Avrcbhargava
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The Musky Twitter

Bhargava Avancha | Ann Chittilappilly | Kshitij Addepally | Harinishri Srikanth | Harshi Pogadadanda

Project Overview

Elon Musk's acquisition of Twitter has been in the headlines for quite some time everywhere in the leading media, Reddit, Twitter, and all platforms. He announced that he is set to buy social media giant, Twitter for a whopping $44 billion dollars on 25th April 2022. The price of Twitter has been bobbing up and down ever since this announcement. This has raised concerns for investors, and the public opinion on this acquisition and on Elon Musk has varied. In this article, we are trying to find out how the wind of public opinion has varied before and after Elon Musk's announcement. We tried to analyze the perspective of the tweets he has been tagged with as well.

The goal of this article is to find if there is a change in the sentiment of the tweets related to Elon Musk before this announcement and after this announcement. We scraped Twitter data uniformly over days and we have identified the sentiment analysis and then we tried to identify common tags he has been connected with and also the most frequent words that are used in those tweets.

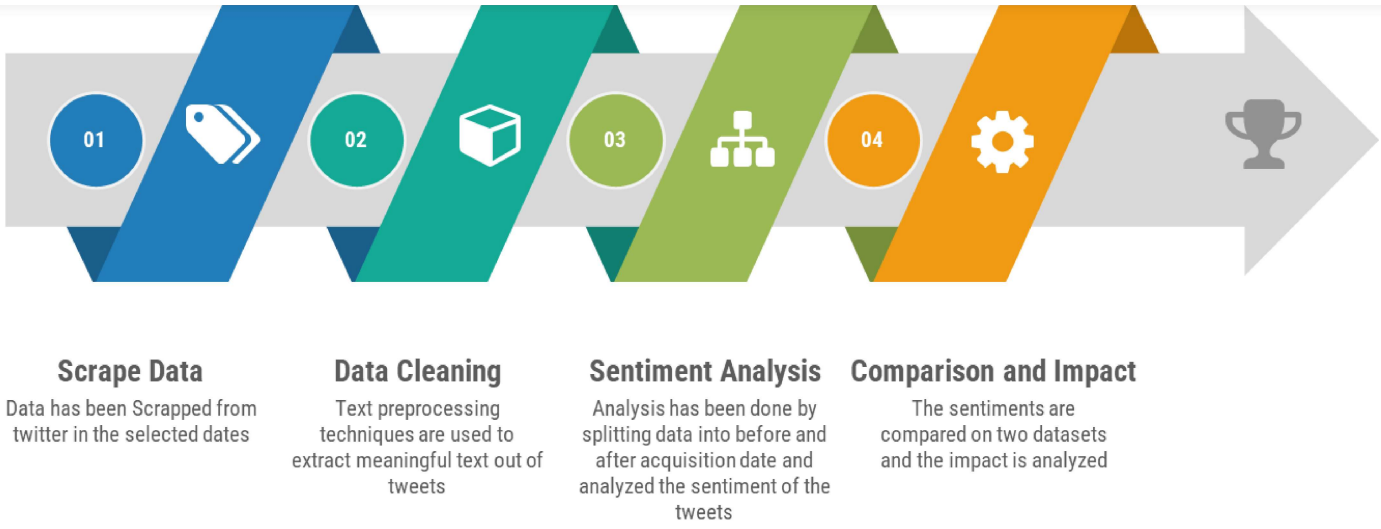

Fig 1

Data Description

The data was scraped from Twitter using the snscrape library. We provided the hashtag, date, and max results over multiple days (Before 25th April 2022, After 25th April 2022) and have collected a sample that is evenly distributed and is not skewed from a single date. The data is unlabeled and has username, date, description, followers count, friends count, location, and several other fields that are in JSON format. We have converted the JSON into a data frame for our further analysis.

```
df1post=pd.read_excel("/content/Tweets1 (1).xlsx")
df1post
```

	Unnamed: 0	content
0	0	'@danthedirt @elonmusk @IndyArts Cê vai me ado...
1	1	'@Duskopi @LayahHeilpern @elonmusk @benshapiro...
2	2	'@elonmusk Not to neutral when you block people'
3	3	@Benaskren @elonmusk I don't agree with you th...
4	4	'@jasonpizzino @elonmusk WOW!..that's pump'n ....
...	...	...
7995	7995	'@benshapiro @elonmusk Bro it's your own fault...
7996	7996	'@AsylumSeaker @MrWhiteSox @merelyfreshmen @Da...
7997	7997	'@TDogewhisperer @elonmusk +tip 4.2'
7998	7998	'@elonmusk Sir am from pakistan\nI want you co...
7999	7999	'@AngelaBelcamino @elonmusk https://t.co/II9TE...

