



“Broadcast Yourself”

Business Plan

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Executive Summary

Company Mission & Values

YouTube's company mission is to "give everyone a voice and show them the world" with a focus on the creation of an online community where users can share their stories while simultaneously listening to others. There are four "essential freedoms" that help YouTube achieve their mission and also define them as a company. These "essential freedoms" are:

1. Freedom of Expression - Everyone should be able to speak freely, share opinions and create open dialogues.
2. Freedom of Information - Everyone should have access to video, a powerful source of information for educational and personal development.
3. Freedom of Opportunity - Everyone should have a chance to be acknowledged by the world, to promote their own business and work towards success without restrictions from others.
4. Freedom to Belong - Everyone is entitled to find an accepting community that will provide support, remove barriers and work together on shared interests and passions.

Company History

YouTube was first registered as a website on February, 14th 2005 in San Bruno, California. The three founders Steve Chen, Chad Hurley, and Jawed Karim are all former PayPal employees. The video sharing platform started out as a dating website where users were encouraged to upload videos of themselves, hence the name **You**Tube. Users who are interested in the person who appears in the video would upload a response video in return, initiating an online relationship. YouTube's original slogan was "Tune-in, Hook-up". The online dating approach to the video sharing platform quickly proved to be a failure but the site continued to grow in terms of the amount of content upload and number of new users. In 2006, Google purchased YouTube for \$1.65 billion after it had only been established for less than two years.

Online Video Platform

YouTube is an online video hosting service where users can upload, watch, like, share, and comment on their own videos as well as others. Anyone can create a video and upload the content onto the website, so long as they have an internet connection and are able to access the video sharing platform from their device. The video platform can be accessed on desktops, laptops, tablets, smart televisions, and mobile phones. YouTube is a free service with optional paid subscriptions such as YouTube Premium, Channel Membership, and YouTube Music. The video sharing platform is accessible worldwide however certain countries have blocked or censored content from the website in the past.



Industry & Company Overview

Industry Overview

Online video sharing grew exponentially in part due to the development of high-speed internet access, making it easier for people to download video files such as AVI (Audio Video Interleave), FLV (Flash Video Format), WMV (Windows Media Video), MOV (Apple QuickTime movie), and MP4 (Moving Pictures Group 4). Before high-speed internet was accessible, a full-length movie would take several days to download via dial-up broadband internet. Additionally, the rise of social media also aided the online video sharing industry, many users uploaded and embedded videos onto their social media webpages. An example is Facebook, an online social networking platform which has become one of the biggest online video sharing competitor to YouTube.

Finally, the innovation of smartphones has enabled viewers to access online video sharing platforms such as YouTube at any given moment. Users no longer need to be accessing the website from a desktop or wired connection. The aggressive expansion of the online video sharing industry has resulted in the downfall of many video stores, most popularly the movie and video game rental service Blockbuster LLC.

However, not all players in the video sharing industry can successfully incorporate video advertisement strategies onto their platform. YouTube has been able to increase viewer tolerance of advertisements over the years due to the incredible amount of content available on the video-sharing platform. Advertisement revenue remains the primary profit generator for YouTube, creating an estimated \$8 billion in profits for the company in 2018. It is important to note that the industry has seen exponential growth of the mobile video sector which has surpassed the traditional desktop video revenue strategy. Mobile video-sharing platforms will be the future of the industry and YouTube has created applications to accommodate the demands of viewers on mobile devices.

Company Overview

Product: What makes YouTube's product unique is the complex ownership of the content on the video sharing platform. Since YouTube did not create these contents, the company therefore does not own the rights to the videos. YouTube relies on video creator to generate content for their video sharing platform. What the company owns as their own product is the online video hosting platform which hosts all these videos.



Company Philosophy: “We believe that everyone deserves to have a voice, and that the world is a better place when we listen, share and build community through our stories”

Company Slogan: “Broadcast yourself”

User Demographics: Due to the large variety of content on the video-sharing platform, YouTube attracts users from all demographics.

Website: YouTube is accessible on the majority of electrical devices as a website. YouTube is also accessible as an application on IOS devices and Android devices.

Business Strategy

Advertisement Revenue Strategy

YouTube’s main source of revenue comes from video advertising efforts promoted on user generated contents and advertisements displayed on the homepage as next to a video on the watch page. Since YouTube does not own the rights to these videos, the revenue is shared between the video creator and YouTube. This gives the unique opportunity for YouTube and the video creator (known as the YouTuber) to earn a profit in this transaction. Videos that are more popular with higher views will generate more advertisement revenue. Video creators are paid through AdSense, an account for payment from all YouTube advertisements on their video. Google will only issue a payment if the accumulated earnings of a video at a minimum of \$100. This advertisement revenue motivates viewers to share YouTube videos on social media platforms, blogs, forums, an other digital outlets to acquire as many views as possible.

Video Creator Revenue: Enabling ads on any YouTube video requires the video creator to agree to the Google Ad Revenue Agreement where Google keeps 45% of the profit and the remaining 55% is given to the video creator. This also gives the video creator the freedom to choose what type of advertisements should appear on their video.

YouTube-Business Revenue: Businesses are the main contributors of advertisements that will appear on YouTube. A similar bidding process to Google Adwords is implemented, however the impressions of these advertisements are calculated differently since they are in a video format.

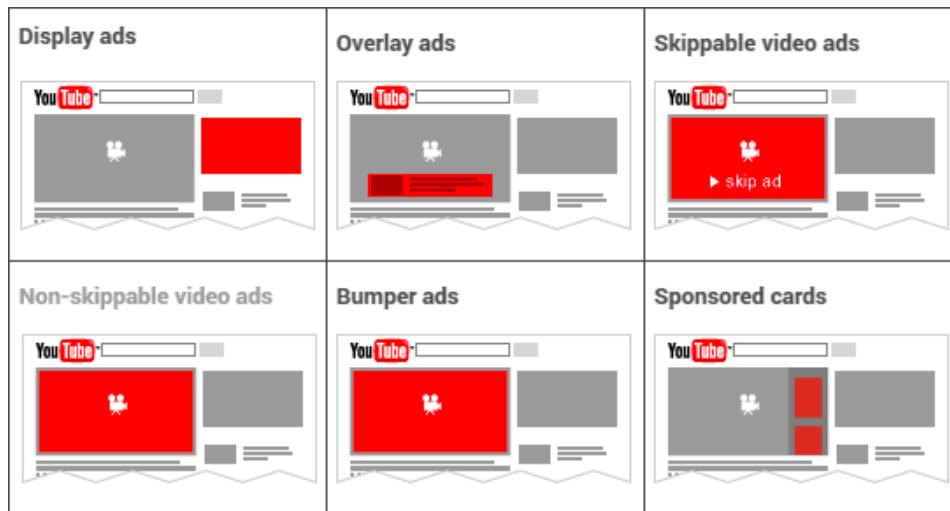


Figure 1: Types of YouTube Advertisements

Types of Advertisements

Display Ads: The first is display ads, these appear to the right of the video above the video suggestion list.

Overlay Ads: Overlay ads are semi transparent and appear on the lower 20% of the video. These two first ads only appear on the desktop platform.

Skippable Ads: Skippable ads allow users to skip the ad after 5 seconds and they are inserted before, during and after the video. These ads appear on the desktop platform, as well as mobile.

Non-Skippable Ads: Non-Skippable ads must be watched before viewing the video and can take as long as 30 seconds.

Bumper Ads: Bumper ads are non skippable video ads that take up to 6 seconds.

Sponsored Ads: Sponsored cards display content that may be relevant to the video such as produced featured in the video.

Traffic Data

Figure 2: Traffic Metrics and Values

Metric	Value
Average Bounce Rate (%)	27.3
Average Visit Duration (Minutes)	8.25
Referral Traffic (%)	1.29
Social Media Traffic (%)	3.12
Search Engine Traffic (%)	19.5
Direct Traffic (%)	71.12
Total Monthly Site Visits (Billions)	23.35
Pages Per Visit	4.95



Bounce Rate: A bounce rate in the range of 20% to 40% is relatively above average and shows the site is high in quality. YouTube's bounce rate is currently estimated at 27.3%, this highly actionable key performance indicator shows YouTube's landing page is working relatively well. However, it is important to point out that the bounce rate of each individual watch page, depending on the video's content, may differ widely from one another.

