

Examining OTT Platforms' Efficacy Through the Lens of Data Science and Data Mining: An In-depth Exploration

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ABSTRACT

In the digital era where internet is everything, it has been seen that the traditional modes of entertainment has less significance on the people now as compared to how it used to impact people's life. OTT platforms have emerged as the main or primary source of entertainment for a large number of populations. However, amidst this digital revolution, theatrical experiences still hold a special place in the hearts of many. While 80% of the people know the meaning of ott platforms, there are still 20% of the people who do not know about them and among those 20%, 10% utilize OTT platforms under the guise of specific brands such as Netflix or Prime without fully understanding the concept. They don't actually know the meaning but tend to use them. This research paper aims to educate the unknown and draws insights from the data collected through convenience sampling by surveys on how much people use ott platforms, prevalent consumer patterns and behaviors prevails in the market, how the different ott platforms are performing, correlation between ott platforms and consumer preferences and sentiments of people towards these platforms as just like a coin has two faces, everything has its own advantages and disadvantages. Leveraging algorithms of machine learning, this study uncovers various insights and patterns that underpin the burgeoning OTT entertainment landscape.

Keywords: OTT, Over-the-top, Netflix, Machine learning.

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INTRODUCTION

Over-The-Top (OTT) platforms are driving a significant transformation in the entertainment industry. These platforms, which provide amazing convenience, variety, and accessibility to audiences worldwide, have fundamentally altered the way we consume media. This research paper covers OTT platforms in great detail with the goal of highlighting their importance, user dynamics, performance indicators, and future directions. OTT platforms are different from traditional TV broadcasting since they provide material directly over the internet, without the restrictions of cable or satellite subscriptions. With so many platforms competing for viewers' attention, they may tailor their entertainment experiences to suit their schedules and tastes. When it comes to watching documentaries, experimenting with different movie collections, or indulging in series that are worth bingeing on, over-the-top (OTT) platforms have become indispensable components of today's media environment, drastically altering both industry conventions and consumer patterns.

The investigation centres on a thorough analysis intended to document awareness and usage trends of over-the-top (OTT) platforms among various demographic groups. It aims to generate a comprehensive profile of OTT adoption and engagement by involving people from a variety of

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age groups, economic ranges, educational backgrounds, and geographic locations. We seek information about the frequency and penetration of OTT platforms in modern culture by carefully examining respondents' acquaintance with these platforms, frequency of usage, preferred genres, and satisfaction levels. Building on the results of the survey, correlation studies are being conducted to look at the complex relationship between OTT consumption patterns and demographic characteristics. We examine variables like age, income, education, and geography in order to find trends and connections that shed light on the socioeconomic factors influencing the adoption of over-the-top (OTT) services.

This paper does a thorough performance review of top OTT platforms, including well-known names in the business-

like Netflix, Amazon Prime Video, Hulu, Disney+, and HBO Max, in addition to demographic study. Using a variety of performance criteria, such as viewer engagement, content acquisition, subscriber growth, and customer happiness, we aim to evaluate each platform's strategic posture and competitive environment. The study seeks to find the factors that contribute to platform success and uniqueness in a highly competitive industry by examining key performance indicators.

To sum up, this paper is an extensive attempt to analyse and simplify the complex world of over-the-top (OTT) platforms. Through shedding light on their importance, examining user behaviour, assessing performance indicators, and projecting future paths, the study hopes to provide a comprehensive understanding of this game-changing phenomenon. Our goal is to equip industry players, decision-makers, and consumers with the knowledge and skills needed to successfully navigate the changing world of digital entertainment in the twenty-first century.

LITERATURE SURVEY

A lot of research has been done by different people about OTT platforms. Following is a discussion of prominent research:

Gupta *et al.* did discussions regarding the move from conventional media to OTT media, particularly during the lockdown period due to COVID-1D. Streaming services are fighting each other to attract and retain customers. There has been a 140% growth in video streaming apps each in Australia, India, Indonesia, South Korea and Thailand, which can be attributed to popular OTT services such as Netflix, YouTube and Spotify, she added. Bilbil *et al.* in his paper proposes a more effective regulatory framework designed to ensure OTTs are supported by a cooperative approach. Additionally, OTT regulation has not been included in the agenda for regulatory reform in Turkey. OTT service providers and telco companies are cooperating because of low penetration rates. As such, this paper proposes a multidimensional approach to this emerging area that requires regulation.

Yadav *et al.* in her paper stated the advantages of using ott platforms. The study points to the factors showing the consequences and growth of the platforms. She gathered data through convenience sampling and the data was analyzed using factor analysis and ANOVA.

Parikh *et al.* in her study wrote about the rise of ott platforms during pandemic. She stated that ott platforms are quite evident but during and after pandemic, there has been a sudden increase in their popularity. She conducted a survey to know the consumption patterns of ott platforms. She compared them with cinema to know if they are taking over the most popular source of entertainment or not.

Rayna *et al.* in the study wrote about a comprehensive framework that addresses a major issue, demonstration of how the tool can be used to show differences in business models of Netflix and Spotify and showed how dynamics of business models can be shown.

Table 1: Future of various ott platforms in a developing country

Author	Year	Findings
Yousaf, A.	2021	This study extends the expectation–confirmation model by including customer–to–customer (C2C) interactions, confirmation, and perceived content quality as antecedents of perceived enjoyment, recommendation intentions, continuity, and perceived usefulness.
Mooch hala Q.	2018	This study examines the future of various streaming entertainment media platforms in the Indian market. Researchers studied the extent to which OTT digital apps are replacing traditional media platforms. In addition, which brands are the most popular in India's online streaming market and what the main reasons are will be analyze
Kim, J.	2016	The aim of this study is to understand the video platform competition in Korea, particularly the competition between traditional pay TV and OTT services. According to this study, the theory of niches is applied to the competitive dynamics of the Korean market for video platform services.
Sadana, M.	2021	This study aims to examine how OTT platforms are becoming more popular among young Indian consumers than traditional Pay TV services. In addition, it will identify the factors responsible for this, such as content gamification. Niche analysis and use and gratification theories constitute the theoretical framework of this study.