Fig 2

Data Preprocessing

The content of the tweet was mainly used to extract the sentiment. To assure the quality of analysis, we have used several data preprocessing techniques. We used an in-built package, NLTK for this analysis. First, we converted every word in the description into tokens. We also used the re (Regular Expression) library to remove punctuations, numbers, and other unwanted characters in the data. Finally, we removed the stopwords like 'I', 'that', 'his', 'that' etc. from the data. The words are then lemmatized to convert them into the base word. The lemmatized word was used in further analysis to find the sentiment of the tweet.

with a total of 8000 tweets. These tweets after preprocessing were passed through models like the VADER model which has been imported from nltk. sentiment.Vader import SentimentIntensityAnalyzer.

The same procedure was followed for post-analysis as well, tweets were extracted for the dates 25th to 28th making a total of 8000 tweets. These tweets were used for post-analysis in the same way as stated for pre-analysis.

VADER model helped in giving the sentiment score for the tweets. Sentiment score included parameters like neg, pos, and neu representing the score of how negative/ positive/ neutral the tweet is within a scale of 0–1. The score also had another essential parameter which is compound, the compound score is the sum of positive, negative & neutral scores which is then normalized between -1(most extreme negative) and +1 (most extreme positive), this compound score helps in analyzing the tweet's sentiment as a whole.

The sentiment of the tweets was classified into positive, neutral, or negative using conditional statements by taking the neg, pos, and neu scores

	Unnamed: 0	content	scores	compound	Sentiment
0	0	'@danthedirt @elonmusk @IndyArts Cê vai me ado...	{'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound...	0.0000	neutral
1	1	'@Duskopi @LayahHeilpern @elonmusk @benshapiro...	{'neg': 0.0, 'neu': 0.904, 'pos': 0.096, 'comp...	0.1779	neutral
2	2	'@elonmusk Not to neutral when you block people'	{'neg': 0.293, 'neu': 0.707, 'pos': 0.0, 'comp...	-0.4404	neutral
3	3	@Benaskren @elonmusk I don't agree with you th...	{'neg': 0.19, 'neu': 0.81, 'pos': 0.0, 'compou...	-0.2755	neutral
4	4	'@jasonpizzino @elonmusk WOW!..that's pump'n	{'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound...	0.0000	neutral