Average Visit Duration: The average visitor spends approximately 8 minutes and 15 seconds when visiting YouTube's website. This is a impressively high visit duration, contributed by the plethora of content YouTube has to offer on its platform. The visit duration is reflected by the practice of "binge-watching" also known as the "YouTube Black Hole" where viewers primary intentions were to watch one video, however they end up watching multiple videos instead while they are on the platform. Additionally, the visit duration is highly influenced by the length of the video content that the viewer is interested in. Some videos, such as podcasts of celebrities, may be much longer compared to videos in the category of music videos.

Referral Traffic: Referral traffic is relatively low at 1.29%, this is reflected by the high direct traffic percentage.

Social Media Traffic: Social media traffic is also relatively low at 3.12%, this comes at no surprise as one of the biggest competitors of YouTube are social media platforms such as Facebook.

Search Engine Traffic: Search engine traffic for YouTube is at 19.5%.

Direct Traffic: The highest percentage of traffic for YouTube is direct traffic at 71.12%, most viewers directly visit the YouTube website to search for videos to watch.

Total Monthly Site Visits: The number of total monthly site visits has continued to increase, with a total of 23.35 billion in 2018. Visitors come from all around the world, and more than half access YouTube's video contents through their mobile devices.

Pages Per Visit: The average number of pages for a viewer per visit is around 4.95. This also corresponds to the average visit duration and the "YouTube Black Hole" phenomenon.



Key Performance Indicator (KPIs)

Engagement

These metrics can be found in YouTube's Interactions report. Also help determine what types of videos are most popular, what types of tags were used on these videos. The KPIs below are specific to the interactions of the viewer to the YouTube video.

Earned Views: When a viewer watches another video on the same YouTube channel or watches the same video more than once.

Earned Subscribers: When a viewer subscribes to the YouTube channel, the channel avatar is now viewable on the left side of the homepage.

Earned Likes: When a viewer likes the video by clicking the thumbs up icon.

Earned Shares: When the viewer shares the video, there are many ways to embed YouTube videos on other websites. Viewers can also copy and paste the link of the video.

Earned Playlist Addition: When the viewer adds the video to a playlist.

Video Advertising

The KPIs below are specific to the video advertisements shown on YouTube.

Cost-Per-View (CPV) Bidding: The average amount a business/company/owner pays when a viewer watches 30 seconds of their advertisement video or engages with the advertisement video, whichever comes first. The maximum CPV is the most the business/company/owner is willing to pay for an ad view on the video.

Video Impression: When a viewer watches 30 seconds of the video advertisement or interacts with the advertisement, whichever comes first.

Cost Per Mille/Cost Per Thousand Impression: The average amount a video creator gets paid per thousand impressions. The video creator gets 55% of the final payment while Google keeps 45%.

Click Through Rate (CTR): The total number of clicks the video advertisement receives divided by the number of times the ad has been shown.

Conversion Rate: The number of viewers who click on the advertisements and then complete the action/purchase/conversion.



Competitor Analysis

YouTube, a large corporation and subsidiary of Google, competes with other large entities with large market share such as Netflix, Twitch, Vimeo, and Facebook.

Netflix is an American video streaming service founded in 1997 and is the world's 7th biggest internet corporation according to revenue. It is also currently the leader in streaming services, as it exists in 75% of US Wi-Fi households. The company has generated increasing revenues over the past years: \$15.794B in 2018, \$11.693B in 2017, and \$8.831B in 2016. Netflix has approximately 148M subscribers across the globe, with 60M from the United States. Furthermore, the platform is available on a global scale except for countries such as China, Crimea, Iran, North Korea, and Syria; this is due to legal restrictions.

Twitch is an American live-streaming video service with an emphasis on video gaming. The company was acquired by Amazon for 970M. It is the world's 4th most visited website for video-streaming services. Though YouTube has started YouTube Gaming, Twitch has a bigger live-streaming consumer-base (Exhibit 6). The company has approximately 2.2M daily live-streaming content creators and 15M daily viewers. 20% of its users are from the United States, while 80% come from abroad; the platform is banned in China. Furthermore, 80% of their users are male.

Vimeo is an American advertisement-free video service that was created in 2004 and has a large subscriber base because of its high quality video streaming and editing tools. The platform requires users to pay a membership fee from \$7 to \$900, and offers a multitude of packages dependent on how one uses the platform. It has grown to become one of YouTube's largest competitors because of the many content creators with an existing fan-base that use the platform. Last year, the company generated 160M in revenues, which was an upwards from its previous year of 952K; the platform is projected to grow 20-30% within the next year. Furthermore, the company's largest presence is in the United States and is focusing heavily on marketing to increase brand awareness in its home country and abroad.

Facebook has been pushing its video platform "Watch" towards users in order to deter traffic towards YouTube. Facebook hoped the online video service will be able to compete with YouTube by enticing users to watch videos within the platform. In the Facebook application on mobile devices, a new tab has been introduced for users to easily swipe to a newsfeed filled with only video content. Despite their continued efforts to increase their competition in the video market, Facebook has not been able to catch up with YouTube thus far.



Financial Projections

Revenue Model

The price of advertisements which businesses pay mainly depends on the categories of advertisements. The location of the advertisement also affects the price, mainly if the advertisement will appear out of the video content or be inputted directly into the video content. Advertisements which appear at the beginning of a video are charged a higher fee compared to those inputted at the middle or end of the video. Also, the longer the duration of the advertisement video, the higher the advertisement fee. If the advertiser chooses the option for viewers to skip the advertisement in 5 seconds, the overall cost of the video advertisement will be lower compared to non-skippable advertisements. Advertisements featured as a wide banner on the homepage and above the video suggestion list have a different fee as they can be non-video advertisements.

Data shows YouTube's revenue has doubled year to year. However, the exact number is inaccessible as YouTube is not listed on the public market. We estimated the income from other video-advertising revenue, which had remained stable and increased over the years.

Unit: Billion	2019	2020	2021	2022	2023
Youtube					
Beginning Balance	0	2.3	4.97	8.13	12.75
Cash Inflows					
Advertisement Sales	2.6	2.99	3.5	4.16	5
New advertisement strategy	1.3	1.69	2.2	2.86	3.7
Traditional advertisement	1	1	1	1	1
Premium	0.3	0.3	0.3	0.3	0.3
Total Cash Inflows	2.6	2.99	3.5	4.16	5
Cash Outflows					
Operating Activities	0.2	0.22	0.24	0.26	0.28
Financing Activities	0.1	0.1	0.1	0.1	0.1
Total Cash Outflows	0.2	0.32	0.34	0.36	0.38
Net Cash Flows	2.3	2.67	3.16	3.8	4.62

Figure 7: Revenue Data



Video Data Analysis

The focus of the data analysis completed was to create a basis for the recommendations below for the YouTube Trending Videos Views data. Specifically, the analysis looked at the rules that were being used in the trending videos system to identify which videos should be promoted on the website's homepage. Additionally, we identified variables that have a statistically significant influence on the numbers of views in the trending videos system. Videos that are trending tend to be most popular and therefore most cost effective for ad revenue. In order to maximize the success of the placement of advertisements as well as increasing the ad revenue overall, it is key to identify which videos will have a higher chance of becoming popular amongst viewers.

In order to sort through hundreds of hours of video content uploaded daily, YouTube utilizes a tagging system. Tags are generated depending on the content of the video. Tags are also used when viewers search for videos on YouTube's platform. Similar to Google's keywords system, videos need to be tagged in order to be searchable and identifiable.