Oat *et al.* in her study described what ott platforms and video on demand means. She in her study reflected that ott platforms are low in cost and provide flexibility for their users. The focus of the research paper is video on demand and majorly Netflix, the architecture with which Netflix is built and the algorithms followed by Netflix.

Moochhala *et al.* in the study talks about how people are shifting from traditional media and cinemas to ott platforms. In the research paper, the researcher talks about the emergence and growth of ott platforms. The paper attempts to explore future of various ott platforms in a developing country like India which is shifting from 4G networks to 5G and where consumers reside who wants to upgrade them (Table 1).

Problem Statement

Even while OTT platforms are growing in popularity, some people continue to utilize them without understanding what they are. Regarding consumer behavior, consumption trends, and market dynamics, there are a lot of unsolved questions. Although we are aware that OTT platforms are growing in popularity, we lack information regarding pricing policies, account sharing, subscription options, and much more. In addition, challenges like as customers' limited understanding of OTT platforms and intense competition in the industry emphasize the need for in-depth research to address these issues.



Proposed Methodology

Meaning and types of OTT platforms

"Over-the-top," or OTT, refers to technology (OTT services or platforms) that makes streaming video available to devices with an internet connection. It refers to a method of delivering movie and television material via the internet in response to user requests and in accordance with personal preferences. The word "over-the-top" itself suggests that a content provider is surpassing the capabilities of currently available internet services.

Types of OTT platforms

Video-on-demand platforms are related with the term OTT platforms, but it can also refer to audio streaming, messaging, or internet-based voice calling.

Categorization of OTT platforms can be done in 3 ways:

- Video OTT platform- This OTT platform delivers videos over the internet.
Examples- Netflix, Zee5, Amazon Prime etc.
- Audio OTT platform- This type of OTT platform is responsible for delivering audios i.e. music over the internet.
Examples- Jio Saavn, Gaana etc.
- Messaging OTT platform- Through this type of OTT platform, one can send and receive messages, audios and videos through internet.
Examples- Facebook Messenger, Whatsapp etc.

Growth of OTT platforms

There are multiple reasons for the rapid growth of OTT platforms in India. A major role played by Digital India is promoting the use of OTT platforms for streaming diverse content from around the world. OTT platforms such as Netflix, YouTube, etc (Figure 1). The popularity of these products has grown due to the younger population. With the popularity of OTT platforms, the Indian audience is now appreciating quality over quantity. Rural and urban populations alike are becoming accustomed to them.

Adapting western culture

Source of entertainment of the people changed when they started living with their families in cities. Earlier people used

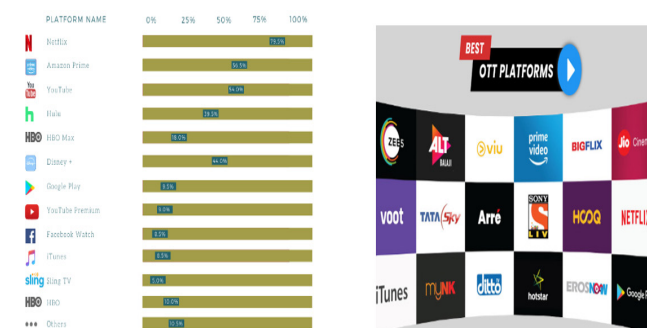


Figure 1: OTT platform around the world

Table 2: Pricing strategies of different OTT platforms in India

S.NO	OTT platforms	Minimum Pricing	Time period
1	Amazon Prime Video	Rs. 299	1 Month
2	Netflix	Rs. 149	1 Month
3	Disney+ Hotstar	Rs. 149	3 Months
4	Zee5	Rs. 899	12 Months
5	Sony LIV	Rs. 299	1 Month
6	Spotify	Rs. 7	1 day

to watch TV with their families, now everyone has shifted to their personal mobiles, watch movies and web series and enjoy their own company.

Anywhere, anytime, anyone-

One of the best things about OTT platforms are that anyone who has the subscription of ott platforms can access them anywhere and at any time. The shows and movies already exist in the web so it makes it easy for the user to access them.

Original content

OTT platforms provide their original content which doesn't get released in theatres and people are forced to purchase the subscription just to watch the exclusive content. This is one of the reasons due to which ott platforms are growing.

Streaming on OTT platforms is done much before it is done on Television

Many movies which are released are launched much earlier on OTT platforms as compared to television. Furthermore, when movies are broadcast on TV, advertisements consume a lot of the viewer's time, leading them to become disinterested. The biggest advantage of an OTT platform is the absence of advertisements.

Competition among ott platforms

In the era of smartphones and smart TVs, where data cost in India is one of the cheapest in the world, content steaming platforms have grown massively in India. Disney + Hotstar, Netflix, Amazon Prime Video, Sony Liv are some of the major Over the Top platforms in India. With these platforms replacing television and with the rise in online content consumption, rises the competition of ott platforms. With such intense competition, the players of these industries have implemented various strategies to attract customers, like providing free services for a month to new subscribers, cutting of prices, telecasting live sports, creating original content, etc. Reliance Jio's tie up with Disney + hotstar to provide subscription for much cheaper prices along with mobile recharge, Amazon giving free delivery to prime subscribers, Netflix lowering its subscription prices recently; are some other examples of market strategies in this intense OTT war (Table 2).