Fig 2a

	Unnamed: 0	content	scores	compound	Sentiment
0	0	'@danthedirt @elonmusk @IndyArts Cê vai me ado...	{'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound...	0.0000	neutral
1	1	'@Duskopi @LayahHeilpern @elonmusk @benshapiro...	{'neg': 0.0, 'neu': 0.904, 'pos': 0.096, 'comp...	0.1779	neutral
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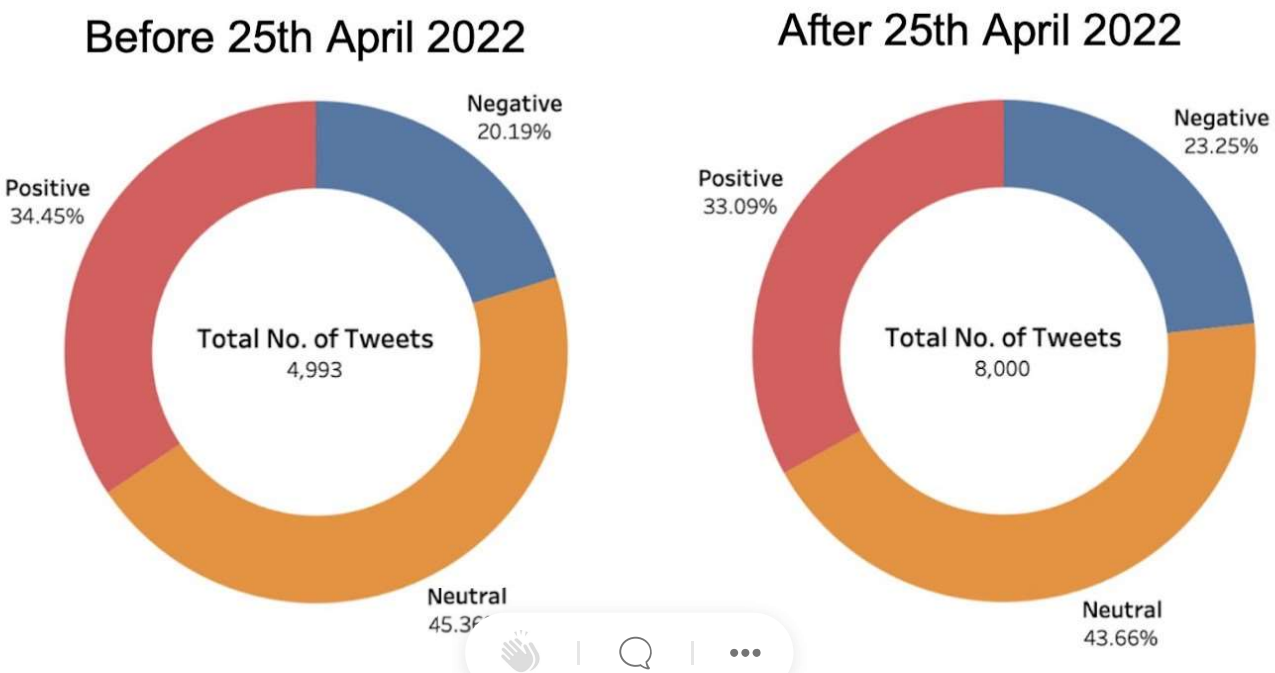
4	4	'@jasonpizzino @elonmusk WOW!..that's pump'n	{'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound...	0.0000	neutral
5	5	'@LayahHeilpern @elonmusk @benshapiro we just ...	{'neg': 0.0, 'neu': 0.828, 'pos': 0.172, 'comp...	0.3612	neutral

Data Visualization and analysis

The Donut charts (Fig 3) show the distribution of Sentiments before 25th April 2022 and after 25th April 2022. We can clearly see that there is 3.3% increase in Negative sentiment overall after this announcement in this sample taken and a slight decrease of 1.36% in positive sentiment.



The Pie charts (Fig 4) show the people who were tagged the most before and after Elon musk's acquisition of Twitter. We can clearly see that after his acquisition Ben Shapiro who is an American conservative political commentator was tagged the most, followed by Dick Costolo who was Twitter's previous CEO, who was very critical of Musk's acquisition of Twitter.

