands for Political, Economic, Social, Technological, Environmental, Legal. Each of the six-business pressure will be addressed for an overall understanding the factors influencing Netflix and its strategic decisions.

Political: The United States government prohibits American companies from doing business with certain countries such as North Korea, Crimea, and Syria. China is another market that Netflix has not entered due to the heavy censorship enforced by the Chinese government. Another political limitation is the content restrictions imposed by nations where Netflix is already offered. As a result, the content accessible to members in one country will vary from that of users in other nations.

Economic: Exchange rates fluctuate over time which means that currencies increase or decrease in value depending on the market. For Netflix who offers services internationally, this is an important consideration because changes in the US dollar converted between foreign currencies can impact the company's bottom line (Frue, 2018).

Social/Environmental: Megaplexes movie theaters arose in the late 1995s. Going to the movies was increasingly popular and reached a peak in 2002 with 1.58 billion tickets sold. Since then, a decline in movie theaters goers forced companies such as AMC to raise their ticket prices and increase accommodations to compensate. This decline is largely in part due to competition with companies such as Netflix offering movies on-demand. The coronavirus pandemic that began in December 2019 and reached the USA around March 2020 hit the movie theatres hardest with the largest decline of ticket sales in history (Richter, 2021). See Figures 4-6

Technical: Analytical capabilities have evolved rapidly over the past several decades. In the 1990s, Analytics 1.0 or Business Intelligence opened the door to gathering, storing, and analyzing structured data. Big Data Analytics, or Analytics 2.0, followed in 2000s enabling predictive analytics of both structured and unstructured data. The most recent version called Analytics 3.0 incorporates the Internet of Things (IoT) (Meganatha, 2016). Netflix leverages Amazon Web Service (AWS) cloud computing to store massive amounts of data and Open Connect, a collection of data centers to facilitate video traffic. For maximizing the customer experience, artificial intelligence and machine learning algorithms help provide personalized movie and tv recommendations based on each user's behaviors on and interactions with the Netflix application (Pratap, 2020). None of this would have been possible if it were not for the recent technological transformations.

Legal: State and federal laws have been enacted to protect consumer data privacy, therefore companies such as Netflix carry a huge responsibility to abide by these laws. If they violate the laws, they can be punished in court system.

Digital video piracy, or illegal content streaming websites that violate copyright laws. Past study findings estimate that piracy costs the U.S. economy $29.2 B in revenue annually (Blackburn et al, 2019). The legal pressure does not stop in America. According to a Statistia.com forecast, "piracy will cost TV and movie providers almost $52 billion in revenue worldwide in 2022" (Ha & Jiao, 2021).

Table 1: PESTEL Framework

Political	- Market limitations: North Korea, Syria, and Crimea - Censorship and permissions: China - Content restrictions
Economic	- Currencies and exchange rates
Social	- Movie theatres -> Movie on demand
Technical	- Analytics 1.0, 2.0, 3.0 - Cloud-based architecture - Artificial intelligence and machine learning
Environmental	- COVID-19 impact
Legal	- User privacy laws - Data protection laws - Video piracy

Netflix is not the only media streaming service available. The total market share includes some of Netflix's main competitors: Amazon Prime Video, Hulu, Disney Plus, HBO, and Apple TV Plus (Abbott, n.d.). Table 2 shows the number of paid subscribers for six streaming services in the fourth quarter of 2020 (Q4 2020). Neflix led with 203.7 million subscribers followed by Amazon Prime Video with 150 million and Disney Plus with 94.9 million. Hulu, HBO Max, and Apple TV Plus had a combined total of 66 million subscribers (Wallach, 2021). Table 3 shows the number of titles, average IMDb rating, and average Rotten Tomatoes critic score. The top three streaming platforms with the most original movie and tv show titles are #1 Netflix with 1777, #2 HBO Max with 521, and #3 Amazon Prime Video with 222. That said, Netflix has the lowest average IMDb rating of 6.8 and lowest average Rotten Tomatoes critic score of 73% (Supan, 2020).