The top 5 OTT platforms in India on the basis of paid subscribers are -

Disney + Hotstar – 47 Million

Amazon Prime - 20 Million

Zee5 - 7.5 Million

Netflix – 5.5 Million

Disney + Hotstar subscribers have grown rapidly over the last few years. Netflix still leads in terms of revenue share despite being much lower in the list of subscribers, due to its high subscription rate. India had 70-80 MN paid OTT subscribers in 2021 and was worth \$1.8-2.2 Bn. According to estimates, it will reach \$4.5 Bn by 2026.

Comparison Between OTT and Television

Analysis

In order to do an analysis for this research paper, first of all a survey was created. While keeping in mind the concept of convenience and quota sampling, the survey was distributed to people of all the age groups (Table 3).

The survey consisted questions that would provide insights of customer behavior, usage patterns of the video ott platforms. Sample of 111 respondents were being collected to do analysis on the data.

- **Descriptive Analysis:** To describe relationship between the data variables from the data collected during survey, descriptive analysis is being done. This helps in condensing data in order to identify its salient features
- **Sentiment Analysis:** As the name suggests, sentiment analysis is being done to find out the sentiments of people or their views and opinions towards ott platforms. It describes how much they like or dislike them or if people have mixed feeling towards them. It gives results in the

form of positive sentiments, negative sentiments or neutral sentiments.

- **Correlation Analysis:** Correlation analysis was used to investigate correlations or relationship between different variables, which also includes usage habits of OTT platforms and demographic parameters.
- **Predictive Analysis:** Using survey data and industry trends as a framework, predictive modeling techniques were applied to project future patterns and trajectories of OTT platform uptake and consumption. Regression analysis and time series forecasting are examples of machine learning techniques that may have been used to create predictive models and pinpoint important factors influencing the use of OTT platforms. **Data Interpretation and Reporting:** In order to reach conclusions and offer suggestions, the results of the analysis and survey were evaluated and combined. The important insights were presented in an efficient and concise manner through the use of data visualization techniques, including tables, graphs, and charts.
- **Performance analysis:** Using the data available in the market and feedback of the customers collected through survey, performance analysis is being done to gain insights about how different ott platforms are performing.

Descriptive analysis

A type of data research known as descriptive analysis helps to describe, illustrate, or usefully summarize data points in order for patterns to emerge that meet all of the data's requirements. It is the process of using both recent and old data to find patterns and connections. It's often called the most basic data analysis since it stops there, identifying patterns and relationships.

Table 3: Comparison between OTT and Television

S. No	Parameters	OTT platforms	Television (TV)
1	definition	OTT refers to a technology (OTT services or platforms) that makes streaming video available to devices with an internet connection.	A communication channel for sending moving pictures and sounds is television (TV).
2	Accessible devices	They are accessible through Smartphones, laptops, desktops, tablets, smart TVs	Only accessible through TV, set-top boxes
3	Content Availability	User can watch anything, anywhere and at any time	Content is scheduled and occurs in a specific order.
4	Advertisements	Some ott platforms are ad free, some contains advertisements	Long duration of advertisements is shown frequently.
5	Mobility	Portable and can be accessed from anywhere	They are fixed, cannot be moved
6	Internet usage	Requires internet and user can download the movie/series and can watch without using internet too	Doesn't require internet to operate.
7	Recommendations	Uses machine learning algorithms to provide recommendations to its users based on their past viewing history	No recommendations are provided. Scheduled and linear programs are shown
8	Model	It is subscription based	It is based on cable- satellite connection
9	Variety of content	Wide range of content available of different genres and in different languages.	Not much variety of content is available.
10	Interactivity	It is user interactive	Limited interactivity is there.



Do you know the meaning of OTT platforms?
111 responses

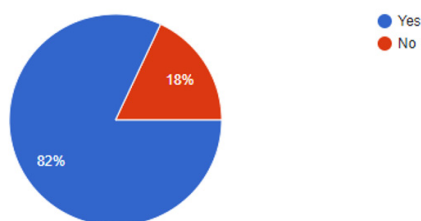


Figure 2: Comprehension of OTT Platforms

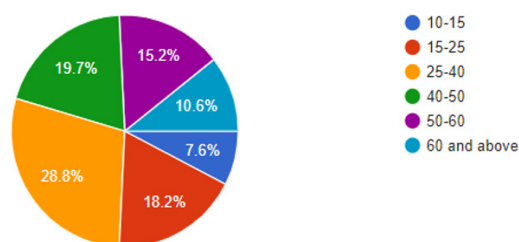


Figure 3: Usage Patterns

In this research paper, descriptive analysis is being performed by taking a sample size of 111 users.

Comprehension of OTT platforms

The number of participants who couldn't define the term "OTT platforms" was $0.20 \times 111 = 22.2$ (about 22).

Out of all the respondents, $111 - 22 = 89$ knew what OTT platforms were (Figure 2).

Usage patterns

Number of respondents who use over-the-top (OTT) platforms every weekend or on a daily basis: $0.80 \times 89 = 71.2$, or roughly 71.

The percentage of respondents who occasionally utilize OTT platforms: $89 - 71$ equals 18.

The usage of ott platforms also depends on the age of the consumer (Figure 3).

Preferences for subscriptions

The percentage of respondents who utilize both free and paid over-the-top (OTT) platforms is $0.59 \times 111 = 65.49$ (or roughly 65).

The percentage of respondents who only use free over-the-top (OTT) platforms is $0.41 \times 111 = 45.51$ (around 46) (Figure 4).

How many respondents said they would recommend an OTT account to friends or family?

Approximately twenty responders based on typical account-sharing practices.

Shift in preference

OTT vs Television: Based on the assertion that more individuals favor OTT platforms than TV, it is estimated that there were about 90 responders.