Data was used from 4571 random trending videos selected on YouTube for the analysis below. First, in order to detect and analyze the rules used in the trending videos identification system, a basic summary of the variables are shown as follows:

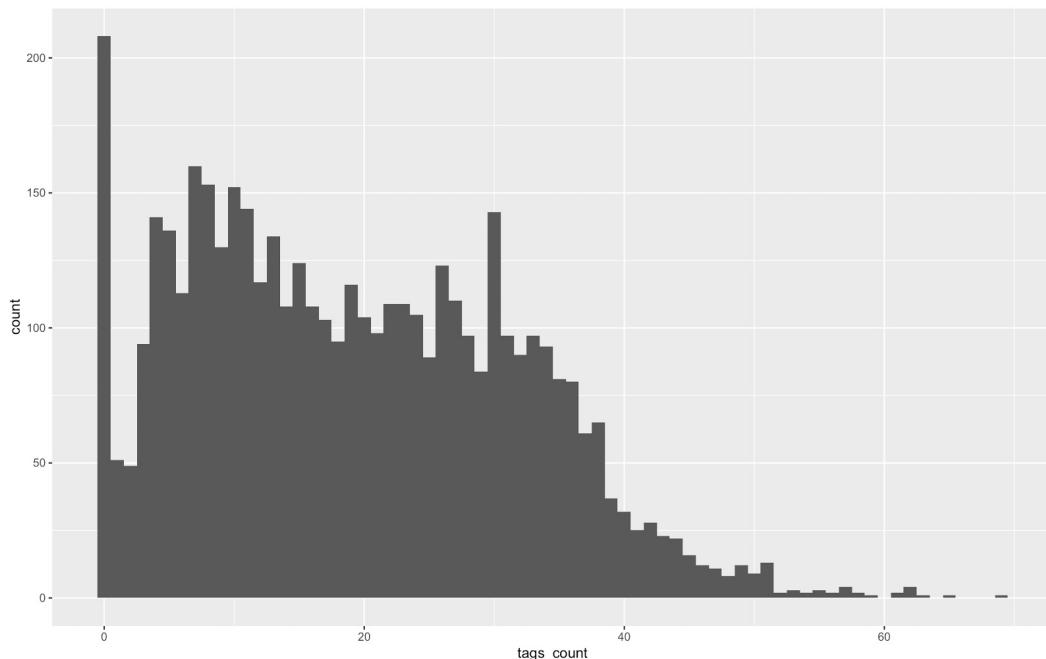


Figure 3: Count and Tags_Count



Figure 3 showed the level of success of the current tagging system. Only 209 videos out of the 2471 videos were not tagged in their descriptions. Additionally, more than 95% of all videos marked as trending in the sample had their own tags generated for the video.

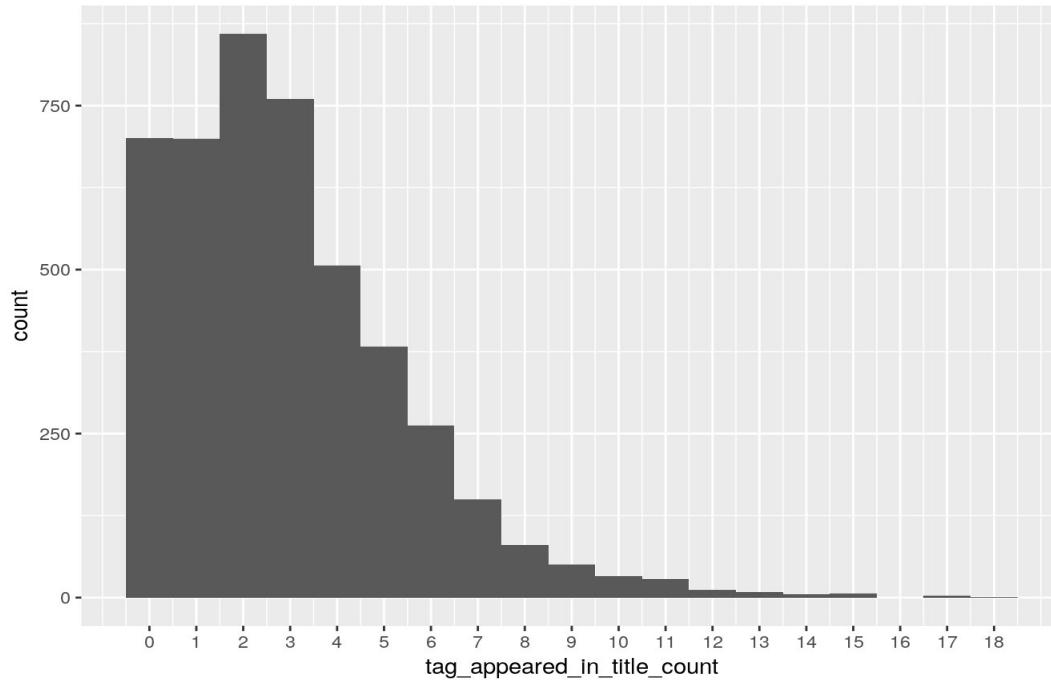


Figure 3.1: Count and Tag_Appeared_In_Title_Count

One of the first descriptions of a video that the viewer will look at when they decide what to watch is the title of the video. The graph above showed 3847 out of 4571 trending videos have at least one tag word mentioned in their title. Additionally, more than 84% of all trending videos will use more than one tag in their titles.

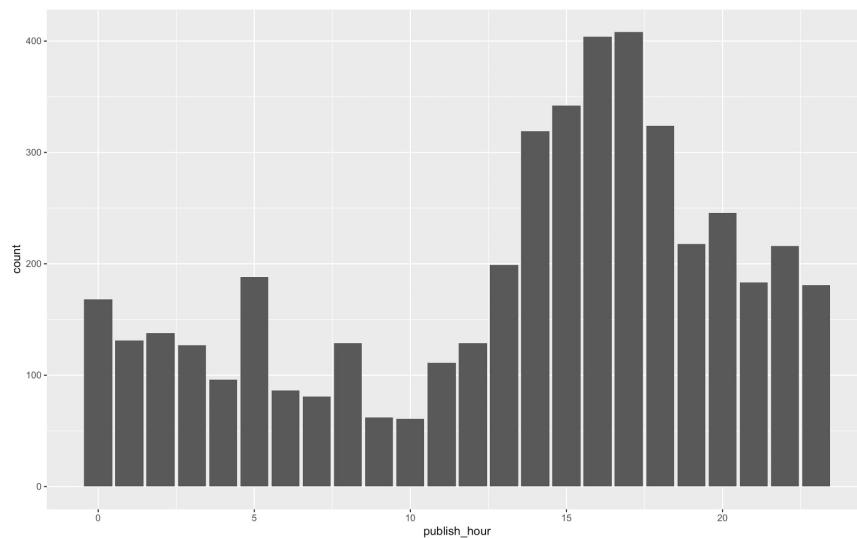




Figure 3.2: Count and Publish_Hour

For the variable Publish Hour, the index varied from 0 to 23 hours. This meant a video could only be identified as trending during the first day since it was originally uploaded. This leaves a very small window for a video to generate enough views to be featured in the trending video section of the homepage.

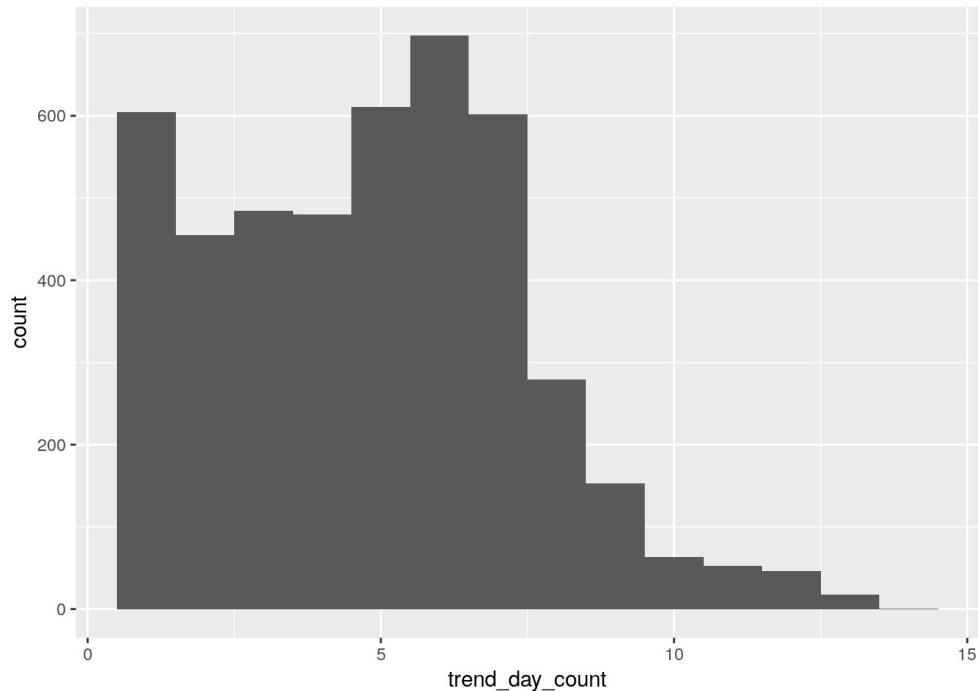


Figure 3.3: Count and Trend_day_Count

Figure 6 analyzed the variable Trend Day Count, the results showed only 604 out of the 4571 trending videos appeared on the Trending Videos list in the home page for one day. 86% of all the other trending videos appeared on the list more than once or stayed on the trending list for longer than a period of a day.