Table 2: Number of Subscribers in Q4 2020 by streaming service

Streaming Service	**Subscribers (Q4 2020)**
Netflix	203.7M
Amazon Prime Video	150.0M
Disney Plus	94.9M
Hulu	38.8M
HBO Max	17.2M
Apple TV Plus	10M

(Wallach, 2021)

Table 3: Original movies and television shows by streaming service

Streaming Service	Number of Titles	Avg IMDb Rating	Avg Rotten Tomatoes Critic Score
Netflix	1,177	6.8	73%
Amazon Prime Video	222	7.2	76%
Disney Plus	36	7.1	83%
Hulu	73	7.2	77%
HBO Max	521	7.3	85%
Apple TV Plus	23	7.2	78%

(Supan, 2020)

Project Objective

For this project, two Netflix datasets will be analyzed to identify trends relating to movie and tv shows offered, user demographics, and subscription plans. Data quality is going to be verified in Tableau Prep before reviewing the descriptive statistics in RapidMiner. Multiple interactive dashboards will be built in Tableau.

The ultimate goal is to generate specific recommendations to Netflix on how to keep a competitive edge over the competition after reviewing descriptive statistics. The following questions will be answered in the operationalize section based on research and data findings:

- Should Netflix continue increasing spending on original content?
- Are movies or television shows overall more popular amongst subscribers?
- What about the user experience can be further improved in the years to come?

Data Exploration

Data Sources

The two datasets are provided by Ruchi Bhatia on Kaggle will be used for this project. They both maximum usability score of 10.0 and are licensed under CC0: Public Domain. Anyone who would like to obtain a copy of the datasets may do so by downloading them from Kaggle's website:

1. Movies on Netflix, Prime Video, Hulu, and Disney+
2. TV Shows on Netflix, Prime Video, Hulu, and Disney+

Exploratory Data Analysis

Following the data taxonomy diagram, both datasets contain structured data with variables that can be classified as Qualitative (Dimensions) or Quantitative (Measures/Facts).

The ***Movies*** data set consists of 16 variables and 16,744 records.

Qualitative

- Nominal: Title, Directors, Genres, Country, Language
- Ordinal: Age

- Binary (1-Yes| 0-No): Netflix, Hulu, Prime Video, Disney+, Type

Quantitative

- ID: ID
- Interval: Year
- Ratio: IMDb, Rotten Tomatoes, Runtime

The ***TV shows*** data set consists of 10 variables and 5,611 records.

Qualitative

- Nominal: Title
- Ordinal: Age
- Binary (1-Yes| 0-No): Netflix, Hulu, Prime Video, Disney+, Type

Quantitative

- Unnamed
- Interval: Year
- Ratio: IMDb, Rotten Tomatoes

Tableau Prep: Data Cleaning

1. Import the two datasets saved to your computer as Excel files.
2. Connect each dataset to a Clean Data process step and click the play button.
3. Review the output and determine how to treat missing values.
4. After the data is cleaned, connect the Output process step and click the play button again.
5. Save each output as a comma-separated values (CSV) file which will be used in for running descriptive statistics in RapidMiner.