111 responses

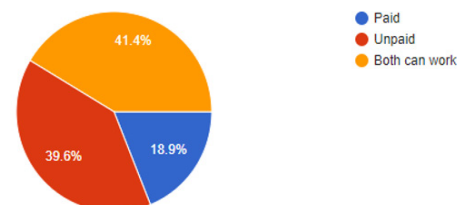


Figure 4: Preferences for Subscriptions

Which of the following things you don't like about paid OTT platforms?

111 responses

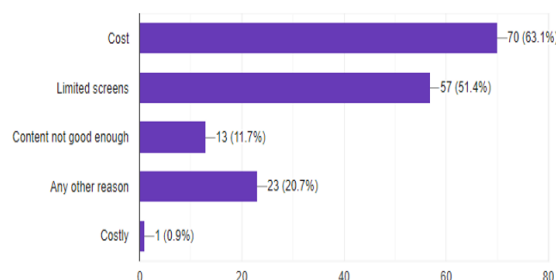


Figure 5: Shift in Preference

- $111 - 90 = 21$ respondents said they would rather watch traditional television than OTT platforms (Figure 5).

Problems and restrictions

Price and screen size limitations impacted 60% of the respondents

The percentage of respondents who said that their inability to access the internet or use smartphones was a hindrance is about 15.

Total Contentment: No level of satisfaction 4.5 out of 5 (Figure 6).

Sentiment Analysis

Sentiment analysis is the processes of analyzing text to determine whether the text depicts positive, negative or neutral emotion. It is helpful in determining the attitude and opinion of the public which can further add value to different types of analysis (Figure 7).

In this research paper, a textual survey was being done and people were asked how much they like or dislike the ott platforms in order to gather the data to further analyze it. The survey was done through quota and convenience sampling. After collecting the data, the next step was to clean the data. There were some responses which were irrelevant and couldn't add value to the analysis; those types of values were eliminated from the list of responses. After cleaning the data gathered, the next step was to analyze the data and categorize them into positive, negative or neutral text.

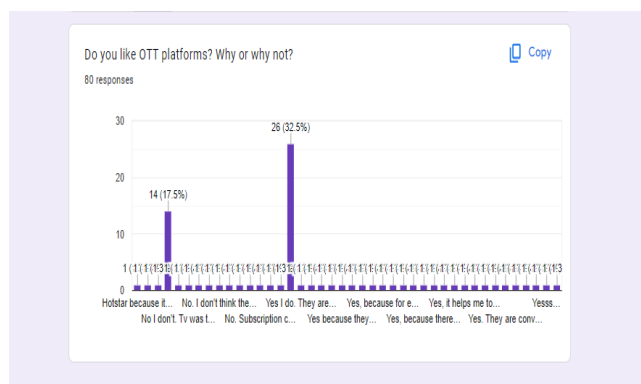


Figure 6: Problems and Restrictions

Through the survey, it was figured out that 80% of the respondents use ott platforms. So, those respondents were further asked if they like ott platforms or not.

Classification of text-

Positive sentiment

- Some respondents stated that they like ott platforms because of the availability of subtitles in multiple languages. Because of this reason, they are able to watch content produced in other countries easily.
- Another component that is recognized is the algorithms used of ott platforms because of which recommendations are provided so that user can watch content based on their likings and past viewing history.
- The reasons given by respondents for being favorable towards OTT platforms includes the ease of availability of all types of shows and movies integrated on a single platform.

Examples

- "Yes I do. They are convenient and provide diverse content. This is the reason I like OTT platforms."
- "Yes because they customize the viewing experience."
- "Yes. They offer a wide variety and options of genres to choose from."
- "Yes. Because they are convenient."
- "Yes, it has a variety of shows and movies from different regions."
- "Yes, because they are very flexible."
- "Yes. It provides subtitles so we can watch all the shows easily."
- "OTT platforms offer a convenient way for users to access a wide variety of entertainment content, including movies, TV shows, and original productions, on-demand and often ad-free, enhancing the viewing experience for many people."
- "Yes because they often use algorithms to recommend content based on user preferences"
- "Yes. They are convenient."

Negative Sentiment

- On the other hand, some respondents disapproved and expressed their disagreement by stating that the subscription fee is high and the number of screens provided is less in number.
- Some expressed that the quality of content being shown is not that great for the amount they pay.
- Some of them voiced towards the increased screen time because of the addiction of ott platforms.

Examples-

- "No. I don't think they are worth the high subscription cost."
- "No. Subscription cost is high."
- "No. Limited screens given annoy me."
- "No. Content is not that great."
- "Noo because we are not able to watch TV."
- "No I don't. TV was the only medium to make everyone sit in the same room."
- "No. Screen time has been increased because of them."

Neutral Sentiment

- Some respondents said that they like the ott platforms but dislike them too because of some reasons.
- The answers some respondents gave couldn't be completely categorized into a positive sentiment nor negative sentiment.
- Mixed emotions were seen during this analysis.

Examples

- "Yes because they are very easily accessible and flexible. No because they are not worth the price that they ask for. So, neutral."
- "They are good but have led to increased cost of living and increased screen time. Overall, they are are great source of entertainment."