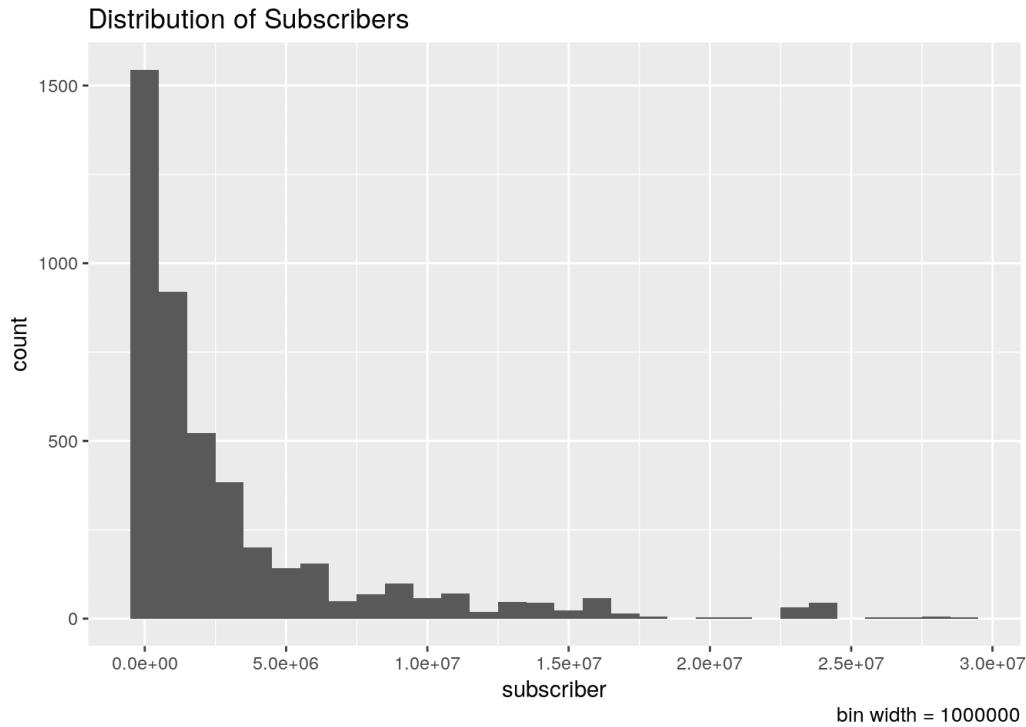


Figure 3.4: Count and Subscriber

The graph above focuses on the variable Subscribers, specifically how many subscribers the channels of these trending videos had. The results showed there were no statistically significant relationships between number of subscribers and trending videos. In other words, the number of subscribers from the channel which the video was from did not affect the video's chances of being deemed a trending video. 72 videos out of the 4571 videos had no subscribers to the channel.

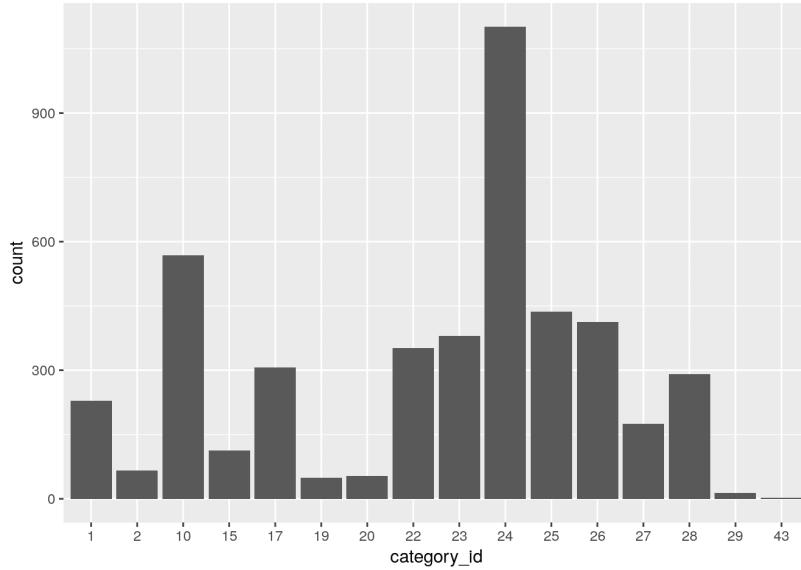


Figure 3.5: Count and Category_id

Figure 3.5 showed the description ID of the trending videos. We used this data to find statistically significant relationships between variables that affected the number of views of the video. A correlation matrix was used to detect positive and negative correlations between the variables in the dataset.