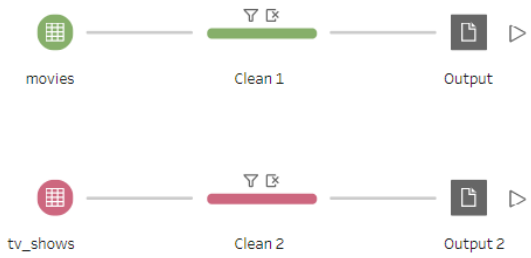


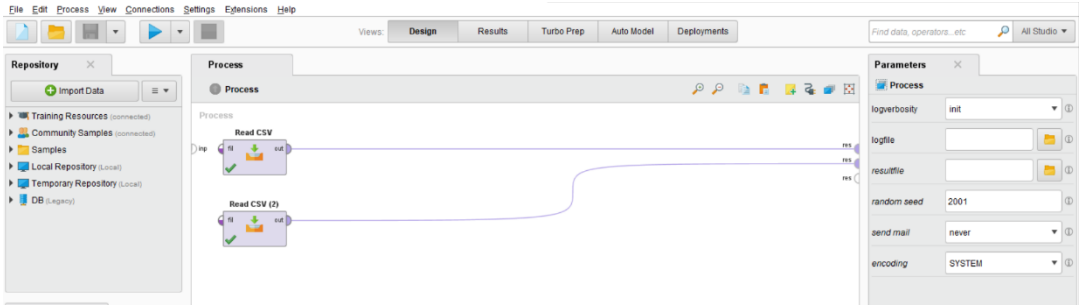
Table 4: Data cleaning

Dataset	Variable	# Null Records (%) rows	How null values handled?
Movies	Age	9,390 (56%) rows	Delete column
	IMDb	571 (3%) rows	Filter [IMDb]: Exclude rows with null
	Rotten Tomatoes	11,589 (69%) rows	Delete column
	Directors	726 (4%) rows	Filter [Directors]: Exclude rows with null
	Genre	275 (2%) rows	Filter [Genre]: Exclude rows with null
	Country	435 (3%) rows	Filter [Country]: Exclude rows with null
	Language	599 (4%) rows	Filter [Language]: Exclude rows with null

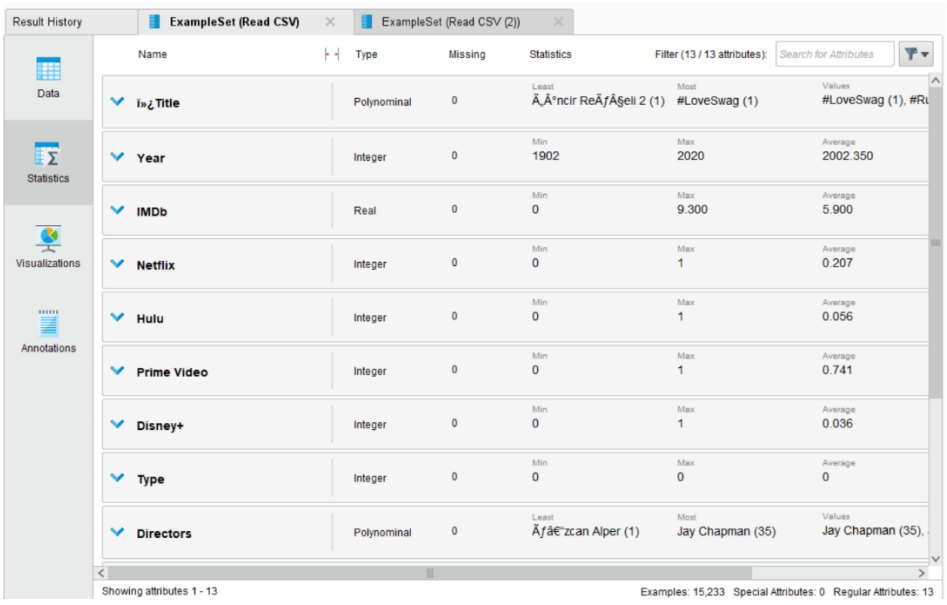
	Runtime	592 (4%) rows	Filter [Runtime]: Exclude rows with null
TV Shows	Age	2,446 (44%) rows	Delete column
	IMDb	1161 (21%) rows	Filter [IMDb]: Exclude rows with null
	Rotten Tomatoes	4,600 (82%) rows	Delete column

Rapid Miner: Data Statistics

In the 'Design' view of Rapid Miner, the Read CSV operators are used for the two csv files: movies_updated.csv and tv_shows_updated.csv. The comma separator default is a semicolon which is changed to a comma. After connecting the operators to res, click the blue play button.



In the 'Results' view, the statistics for both csv files can be viewed. There are several columns for variable name, type, missing values, and statistic. For variables with the type of polynomial, the statistics are least, most, and values. On the other hand, the statistics for variables with the type of either real or integer include the minimum, maximum, and average.