Findings

- Positive Sentiment: 55 responses
- Negative Sentiment: 20 responses
- Neutral Sentiment: 5 response

Interpretation

Perceptive interpretations were obtained from the sentiment analysis applied to participant thoughts regarding over-the-top platforms. Overall, the results show that respondents' perceptions of OTT platforms are varied. First of all, the favorable opinions shared by a large number of participants highlight the noteworthy advantages and benefits connected to over-the-top (OTT) platforms. Convenience surfaced as a major theme, with respondents praising the accessibility and versatility of the content they could watch whenever it was convenient for them. Positive attitudes were also significantly influenced by the wide variety of content that was made available on over-the-top (OTT) platforms. This suggests that



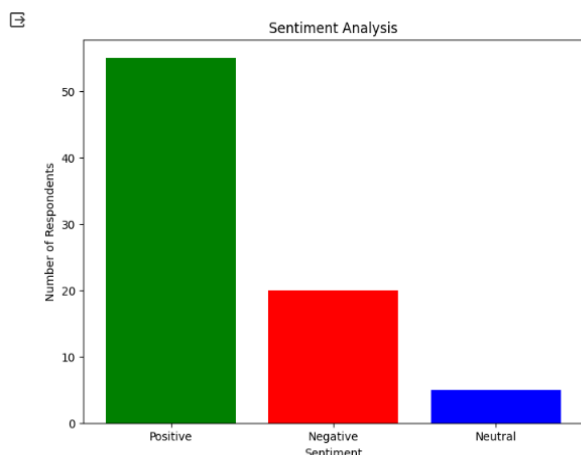


Figure 7: Graphical representation of sentiments

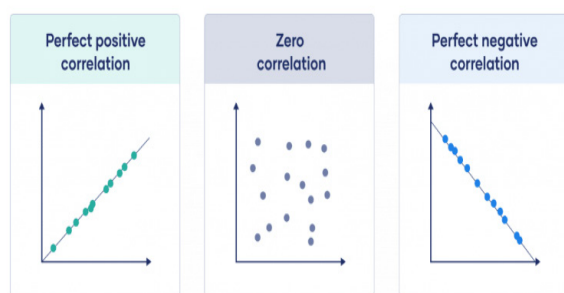


Figure 8: Correlation Analysis

users appreciate the large number of films, TV series, and original works that these platforms have to offer.

Furthermore emphasized as improving the entire user experience were aspects like flexible viewing options, customizable viewing experiences, and the use of algorithms to recommend personalized content. However, some respondents' unfavorable comments highlighted areas where OTT platforms needed to improve. Some customers were not as satisfied overall because of things like expensive subscription fees, restricted screen availability, and worries about the quality of the information. A range of viewpoints among respondents is indicated by the existence of neutral and mixed attitudes. Some held indifferent opinions about particular OTT platforms or features, whereas others had conflicting opinions, recognizing both advantages and disadvantages at the same time.

The sentiment research, taken as a whole, emphasizes how varied people's opinions about OTT platforms are. While many people value the ease, diversity, and adaptability that these platforms provide, others have concerns about some elements including price, the caliber of the information, and the impact on society.

Correlation analysis

A statistical method for determining the direction and intensity of a relationship between two quantitative variables

	Subscription Cost	...	Duration of Subscription
Subscription Cost	1.000000	...	0.214423
Number of Screens	0.438582	...	0.609272
User Satisfaction	-0.153391	...	-0.997176
Age	-0.348083	...	0.771757
Income	-0.330822	...	0.787839
Duration of Subscription	0.214423	...	1.000000

[6 rows x 6 columns]

Figure 9: Showing how cost and duration of subscription is correlated to other variables

```
Correlation Matrix:
```

	Age	Income	...	Number of Screens	User Satisfaction
Age	1.000000	1.000000	...	-0.348155	0.000000
Income	1.000000	1.000000	...	-0.348155	0.000000
Subscription Cost	-0.857690	-0.857690	...	0.438582	-0.324176
Number of Screens	-0.348155	-0.348155	...	1.000000	-0.263181
User Satisfaction	0.000000	0.000000	...	-0.263181	1.000000

[5 rows x 5 columns]

Figure 10: Output showing how cost and duration of subscription is correlated to other variables

is correlation analysis. It measures the strength of the relationship between variables, showing whether they move in the same direction (positive correlation), in the opposite direction (negative correlation), or not at all.

Determining the correlation coefficients between each pair of variables in our dataset in order to do correlation analysis (Figure 8).

Variables used

- Name of OTT platforms: Different ott platforms
- Cost of Subscription: The price of an OTT platform subscription.
- Screens Allowed: The maximum number of screens that each subscription may have.
- User Satisfaction: A measure of user happiness with over-the-top platforms.
- Usage Frequency: The regularity with which consumers visit OTT platforms (daily, weekly, monthly).
- Age: The users' age.
- Income: The users' level of income.
- Duration of Subscription: The amount of time consumers has been OTT platform subscribers.

Working on a dataset (Figure 9)

```
data = {
    'Name of OTT platforms': ['Netflix', 'Prime', 'Hotstar', 'Zee5', 'Sony LIVE'],
    'Subscription Cost': [1000, 1000, 500, 400, 500],
    'Number of Screens': [4, 5, 1, 5, 2],
    'User Satisfaction': [4.5, 3.8, 4.2, 4.0, 4.7],
    'Frequency of Usage': ['Daily', 'Weekly', 'Daily', 'Monthly', 'Daily'],
    'Age': [25, 35, 30, 40, 28],
    'Income': [50000, 70000, 60000, 80000, 55000],
    'Duration of Subscription': [6, 12, 8, 10, 4] #months}
```

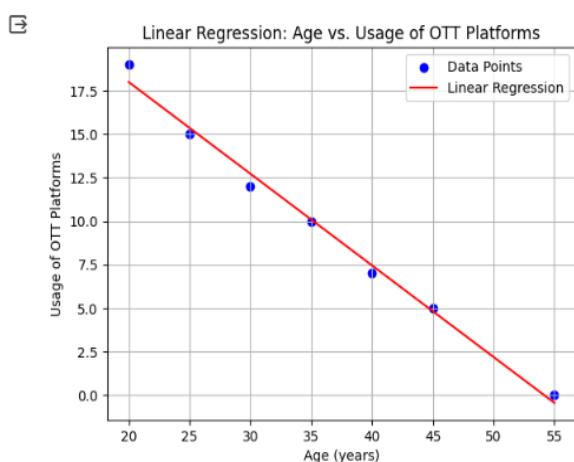


Figure 11: Relation between age of users and the amount of hours they watch ott platforms in a week