	category_id	comment_count	commentsdisabled	dislikes	likes	publish_hour	ratingsdisabled	subscriber
category_id	1.000000000	-0.026889512	0.042492245	0.000495226	-0.1226213662	0.068044775	-0.0208443904	-0.004665001
comment_count	-0.026889512	1.000000000	-0.020658575	0.833600890	0.712905723	0.010496905	-0.0107609210	0.191212169
commentsdisabled	0.042492245	-0.020658575	1.000000000	-0.003082592	-0.0276548181	0.013842937	0.3241584095	-0.049526818
dislikes	0.000495226	0.833600890	-0.003082592	1.000000000	0.4603035463	0.007037219	-0.0052238314	0.129718454
likes	-0.122621366	0.712905722	-0.027654818	0.460303546	1.000000000	-0.004348237	-0.0202057781	0.320503745
publish_hour	0.068044775	0.010496905	-0.013842937	0.007037219	-0.0043482366	1.000000000	0.0294967480	-0.034481526
ratingsdisabled	-0.020844390	-0.010760921	0.324158409	-0.005223831	-0.0202057781	0.029496748	1.000000000	-0.042204126
subscriber	-0.004665001	0.191212169	-0.049526818	0.129718454	0.3205035461	-0.034481526	-0.0422041259	1.000000000
tag_appeared_in_title_count	0.053529115	-0.011696270	-0.039467212	-0.011847959	0.0283834616	0.020944875	-0.0272521608	0.146812886
tagappearedintitle	-0.039709971	-0.011265118	-0.060378376	-0.014231942	0.0293837780	0.044350033	-0.0282093328	0.096814309
tags_count	0.143379721	0.008164851	-0.064924879	0.014983306	-0.000851528	0.040511304	-0.0323504117	0.2487088923
trend_day_count	-0.100223977	0.084612743	0.014696008	0.048346022	0.1649590858	0.032819985	0.0126912203	-0.022431706
trend_tag_highest	0.131677325	0.008553579	-0.054710369	0.019143023	-0.010978581	-0.037941647	-0.0185655949	0.262213253
trend_tag_total	0.146317329	-0.012846999	-0.051742264	0.001614338	-0.0342861525	-0.122491173	-0.0248920950	0.325825837
trend.publish.diff	-0.048540564	-0.017496831	-0.005769297	-0.007801010	-0.030385866	0.012676867	0.0007271549	-0.075939341
views	-0.117473714	0.573305613	0.011162228	0.528962503	0.8209099077	-0.027415596	0.0337691318	0.265717949
<hr/>								
	category_id	comment_count	tags_count	trend_day_count	trend_tag_highest	trend_tag_total	trend.publish.diff	views
category_id	-0.053529115	-0.039709971	0.1433797211	-0.100223977	0.131677325	0.146317329	-0.0485405643	-0.117473714
comment_count	-0.011696270	-0.011265118	0.0081648512	0.084612743	0.088553579	-0.012846999	-0.0174968310	0.573355613
commentsdisabled	-0.039467212	-0.060378376	-0.064924879	0.014696008	-0.054710369	-0.051742264	-0.0057692968	0.01162228
dislikes	-0.011847959	-0.014231942	0.0149833057	0.048346022	0.019143023	0.001614338	-0.0078010098	0.528962503
likes	0.028383462	0.029383778	-0.00851528	0.164959086	-0.010978588	-0.034286153	-0.0303858866	0.820909908
publish_hour	0.020944875	0.044350033	0.0405113036	0.032819985	-0.037941647	-0.122491173	-0.0126768672	-0.027415596
ratingsdisabled	-0.027252161	-0.028209333	0.0323504117	0.012691220	-0.018565595	-0.024892095	0.0007271549	0.033769132
subscriber	0.146812886	0.096814309	0.248708892	-0.022431706	0.262213253	0.325825837	-0.0759393412	0.265717949
tag_appeared_in_title_count	1.000000000	0.507827546	0.4506655094	-0.008519653	0.175496117	0.183382435	-0.0175166926	0.24264681
tagappearedintitle	0.507827546	1.000000000	0.3440204869	0.027220577	0.127240831	0.069783987	-0.0209966733	0.008790842
tags_count	0.456665509	0.344020487	1.000000000	-0.056420776	0.448830255	0.540204840	-0.0848253722	0.008744380
trend_day_count	-0.008519653	0.027220577	-0.056420775	1.000000000	-0.091279100	-0.172197293	-0.0613380543	0.190505627
trend_tag_highest	0.175496117	0.127240831	0.448830252	-0.091279100	1.000000000	0.829396745	-0.0620687603	-0.013761580
trend_tag_total	0.183382435	0.069783987	0.5402048404	-0.172197293	0.829396745	1.000000000	-0.0620067702	-0.022495418
trend.publish.diff	-0.017516693	-0.020996673	-0.0848253722	-0.061338054	-0.062068760	-0.062006770	1.000000000	-0.029299084
views	0.024264681	0.008790842	0.0087443798	0.190505627	-0.013761580	-0.022495418	-0.0292990837	1.000000000

Figure 4.1: Correlation Matrix

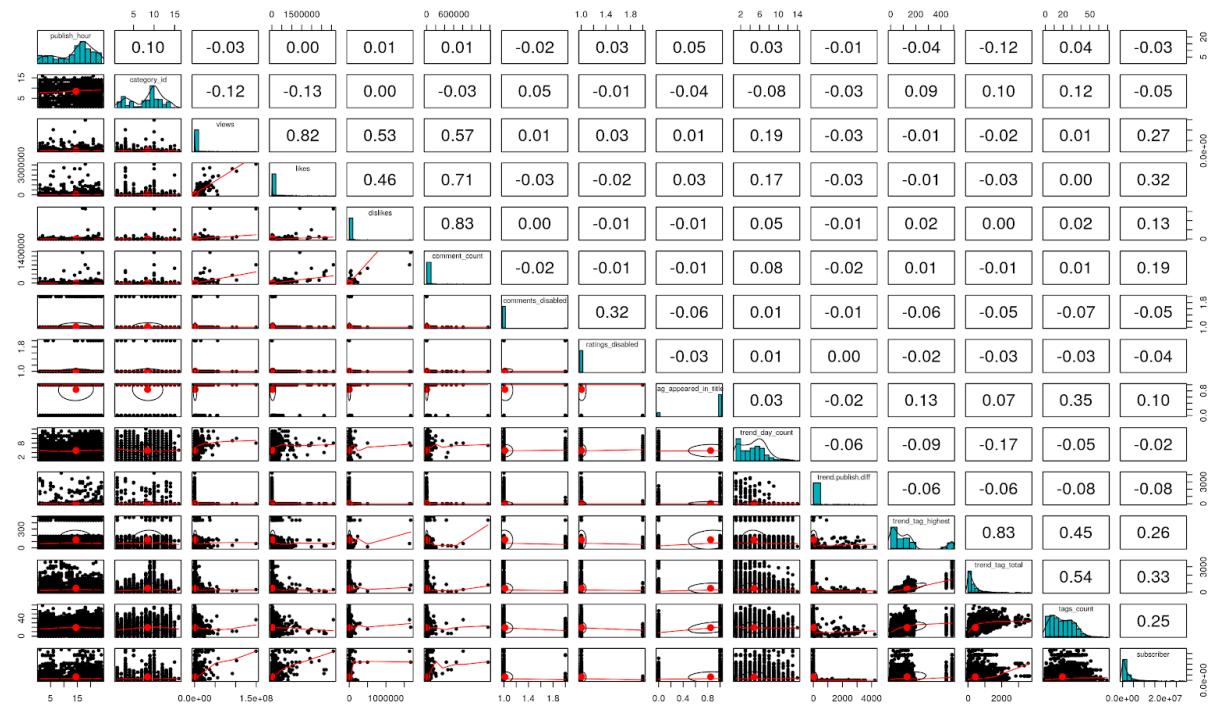


Figure 4.2: Consumption Matrix

The consumption matrix showed there were correlations that were statistically significant and should further be analyzed. Particularly, the number of comments had a statistically significant relationship with a number of other variables. A linear regression was used to analyze these relationships.

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-214.02928714	510.68981135	-0.419	0.67516
category_id	64.70067897	22.86377968	2.830	0.00468 **
dislikes	0.60236241	0.00532799	113.056	< 2e-16 ***
likes	0.15242913	0.00207610	73.421	< 2e-16 ***
subscriber	-0.00017413	0.00003614	-4.818	0.00000149 ***
views	-0.00250233	0.00006691	-37.397	< 2e-16 ***

Figure 5.1: Linear Regression

The result showed the estimate of dislikes is 0.60236 and the estimate of likes is 0.152429. In other words, when the users dislike the videos, they would comment more compared to when they like the videos. The number of comments was also influenced by the category ID of the video, the number of subscriber and the number of views.



Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	5.174944074495	0.123390315397	41.940	< 2e-16 ***
category_id	-0.021235421704	0.005204988947	-4.080	4.58e-05 ***
dislikes	-0.000004825582	0.000001198503	-4.026	5.76e-05 ***
tags_count	0.010295214929	0.003563415394	2.889	0.00388 **
trend_tag_highest	0.002876409448	0.000442651290	6.498	9.01e-11 ***
trend_tag_total	-0.001376015554	0.000114659486	-12.001	< 2e-16 ***
trend.publish.diff	-0.000672944160	0.000150793016	-4.463	8.29e-06 ***
views	0.000000122477	0.000000009772	12.534	< 2e-16 ***

5.2: Linear Regression

As for the count of trend days, the days that the video appears on the trending list also has some linear regression with the difference between the publishing date and the first trending date, number of tags and the number of dislikes. That also means that the longer the difference between the first trending dates and publish date, the shorter the time that the video will appear on the trending list.

Then, the most important part of the analysis is the analysis about the number of views. First of all, in order to get a whole picture of the analysis. The linear regression will be conducted.

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	16433.7096	100591.6286	0.163	0.870234
comment_count	-93.5639	2.4929	-37.532	< 2e-16 ***
dislikes	74.9388	1.6709	44.851	< 2e-16 ***
likes	31.6187	0.3432	92.131	< 2e-16 ***
publish_hour	-12973.0226	4912.1179	-2.641	0.008294 **
trend_day_count	97407.2719	12537.9524	7.769	9.72e-15 ***
trend_tag_highest	-1211.9197	382.0308	-3.172	0.001522 **
trend_tag_total	316.1576	94.7608	3.336	0.000856 ***

5.3: Linear Regression

From the regression analysis results, we can see that the number of comments and the number of the likes or dislikes has the highest statistical significance and the most influential relationship with the variable for number of views. The number of comments will impose a negative influence on the number of views. Based on the former analysis on viewer comments, we can see that the more dislikes the trending video has, the more comments there will be. In other words, the number of comments might result from the negative opinions from users, which is the reason why the number of comments will cause the negative effect on the number of views.