Movies *(13 columns & 15,233 rows)*

The most frequent values for the qualitative variables are 'Director': Jay Chapman (35), 'Genre': Drama (1225), 'Country': United States (8208), and 'Language': English (10300). Averages for the qualitative -> binary (1-Yes | 0-No) variables include 'Netflix': 0.207, 'Hulu': 0.056, 'Prime Video':

0.741, and 'Disney+': 0.036. This means that 'Prime Video' had the most movie titles available and 'Disney+' offered the fewest titles.
'Year' ranges from 1902 to 2020. The average 'IMDb' rating is 5.900 and has a minimum of 0 and a maximum of 9.300. 'Runtime' has a mean time of 94.479 minutes or 1 hour 34 minutes and ranges from 1 minutes to 328 minutes.

TV Shows *(8 columns & 4450 rows)*
The most frequent titles are 'Kingdom' and 'Uncover' with 3 records. Averages for the qualitative -> binary (1-Yes | 0-No) variables include 'Netflix': 0.407, 'Hulu': 0.341, 'Prime Video': 0.294, and 'Disney+': 0.038. Unlike movie titles, 'Netflix' has the largest selection of tv show titles.
'Year' ranges from 1934 to 2020. The average 'IMDb' rating is 7.113 and has a minimum of 1 and a maximum of 9.600.

Business Impact
The Netflix original TV show, "Bridgerton" attracted 82 million households within the first 28 days since its release on December 25, 2020, making it the #1 show in Netflix's history. The series was secured with a $150 million deal in 2018. Other top TV hits include "The Queen's Gambit", "Stranger Things" season 3, "Money Heist" season 4 and "The Witcher" season 1 (Clark, 2021).

Model Building and Insights

Visual Analytics
The goal of visual analytics is to build charts and graphs that showcase major findings in the data. Visualizations will be used to support actionable recommendations during formal presentations to key stakeholders of Netflix.

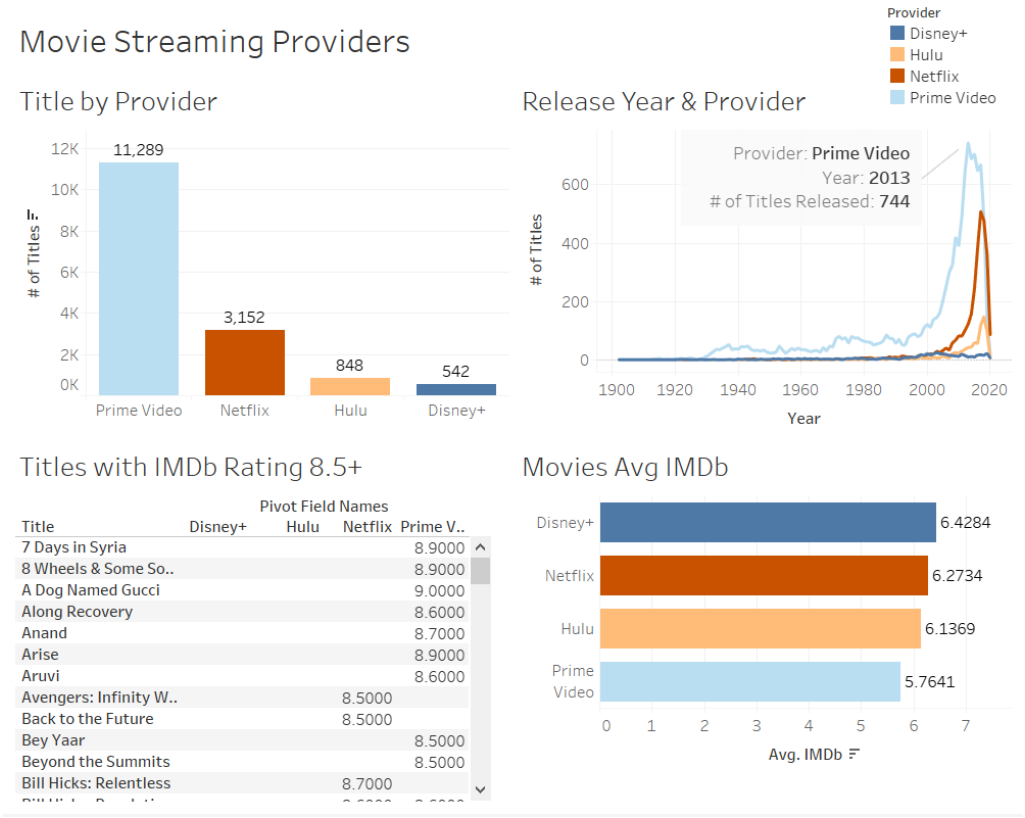
With Netflix's massive spending on original content, the titles and IMDb ratings will be essential variables in determining the popularity of movie and television shows. Furthermore, Netflix will be compared with its main competitors to determine potential opportunities for future growth.