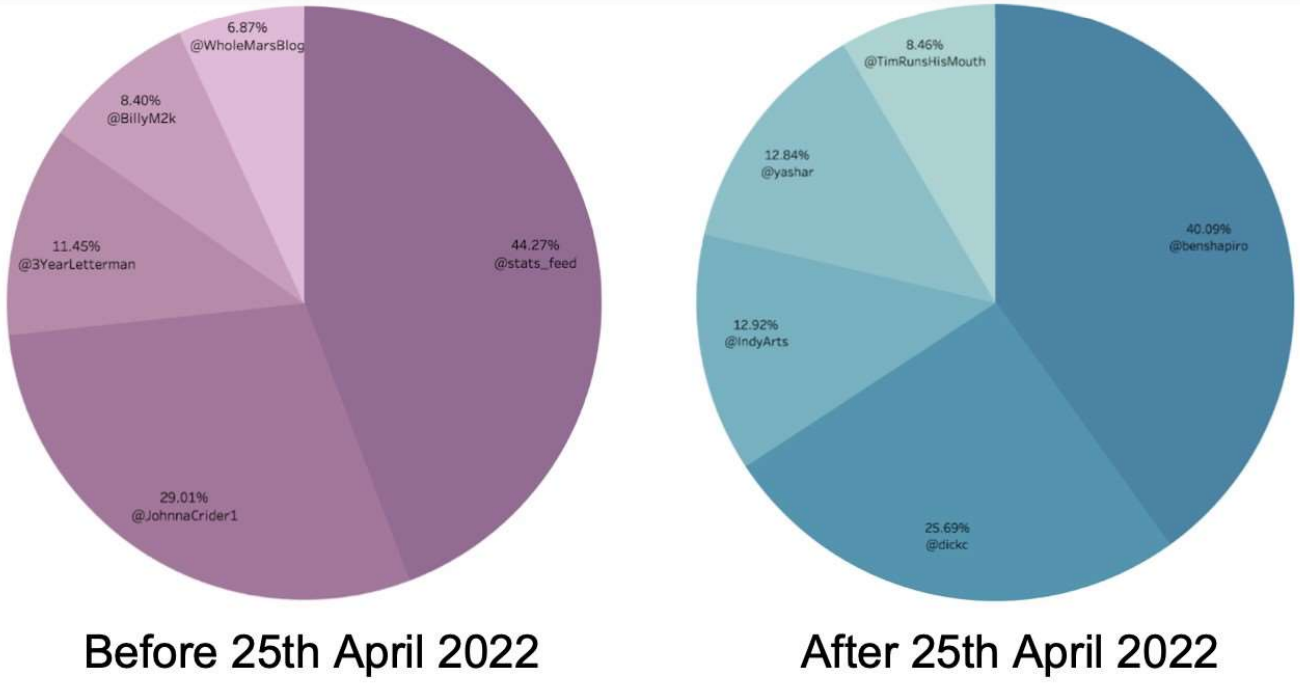


Fig 4

We also made a WordCloud (Fig 5) to see the most frequently used words in these Tweets. It was obvious to find “Elon musk” was the most frequently used word in all tweets after his acquisition. We can also find a few interesting words like “Free speech” being used more, as Musk tweeted to restore Free speech after his possession.