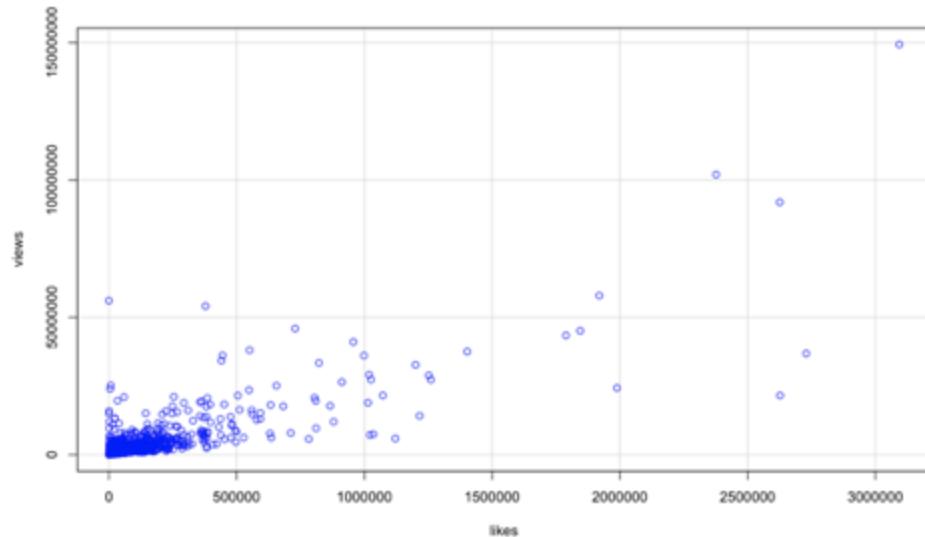


Figure 6: Views and Likes Graph

Another interesting point is the longer the video is published, the number of views will also decrease. This may be caused because over time, the maximum number of views the video could acquire has already been met. Trending videos are therefore time sensitive. In order to maximize their effectiveness, YouTube needs to identify these videos early on and create aggressive advertisement campaigns towards their videos to maximize their advertisement revenue.

Advertisement Revenue Recommendations

Based on the analysis of different variables related to the trending videos dataset, a new advertisement strategy can be optimized to acquire more profit. As for the existing advertisement, the video advertisements are put into videos randomly and indifferently. That means the advertisements are not targeted to any specific group of audiences. Therefore, the efficiency of the advertisements is not high and many key measurement indexes such as click through rate are very low. In order to improve the efficiency of the advertisements, some strategies can be implemented.

Video labeling

It is expected that many videos remain untagged on YouTube in both their description and title. The analysis above showed appropriate tagging can have a positive effect on numbers of views, subscribers and comments for the video. The categorization of tags can be used to help video creators identify which tag would best fit their videos. An incentive program should also be



utilized to persuade more video creators to tag their content. Tags also help YouTube generate more data, such as the categorization of the viewers history of contents they have seen on the website. Based on these tags, the suggestion video lists can be improved to increase visitor duration on YouTube overall.

Channel recommendation

Based on the tags on videos, the category of the videos and the the tags in watching history of users can be combined to analyze the preference of users. For example, if more than 80% of the videos that one users have watched included the tag called economics, the platform will recommend more videos with tags of economics. Therefore, the videos that have the tags that appear mostly frequently in the watching history of users can be recommended to them more efficiently.

Advertisement cost

Because the payment of advertisement will also including the rewards to YouTuber who are the content creators, the decrease of rewards to YouTuber will also decrease the total payment of advertisement. Furthermore, the YouTuber with more subscribers will always receive a higher rewards. But as for trending videos, they do not require lots of subscribers according to our analysis. Most of the videos become the trending videos in a short time after they publish the videos. That means the advertisement can be focused on these trending videos with a relatively low price but much higher efficiency.

Video Engagement

Based on the tags of the videos, the advertisement can be more diversified for their targeted customers. Because after the matching process between the advertisement and targeted customers, the users will be interested in the content of customers and be more likely to involve in the activities. Therefore, the activities can be more diversified and include many new mode activities including chatting box, or interesting games to attract the customers. And then, they can get more streaming volume of their targeted customers.



Additional Strategic Recommendations

Managing AdBlock Software

The YouTube Platform relies heavily on advertisements to generate profits. Selected advertisers make payments through video advertising KPIs and it is important to note that CPV bidding and video impressions only result in payments from advertisers when the users watch the advertising content for thirty seconds or more.

Profit generation from advertisements has become difficult due to the emergence of technology such as the AdBlock program. Due to the variety of browser extensions, users from a variety of browser preferences are able to download Adblock software. The Adblock software successfully targets display advertisements, overlay advertisements, skippable advertisements, non-skippable advertisements, bumper advertisements, and sponsored advertisements.

To YouTube's dismay, this program has attracted many users to download its software, as many of its users do not enjoy taking time out of a video he or she finds interesting to watch an advertisement; thus causing decreased video advertising KPIs. Though, AdBlock has developed a feature to whitelist certain channel and subscriptions from Adblock software to allow users to support their favorite content creators. Though user loyalty to various content creators may result in channels being added to an Adblock whitelist, it is unfortunately not enough to counteract the influx of Adblock software being downloaded on devices and sustain profit generation from KPI video advertisement strategies.

Due to the interference of Adblock software, YouTube must now address user animosity towards advertisements. It is evident the platform has already worked towards advertisement grievances through the creation of YouTube Premium, which is a monthly paid subscription that markets itself as advertisement-free. However, YouTube Premium has not been attracting a large subscription base. Though the YouTube has 1.8 billion users, the premium advertisement-free service has only attracted 1.5 million subscribers.

Paid-Subscriber Acquisition Recommendations

To withstand remain competitive with other video streaming services and sustain profit, YouTube should focus efforts improving its YouTube Premium services in order to expand its subscription base. YouTube Premium services currently splits into two levels, YouTube Premium and YouTube Music Premium:

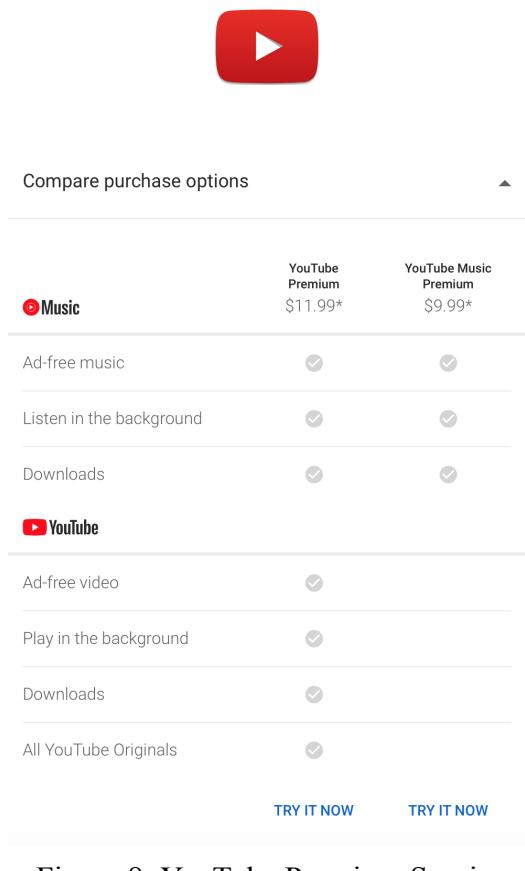


Figure 8: YouTube Premium Services

YouTube Music Premium:

YouTube should cancel this feature. This was released to compete with streaming music services, however has failed to increase subscription base. Users seeking a paid-subscription to YouTube Premium services are usually seeking an advertisement-free subscription that applies to videos. YouTube is known for its videos and the failure of its music premium services is partially because the platform has not diversified nor heavily marketed itself enough as a music streaming service. Additionally, it is discerning when users view a cheaper option for a music premium when most users are seeking a way to limit video advertisements. Furthermore, users are less likely agree to \$11.99 when they can see a price-hike from \$9.99, as it causes users to further justify paying more for a premium service.