Dashboard Design
The dashboards follow best practices:

- Be divided into four quadrants with the most important visualization in quadrant 1 (top left) and least important visualization in quadrant 4 (bottom right)
- Follow the same color scheme throughout all graphs
- Keep a consistent layout between dashboards
- Use blue and orange. The red from the color-blind palette was used for Netflix.
- Use clear titles and labels
- Avoid pie charts
- Avoid chart junk that would cause distractions

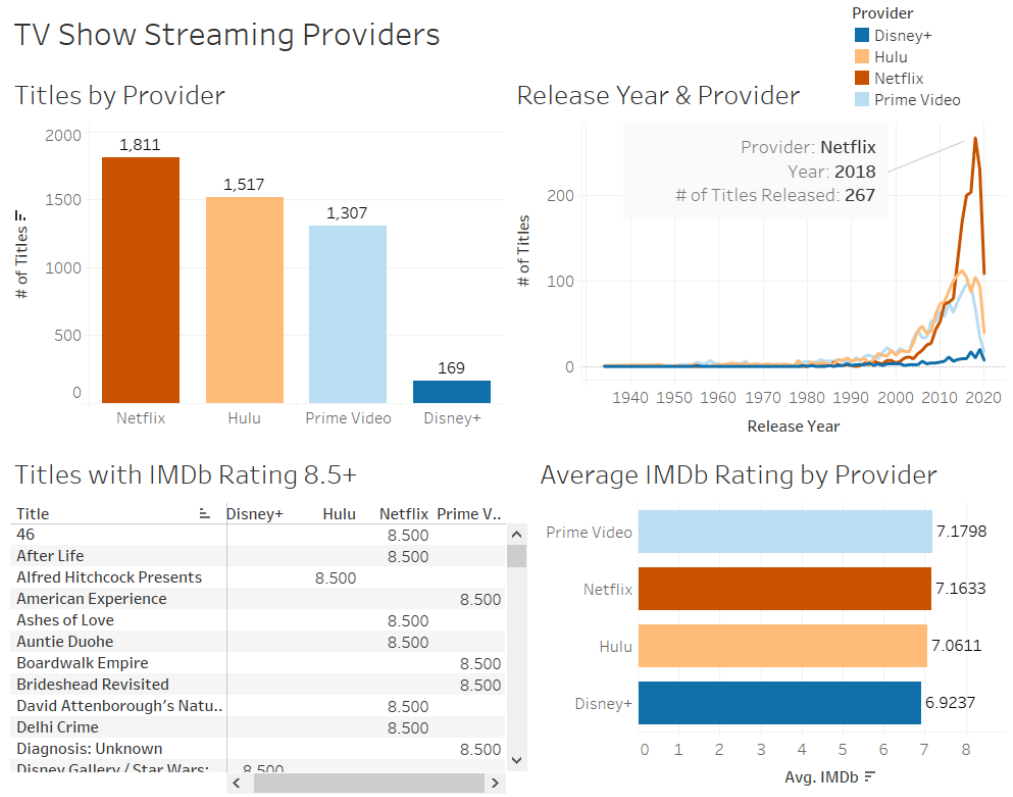
Dashboard 1
The Movie Streaming Providers dashboard consists of two bar charts, a line chart, and a table. Bar chart #1 depicts the counts of the tv show titles by providers. In terms of the number of titles

offered, Prime Video surpasses its competitors with 11,289. Neflix offers 3,152 titles while Hulu and Disney Plus have less than 1,000 titles. The line chart shows the number of tv shows released each year by provider. An annotation is added to show that Prime Video peaked in 2013 with the release of 744 new tv show titles. The filtered table shows the titles with IMDb ratings of 8.5 or higher and which provider(s) have featured that said title. Bar chart #2 depicts the average IMDb ratings for each provider which measures the overall quality of content. The spread ranges from 5.76 (Prime Video) to 6.42 (Disney+).