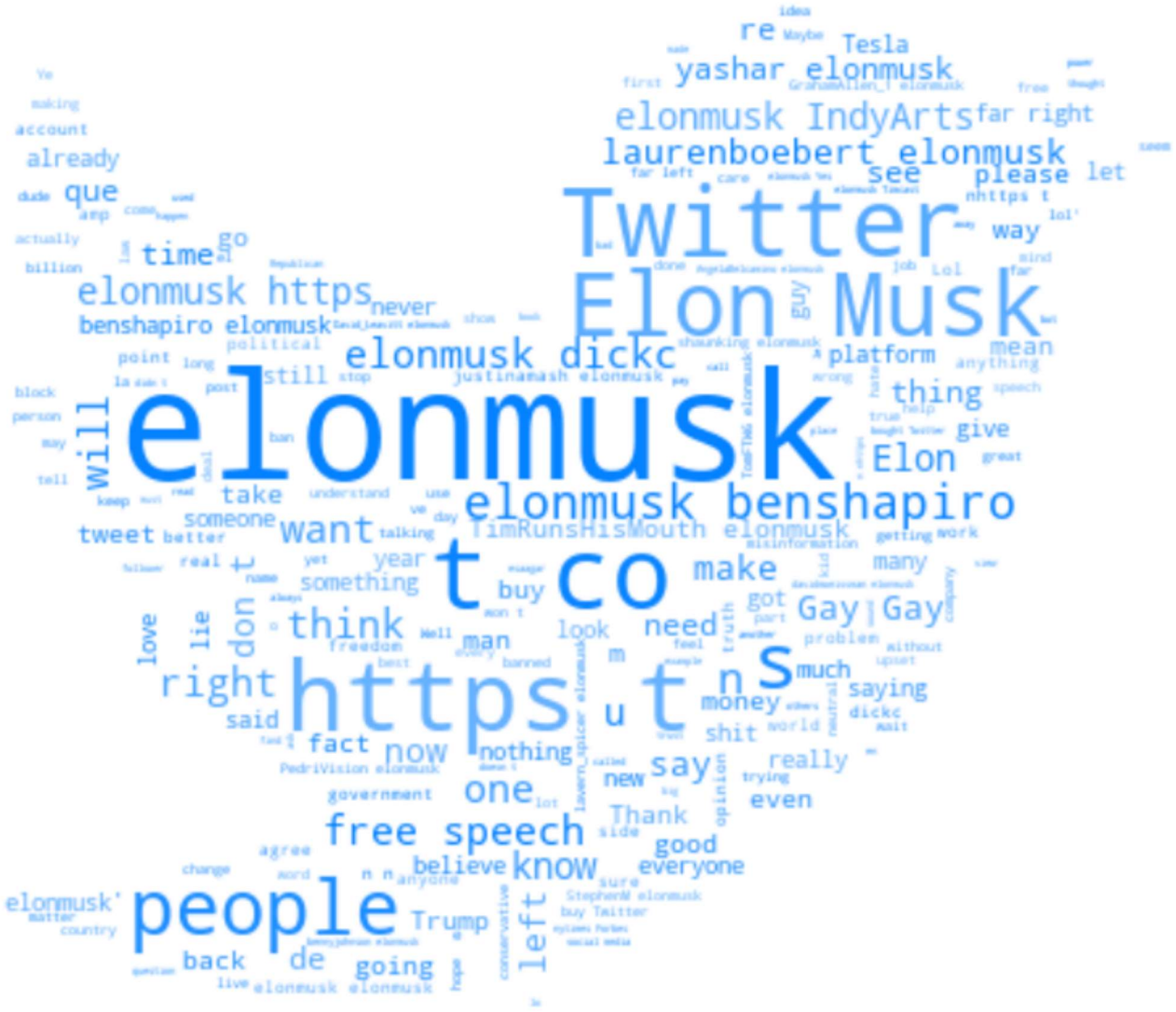


Fig 5

The Bar plots (Fig 6) show the Top 10 words used in these tweets before and after 25th April 2022. We can see clearly the difference in words used. We see words such as “right”, and “left”, which refer to the political ideologies, “free” and “speech” which were advocated by Musk post his acquisition.

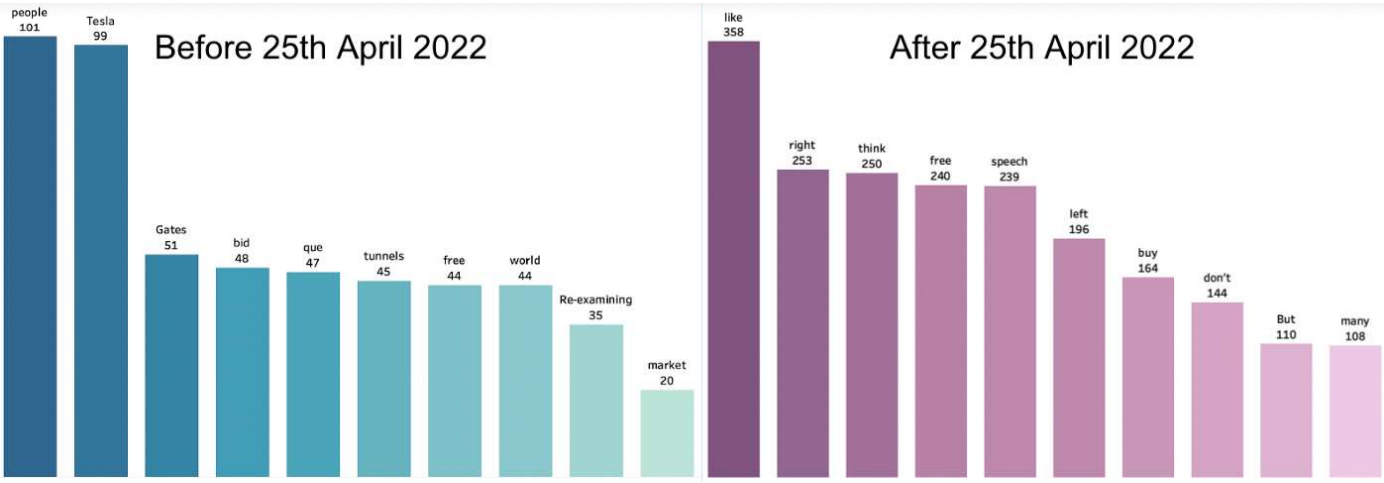


Fig 6

Conclusion

So from analyzing trends before and after, we have observed there is an increase in the negative sentiment of 3.3% in the collected sample and a slight decrease in positive and neutral sentiment. The perspective in which Elon Musk was tagged was completely changed and our analysis has shown that prior to announcing meant he was more tagged with tech blogs and tesla. After he announced it he was more tagged with political fronts and leaders. This alone shows how it has impacted the opinions of people.