YouTube Premium: YouTube should lower price from \$11.99 to \$10.99, and include both YouTube Premium and YouTube Music Premium advantages. The failure of YouTube Music Premium shows that users are not ready to justify paying for a sole music streaming service through YouTube. The combination of both services into one cheaper unit will be more alluring to users, as they are able to reap benefits of music downloads and advertisement-free videos. Once YouTube increases justification for paid subscription, they will be able to attract more paid subscribers. Additionally, users will have access to download music from the platform. Though the social network effect, this



should accelerate awareness of YouTube as not only a video platform, but a music streaming service as well.

Furthermore, YouTube should continue to increase usage of search engine marketing to increase the promotion of its YouTube Premium feature. YouTube is a subsidiary of Google, and should continue to advertise on Google's search engine. YouTube should also use Google to optimize its search results and bolster its Premium services as one of the top three results when users input keywords that are the most popular and relevant to the company.

Monitoring Negative Content

Analyses revealed that there are more comments associated with disliked videos; the number of comments is also influenced by the video category, amount of subscribers, and views. YouTube is a video streaming service that allows its content to be provided by independent third-parties, thus allowing for increased creativity. Notable content creators on YouTube have left large corporations such as Buzzfeed because of increased creativity. However, increased creativity for all content creators does allow a platform for inappropriate content such as hate speech and pornographic videos. Furthermore, content creators have full reign over their selected tags, and may cheat the tag system by incorporating popular tags into their videos in order to get to the trending page.

This becomes complicated when advertisers are paying a hefty fee to put their advertisements on the platform, and do not want to be associated with negative content. In a notable case, the most subscribed content creator on YouTube, PewDiePie, was called a Nazi on the Wall Street Journal after racially-suggestive statements. Though this accusation was heavily debated and eventually found to be false, it caused the first ad-pocalypse for YouTube; an ad-pocalypse occurs when many advertisers pull their advertisements from the platform at a fast rate because they do not want to be associated with bad press. The second ad-pocalypse was when another well-regarded content creator, Logan Paul, filmed a dead body at a suicide forest in Japan. Both videos from notable content creators were heavily disliked and were filled with disapproving comments, however became trending because of the abundance of views.

Advertisement Engagement Recommendations

YouTube should use its analytics to audit negative content on its platform. This will allow YouTube to pull advertisements and take down videos with inappropriate content. Analytics should be used to audit Engagement KPIs such as:

- **Earned Likes:** Videos with more than 30% dislikes



- **Earned Views and Shares:** Inappropriate Tags and Comments with suggestive keywords (i.e. racist, hateful, intolerant, anti-Semitic)
- **Earned Subscribers:** Channels with more than 50k subscribers

This will allow YouTube to protect high-paying advertisers from being associated with an unfavorable image and will prevent another ad-pocalypse. YouTube provides a successful platform for free and creative content, however must use analytics to purge negative content to protect profit generation from advertisements.



Appendix

The screenshot shows the YouTube website homepage. The left sidebar includes links for Home, Trending, Subscriptions, Library, History, Watch later, Music Videos, Live Concerts, and Show more. The main content area features a banner for YouTubeTV with the text "70+ live TV channels, now including HGTV, Discovery, and Food Network." Below this is a "TRY IT FREE" button. To the right are promotional images for "house hunters", "CHOPPED", "ON THE CASE with PAULA ZAHN", and "NAKED AND AF". A "Recommended" section follows, displaying thumbnail images for "Mueller Report: Last Week Tonight with John Oliver...", "WATCH NOW: SpaceX to Launch Falcon Heavy Rocke...", "HOT ONES S8 • E12", "After 'Mad Men' Ended, Jon Hamm Knew He Didn't Want...", and "\$1 STORE CHALLENGE".

Exhibit 1: YouTube Website Homepage

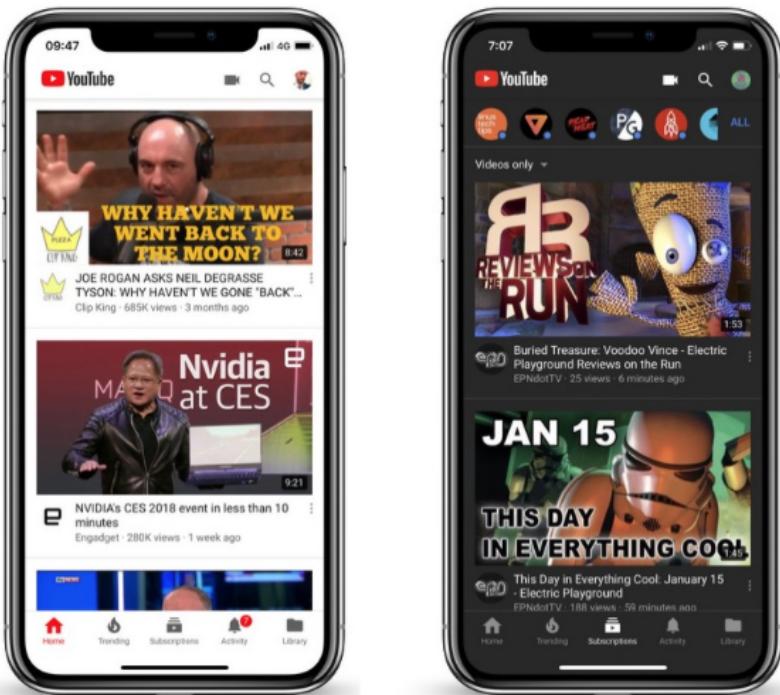


Exhibit 2: YouTube Mobile Application Layouts



The screenshot shows the YouTube mobile website's 'Trending' page. The left sidebar has a dark grey background with white icons and text. The 'Trending' option is highlighted with a red bar. Other options include 'Home', 'Subscriptions', 'Library', 'History', 'Watch later', 'Music Videos', 'Live Concerts', and a 'Show more' section. Below this is a 'SUBSCRIPTIONS' section. The main content area has a light grey background. At the top, there are four circular icons labeled 'Music', 'Gaming', 'News', and 'Movies'. Below these are two video thumbnails. The first thumbnail for 'Making My Own Starbucks Pinkity Drinkity' by James Charles shows a man in a green apron holding a pink Starbucks drink. The second thumbnail for 'Damian Lillard GAME-WINNER: 2019 vs 2014! Which One Is BETTER?' by House of Highlights shows a basketball game. Both thumbnails have their titles, views, and upload times displayed.

Exhibit 3: Trending Video Page

YouTube revenue per view, by age group

Cost per view and view rates on YouTube

Age Range	Cost Per View	View Rate
18-24	\$0.042	27.0%
25-34	\$0.046	27.1%
35-44	\$0.046	27.3%
45-54	\$0.050	28.8%
55-64	\$0.051	30.0%
65+	\$0.049	28.8%
Unknown	\$0.034	29.5%

Source: Strike Social

Source: [SocialMediaExaminer](#)