Dashboard 2

The TV Show Streaming Providers dashboard also consists of two bar charts, a line chart, and a table. Bar chart #1 depicts the counts of the tv show titles by providers. Netflix offers 1,811 tv shows followed by Hulu with 1,517 and Prime Video with 1,307. Disney + has only 169 tv shows. The line chart shows the number of tv shows released each year by provider. An annotation is added to show that Neflix peaked in 2018 with the release of 267 new tv show titles. The filtered table shows the titles with IMDb ratings of 8.5 or higher and which provider(s) have featured that said title. Bar chart #2 depicts the average IMDb ratings for each provider. This measures the overall quality of content. The spread ranges from 6.92 (Disney+) to 7.17 (Prime Video).



Operationalization and Deployment

Netflix's success from 1997 to today is due in part to the ingenuity of the co-founders and employees. That said, times are rapidly changing with additional streaming platforms becoming widely available. In order remain a top contender, Netflix will need to continue to innovate.

The top recommendations are:

1. Focus original content spending TV shows and less so on movies
2. Design a Year in Review for each subscriber using Big Data analytics
3. Create an Add Friends feature

Based on the data analysis, Netflix should focus their resources on producing top rated television shows. Not only does Netflix offer the widest selection tv show titles, the popularity of tv shows is greater than with the movies. Another reason to invest more in this category is that popular series with multiple seasons will reduce the risk of members cancelling their subscriptions as frequently.

Back in 2020, Spotify, a leading music streaming company, added a "Year in Review" (Nelson, 2020). Each subscriber was given a personalized summary of their most listened to songs, artists, and albums over the past year as well as 2020 Wrapped playlist (Miller, 2020; Nelson, 2020). The company designed sharable images from Wrapped so users could share to their social media accounts (i.e. Instagram stories and Twitter feed) (Nelson, 2020). Netflix could follow in Spotify's footsteps by creating their own version of "Year in Review" to allow subscribers to see their top

watch titles, actors/actresses, and genres. They could also provide recommendations for new shows that will be released in the upcoming year to keep current subscribers renewing their memberships.

Teleparty, originally launched as Netflix Party in March 2020, has made watching movies and TV shows with friends easier than ever. With the ongoing pandemic, Netflix should continue to increase social interactions with its platform. The company should consider investing in an Add Friends feature. With the proposed feature, subscribers would be able to share their favorite movies and shows, make personal recommendations to their friends, and host Teleparty all in one place.

Resources: The Year in Review project is forecasted to cost $10M.

- *Business analytics team*: Develop queries to collect statistics for the "Year in Review" and provide recommendations of movies and tv shows in the upcoming year
- *Software development team*: Program into the existing app and webpage Year in Review
- *UX and UI designers*: Create appealing design and interface

Timeline: "Year in Review" can be developed and scheduled to roll out starting in December 2021.

May-June: Create a plan
End of June: Present to senior management
July: Create a prototype design
August-October: Revise design and perform tests to check accuracy of user summaries
November: Conduct final testing and announce to the public
December: Release "Year in Review"

The projected revenue and net income for 2021 is $30B and $3.76B, respectively. These numbers are mainly based on the performance from past years. The rewards from implementation of the recommended solutions will become more evident in the years to follow.