Findings

- The number of displays and subscription cost have a somewhat positive connection (0.44), meaning that the number of screens tends to increase as subscription costs rise.
- Both the number of screens (-0.31) and the subscription cost (-0.15) have a substantial negative connection with user satisfaction, indicating that lower user satisfaction is related to both higher fees and fewer screens.
- The number of screens and subscription cost are negatively correlated with age and income, suggesting that older users with higher incomes would likely choose less expensive plans with fewer screens.
- Longer subscription durations are linked to somewhat higher costs and more displays, as seen by the weakly positive association between subscription duration and number of screens (0.61) and subscription cost (0.21) (Figure 10).

Working on another dataset

```
data = {
    'Age': [25, 30, 35, 40, 45],
    'Income': [50000, 60000, 70000, 80000, 90000],
    'Subscription Cost': [1000, 1000, 500, 400, 500],
    'Number of Screens': [4, 5, 1, 5, 2],
    'User Satisfaction': [3, 4, 5, 4, 3]}

```

Findings

- Age and income are the same variable; their perfect positive correlation is 1.000.
- The substantial negative association between Subscription Cost and Age and Income suggests that younger people with lesser incomes typically have greater subscription prices.
- There is a positive association between the number of displays and the subscription cost, indicating that those with more screens typically pay more for their

subscriptions.

- The number of screens and membership cost has a negative association with user satisfaction, suggesting that more screens and greater subscription fees may be associated with lower customer satisfaction.
- These findings shed light on the possible ramifications of the correlations between the variables.

Findings

- Number of people using ott platforms is from different age groups.
- There is a negative relation between age and the usage of ott platforms.
- As the age of the person increases, the amount of hour's ott platform being watched, decreases.
- Almost all the people of age 55 and above DONOT watch ott platforms. Reason – They are not even aware what ott platforms are.

Performance analysis

This type of analysis is being done to know how different ott platforms are performing. Performance analysis is done with the help of data collected from various sources present in the market along with the data gathered from the survey. The factors which are going to be included to find the performance are (Figure 11):

- user engagement
- quality of content produced
- technical functionality
- financial performance
- Customer happiness.

Amazon prime

Amazon offers a streaming video service called Prime Video. Benefits of Prime Video are part of having an Amazon Prime membership. You can view hundreds of TV series and films on your preferred devices with your membership (Figure 12).

Content Variety

Amazon prime gives access to vast array of content to its customers in 11 unique genres.

User engagement

Keeps the user engaged by providing variety of content for every age group including games for kids as well.

Quality of content produced

Amazon prime video do not produce much original content as compared to Netflix but the content produced is good in quality and the platform is constantly coming up with more original content.

Financial performance

The revenue generated by Amazon Prime Video in 2021 was \$31.77 billion. On global level, the platform gained 250 million of subscribers. As compared to 2021, this is a 31.2% increase.



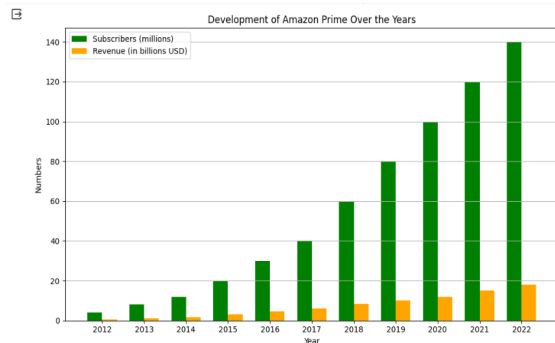


Figure 12: Development of Amazon Prime over the years..

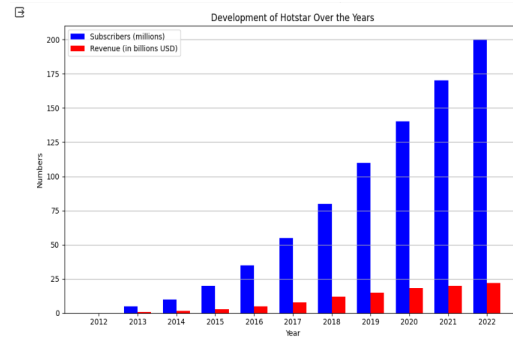


Figure 14: Development of Hotstar over the years..

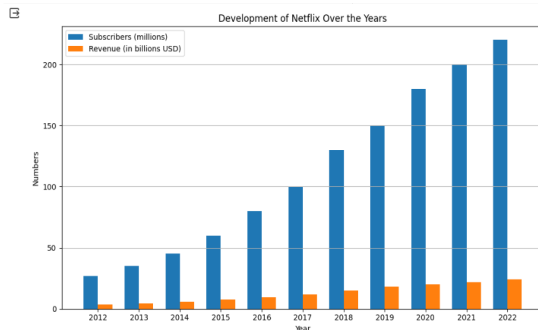


Figure 13: Development of Netflix over the years..

Technical functionality

Prime Video can detect introductions, recaps, and opening and closing credits using computer vision and video understanding technologies.

Customer happiness

It is evident that 26% of respondents indicated a degree of pleasure that may be categorized as neutral. The survey's results show that 59% of respondents are satisfied and 16% are extremely satisfied.

Netflix

Netflix is a streaming service that requires a membership, enabling users to view movies and TV series on any device with an internet connection (Figure 13).

Financial performance

The fourth quarter and full year results for Netflix, Inc. were reported on December 31, 2023. As compared to previous year, the company reported sales of USD 8,832.83 million for the fourth quarter. In comparison to last year, net income was USD 937.84 million.