Exhibit 4: Cost per view and view rates on YouTube



YouTube monthly active users number by country, in millions

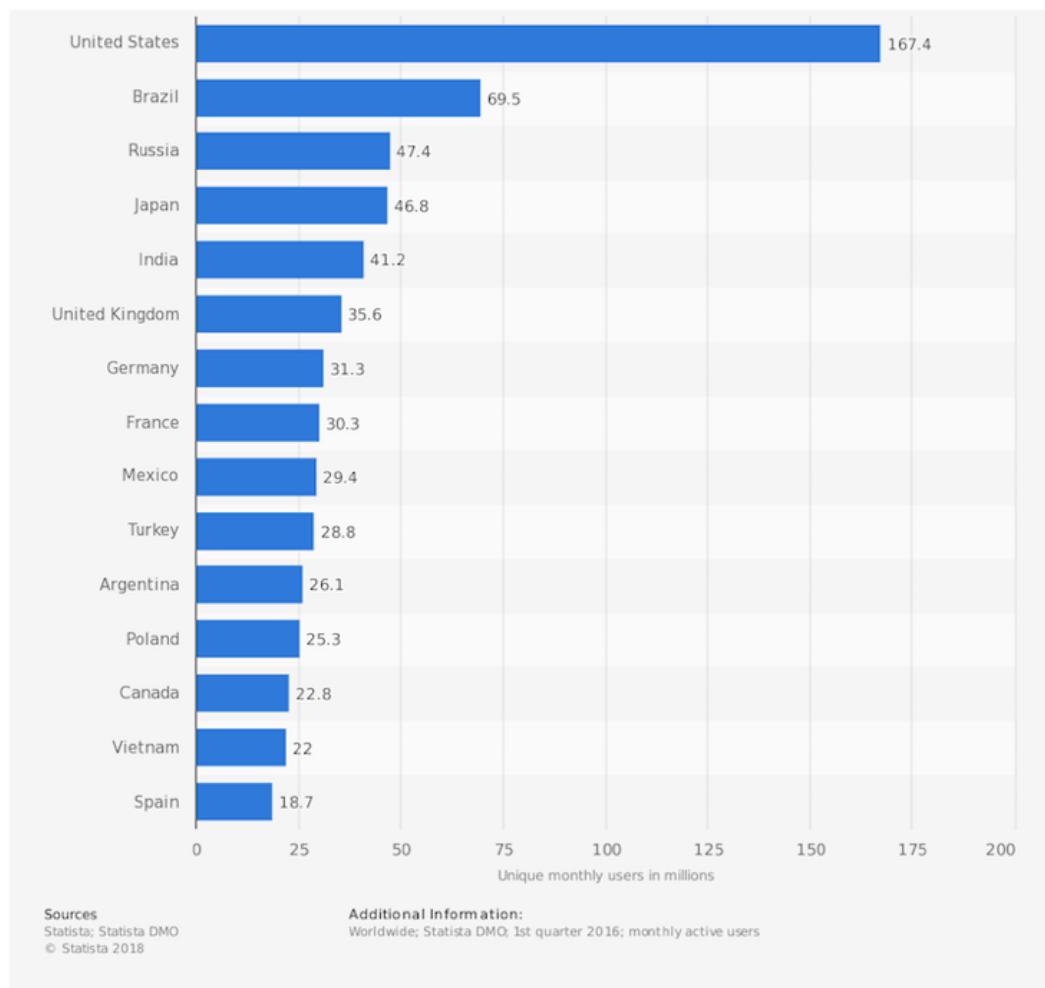


Exhibit 5: YouTube monthly active users number by country, in millions



Concurrent Viewers by Platform

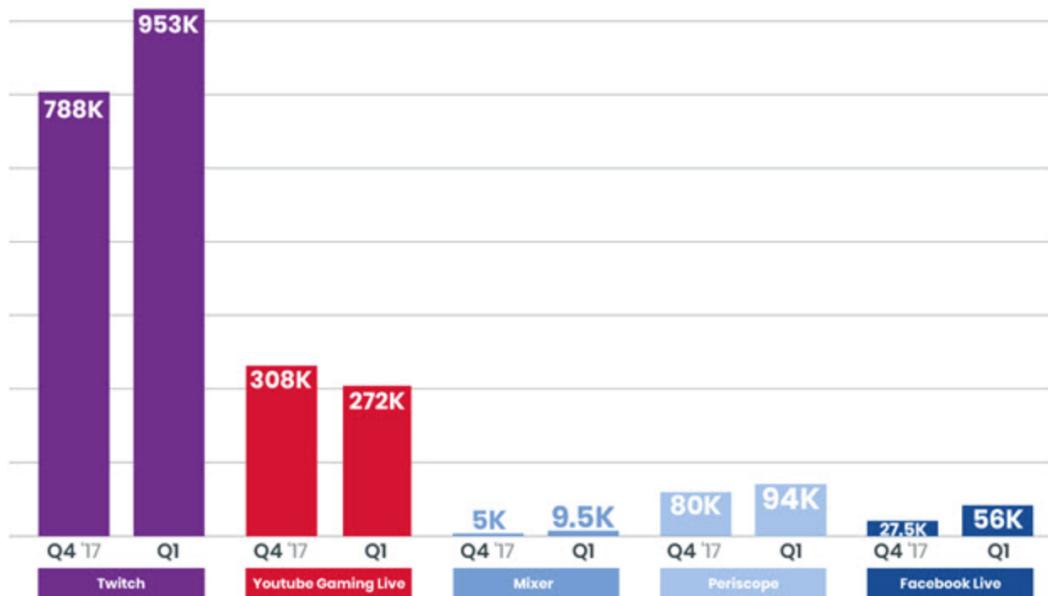


Exhibit 6: Twitch versus YouTube Gaming Live Viewers

The explanation of the variable from Kaggle Dataset:

- 1 - video_id : Single unique attribute of the entire dataset. It represents unique video id of an uploaded video on YouTube database.
- 2 - last_trending_date : It represents the last date, when video was last time appeared on YouTube trending video list.
- 3 - publish_date : It represents the date, when video was uploaded or published on YouTube site. This attribute derived from the “publish_time” attribute of the original dataset.
- 4 - publish_hour :It represents the hour, when video was uploaded or published on YouTube site. This attribute also derived from the “publish_time” attribute of the original dataset.
- 5 - category_id : It represents the unique category id from the YouTube database, where video was uploaded/published.
- 6 - channel_title : It represents the channel name of author/publisher on YouTube.
- 7 - views : It represents how many times video was viewed by YouTube users.
- 8 - likes : It represents the how many time's video was liked by other YouTube users.
- 9 - dislikes : It represents the how many time's video was disliked by other YouTube users.
- 10 - comment_count : It represents the how many time's YouTube users(including publisher) started a conversation on the video.



11 - comments_disabled : It represents whether video author/owner allows others to start a conversation on the video.

12 - ratings_disabled : It represents whether video author/owner allowed other users to like or dislike the video content.

13 - tag_appeared_in_title_count : It represents how many number of times, a YouTube video title containing one of its own tag. This attribute derived from “title” & “tags” attribute of the original dataset. Its value could be 0.

14 - tag_appeared_in_title : It represents ,whether a YouTube video title containing one of its tags. It would be a useful parameter of SEO(Search Engine Optimization). This attribute derived from “tag_appeared_in_title_count” attribute of the modified dataset.

15 - title : It represents the title/name of the YouTube video. It was given by the author of the video. It could not be empty.

16 - tags : It represents the list of tag publisher attached on the video. Each tag separated by ‘|’ . Tags are functioning like keyword in YouTube. Tags are attached by the publisher of the video. It is optional,so tags could be undefined or NA.

17 - description : It describes the content of the YouTube video. It was given by the author of the video. It is optional,so it could be empty/blank.

18 - trend_day_count : It represents a number ,which described how many times/days ,the video appeared on the YouTube trending video list. The value is calculated through “video_id” attribute of the original dataset.

19 - trend.publish.diff : It represents a number ,which describes the day difference between video publishing date & video trending date(for 1st time). The value is calculated through “trending_date” , “publish_date” attribute of the original dataset.

20 - trend_tag_highest : Maximum number of times all trending videos used one of the tag,which is used on the video. This attribute is calculated through “tag” attribute of the dataset.

21 - trend_tag_total : Total number of times all trending videos used any of the tag,which are used for the video. Remember : “tags” field on the YouTube could contain multiple tags, separated by “|” . This attribute is also calculated through “tag” attribute of the dataset.

22 - tags_count : It represent how many tags are attached to the video. Remember a video author can add multiple tags separated by ‘|’ . This attribute is also calculated through “tag” attribute of the dataset.

23 - subscriber : It represent how many YouTube users(except video Author) subscribed to the video channel to get notifications about any channel updates. So greater the number , there is a higher chance of getting more views,likes,comments,etc for channel videos.



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