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Data Sets from Kaggle
Business understanding:

1. Netflix Revenue and Subscriber

Modeling:

1. Movies on Netflix, Prime Video, Hulu, and Disney+
2. TV Shows on Netflix, Prime Video, Hulu, and Disney+

Appendices

Figure 1: NFLX Stock Performance

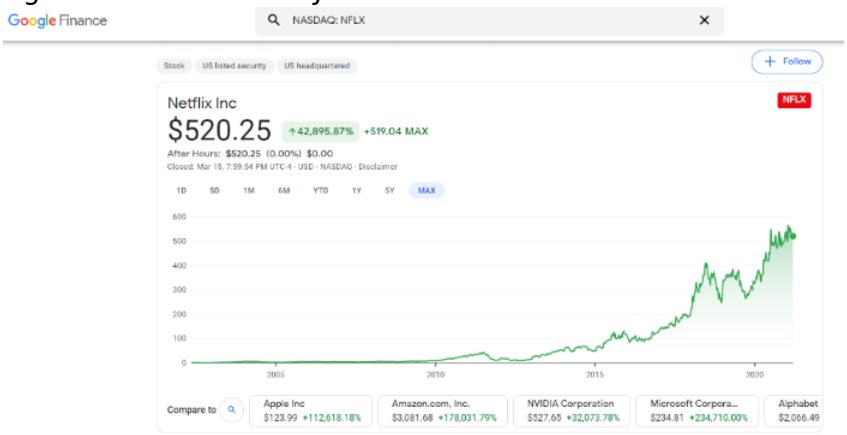


Figure 2: NFLX Financial Performance

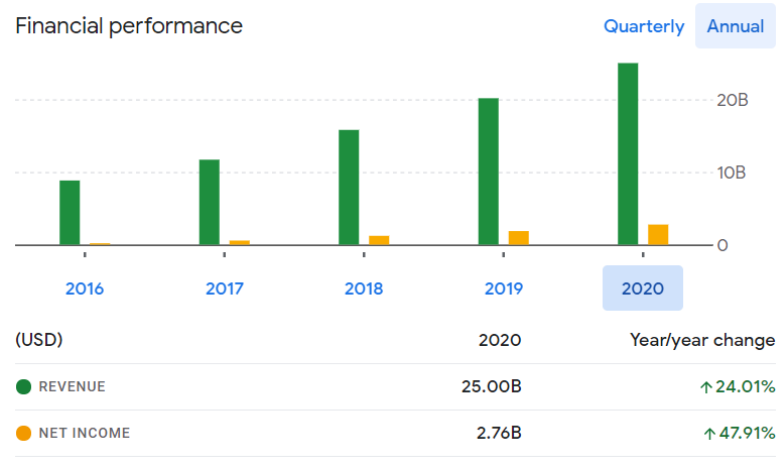
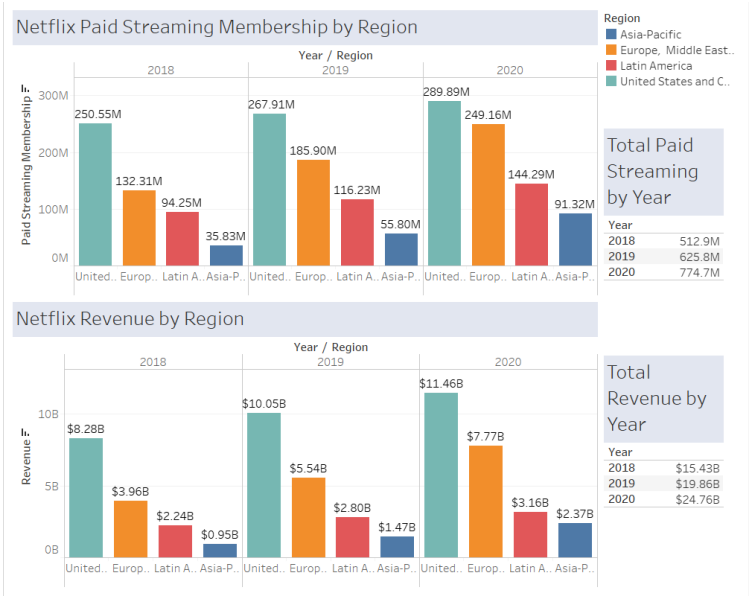


Figure 3: Netflix Paid Streaming Membership and Revenue



Figures 4-6: Movie Theatre Performance between 1995-2020