Growth in revenue:

Revenue of Netflix is rising with a consistent rate of 14.2% every year.

Profitability:

Netflix keeps a good profit margin of 16% and a return on equity of 26.3%.

User engagement:

Keeps the user engaged by providing variety of content for every age group including games for kids as well.

Customer happiness

Aims to keep the customer happy by providing good quality services and wide range of content.

Technical functionality

User profiles and content libraries are stored in enormous databases managed by Netflix.

Disney+Hotstar

Disney+ Owned by Disney Star, a division of The Walt Disney Company's Disney Entertainment business sector, Hotstar is an Indian subscription video-on-demand over-the-top streaming service that offers domestic Indian cinema, television, and sports content for both India and its global diaspora. It serves Southeast Asia and has content imported from there as well (Figure 14).

Financial development

The platform reports a 34.79% rise in revenue over the prior year, which is a significant development.

Market Presence

The present turnover of the platform in the market is Rs. 4,340.79 crore.

Technical functionality

The platform offers a fantastic video experience on both mobile networks and Wi-Fi internet connections because to its adaptive video streaming technology, which makes sure that the greatest possible video quality is automatically played back based on the available bandwidth.

Customer happiness

Based on empirical data, the third hypothesis – that is, a positive significant as User Experience and Brand Experience simultaneously imply to the Customer happiness directly with 58.9 percent contribution – is proven true for customer happiness at Disney+ Hotstar digital streaming services.

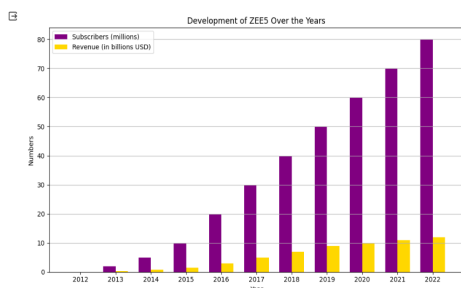


Figure 15: Development of ZEE5 over the years..

User engagement

Disney+ Hotstar's highly engaged audience has a preference for long-form advertising, or non-skippable commercials lasting up to 60 seconds, particularly during live streaming events like concerts or sporting events.

Zee5

Zee Entertainment Enterprises operates the over-the-top (OTT) and subscription video-on-demand service ZEE5. On February 14, 2018, it made its debut in India, offering material in twelve languages. Among other platforms, the ZEE5 mobile app is accessible on the Web, Android, iOS, and Smart TVs (Figure 15).

User engagement

Every new film or TV series that ZEE5 releases attracts a sizable user base. The team has an enormous potential to interact with a user at every stage of the customer journey in order to improve time spent on the app and, in turn, raise the number of subscribers.

Technical functionality

With incredibly fast and incredibly clear audio and highly advanced video streaming technologies, Zee5 provides a cozy and welcoming user experience.

Quality of content produced

Zee5 offers the benefit of user's comfort language! There is endless entertainment in the language that sounds like home with 12 navigational and featured languages available for original films, live TV, catch-up TV, lifestyle shows, children's programs, exclusive short series, and critically acclaimed plays. With more than 90 live TV stations, 1.25 lac+ hours of viewing in variety of languages.

Customer happiness

In India, ZEE5 is among the most popular over-the-top platforms. One can enjoy endless entertainment without worrying about commercials by subscribing to ZEE5.

Findings

- Clustering Results: Using the K-means technique, the data points are grouped into three groups according to how close they are to centroids (Figure 16).

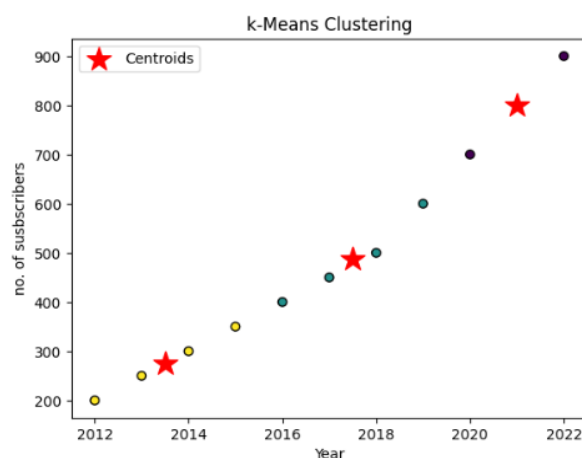


Figure 16: Applying machine learning algorithm (K means clustering) to show the performance of ott platforms as whole in past years

- In the scatter plot, every cluster is represented by a distinct color.
- Centroids: Each cluster's centroids are shown by the red stars. The average values of the data points within each cluster make up these centroids.
- Interpretation: The clustering shows that different groups have been formed based on the number of subscribers and the years.
- The centroids show each cluster's central tendency with respect to the year and subscription count.

Predictive analysis

Predictive analysis is employing modeling and statistical methods to forecast performance based on available data, both past and present. This type of analysis is being done to have an idea on how the future of ott platforms will be. Over the course of the next ten years, OTT services should see a number of noteworthy trends and changes.

Expansion on global level

OTT services will reach a wider audience worldwide, focusing on developing economies and producing content that appeals to a range of consumers. There will be a rise in regionally unique content, dubbing, and subtitles as part of increased localization and internationalization initiatives. Further industry consolidation could occur as larger media conglomerates buy out smaller, specialized OTT players. This market concentration may result in a few significant players controlling the majority of the market.

Improvement in UX and interactivity

UX, or user experience, will be a major priority. OTT platforms will keep spending money on AI and machine learning in order to improve overall navigation, minimize buffering, maximize streaming quality, and offer personalized suggestions. Choose-your-own-adventure games and interactive storytelling will be more common forms of



interactive content. This will muddle the distinctions between gaming and traditional TV.

Advanced delivery technology

Higher-quality streaming will result from developments in streaming technologies, such as 5G and better codecs. Integration between virtual reality (VR) and augmented reality (AR) might also spread.

Partnership with businesses

OTT platforms will keep experimenting with various revenue strategies. Although ad-supported tiers, micro transactions, and packaged products are examples of potential new models, subscription-based services will likely continue to be widely used.

Priority

There will be an abundance of content, but users might prefer platforms that prioritize quality over quantity, which would put an emphasis on premium and specialized content.

Collaborations

OTT platforms may collaborate strategically with other businesses, such as tech behemoths, in order to broaden their clientele and provide packaged services.

Competition with traditional media

OTT platforms will carry on upending established media, and they might even begin to take direct aim at cable and satellite TV companies. This might cause more people to cut their TV subscriptions, which would change the TV landscape.

Difficulties

Governments may enact additional laws and regulations as the sector expands to handle problems including content moderation, privacy, and antitrust challenges.

Endurance

OTT providers may make investments in sustainable practices, such lowering data center energy use and encouraging the creation of environmentally friendly content, as environmental concerns gain in popularity.

Analytical data

Data analytics will become more and more important for OTT platforms to comprehend user behavior, preferences, and interaction patterns. The generation of content, marketing plans, and user experiences will all be influenced by this data.

Case Study

Why did kapil sharma show shifted on netflix?

Hosted by comedian Kapil Sharma, "The Kapil Sharma Show" is a well-known comedy and chat show on Indian television. Because of its comedy, celebrity interviews, and entertainment value, the show became incredibly successful.



Figure 17: Why did Kapil Sharma show shifted on Netflix?

Nonetheless, there have been rumors and later confirmation in recent years that the show will be moving from traditional television to Netflix, one of the top over-the-top (OTT) streaming services. The present case study investigates the rationale behind this noteworthy transition and evaluates its consequences for the program and the over-the-top platform (Figure 17).

After making its debut on Sony Entertainment Television in April 2016, "The Kapil Sharma Show" swiftly rose to the top of the country's television schedule. Combining audience participation, celebrity interviews, and comedic sketches, the program attracted a large fan base and continuously high ratings for viewers. But in 2021, rumors started to spread that the show would be moving to Netflix, which would mean a break from its conventional broadcast format.

Motives Behind the Change

Global reach

The global reach of Netflix is one of the main reasons for moving "The Kapil Sharma Show" there. The show can reach a far wider worldwide audience outside of the boundaries of television transmission by switching to an OTT provider. This is consistent with Netflix's global subscriber goal of providing a variety of content.

On-demand viewing

OTT services like Netflix provide on-demand viewing, in contrast to traditional television, where viewers must tune in at certain times to watch their favorite shows because to its adaptability, viewers of "The Kapil Sharma Show" can watch episodes whenever it suits their schedules and viewing preferences.

Creative independence

Compared to network television, OTT platforms frequently give creators more flexibility and independence in terms of their work. By switching to Netflix, Kapil Sharma and his group could be able to experiment with new ideas and concepts because they would have more control over the format and substance of their program.

Opportunities for monetization

While subscription fees are how OTT platforms make money, traditional television mostly depends on advertising revenue. With the switch to Netflix, "The Kapil Sharma Show" now has the chance to investigate different forms of revenue generation and maybe boost subscription-based viewing.

Netflix's content library is extensive and varied, containing discussion shows, comedy specials, and original series. "The Kapil Sharma Show" will be able to take use of Netflix's audience and brand by joining the platform, which will increase its discoverability and visibility among members.

Consequences

"The Kapil Sharma Show's move from television to Netflix represents a critical turning point in the development of Indian entertainment. It is a reflection of the increasing power of over-the-top (OTT) platforms and their capacity to draw in well-known talent and properties from the traditional media. The acquisition of a well-known television program such as "The Kapil Sharma Show" by Netflix enhances its catalog of material and establishes it as the go-to source for Indian viewers looking for high-quality entertainment.

In conclusion, the move of "The Kapil Sharma Show" from television to Netflix highlights how media consumption and delivery are evolving material producers like Kapil Sharma may reach a larger audience, pursue new creative opportunities, and profit from the demand for interesting and diverse material around the world by utilizing OTT platforms. The strategic decision-making required to navigate the ever-changing entertainment sector and adjust to new trends and technologies is highlighted in this case study.

CONCLUSION

It is true to say that about 5 years ago, people were not that much aware of the word 'OTT' but post pandemic covid – 19, it was seen that ott platforms gained a lot of recognition, importance and hype and it still continues to. With the help of survey, it was found that around 80% of the people are aware about ott platforms and are using them. The subscription rates of all the ott platforms vary. While some people believes in using paid ott platforms because of exclusive content and no advertisements, there are a few people who believe that ott platforms and their content are overrated and they tend to use unpaid ott platforms. With the help of machine learning models and algorithms, the data collected through survey was analyzed. It was found that while ott platforms are gaining appreciation for their flexibility, convenience and personalized recommendations, there are still people who

dislike them, they find them expensive and wants to use the traditional modes for the source of their entertainment. Various OTT platforms are doing well today, and Netflix is the market leader today with a rapidly growing audience. There are many movies being released on OTT platforms only instead of getting released in theaters, according to the case study written. Even the prominent shows are being shifted to Netflix. However, the craze for traditional media persists. Elder people still prefer to sit in front of tv and watch shows according to the time they are getting broadcasted. People still prefer to go to their nearby cinemas to watch their favorite actors and actresses. One thing which is to be kept in mind is that change is the only constant thing today. One should be capable of adapting with the changes prevailing in their surroundings.

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