# Plastic Pollution:
A Twitter Analysis for Coca-Cola

The project introduces a business analyst at the marketing department of Coca Cola in the middle of a critical situation.

There is an increasing debate on social media concerning the negative impact of plastic consumption on the environment. As of recently, NGOs have started campaigning against Coca Cola and other multinationals.

The task is to analyse recent conversations posted on Twitter to determine the communication strategies followed by NGOs. Advise must be given to General management on how Coca Cola must engage on social media with such NGOs.

Given that the project aims to present to management the results of the analysis, a presentation shares the study's highlights. In industry, this would probably be the company's approach; the marketing team would put a report together that was easy to digest and understand by management, so they make the right decisions going forward.
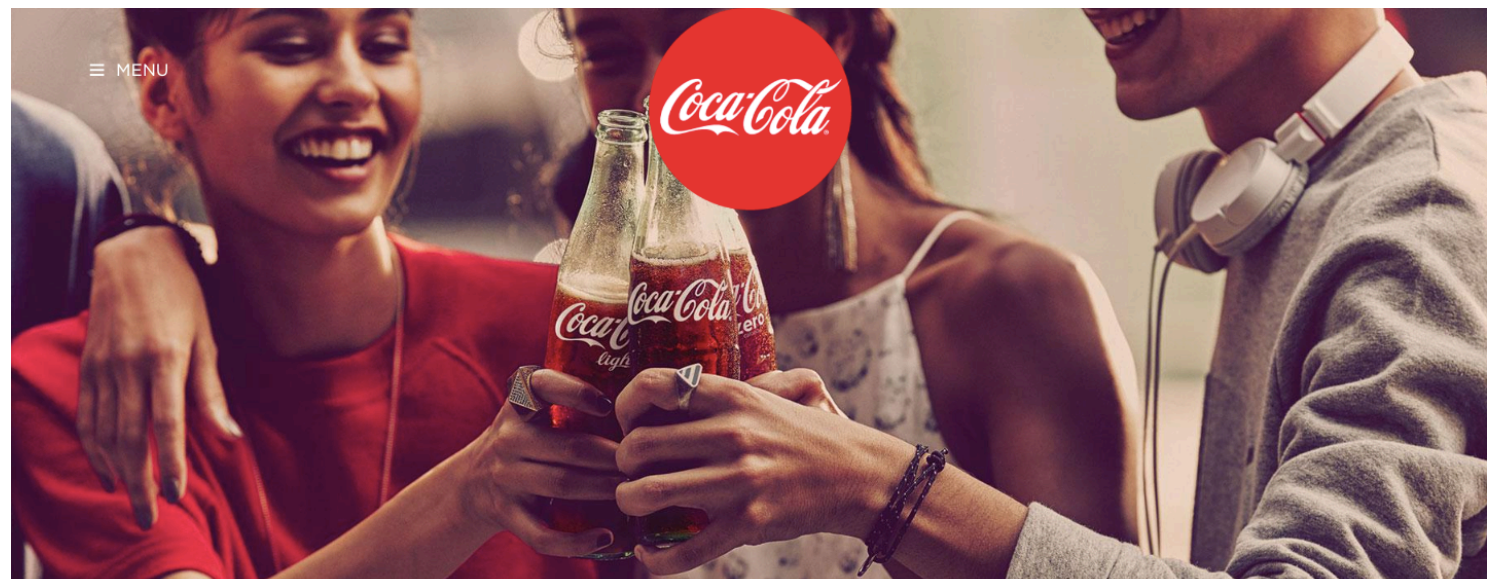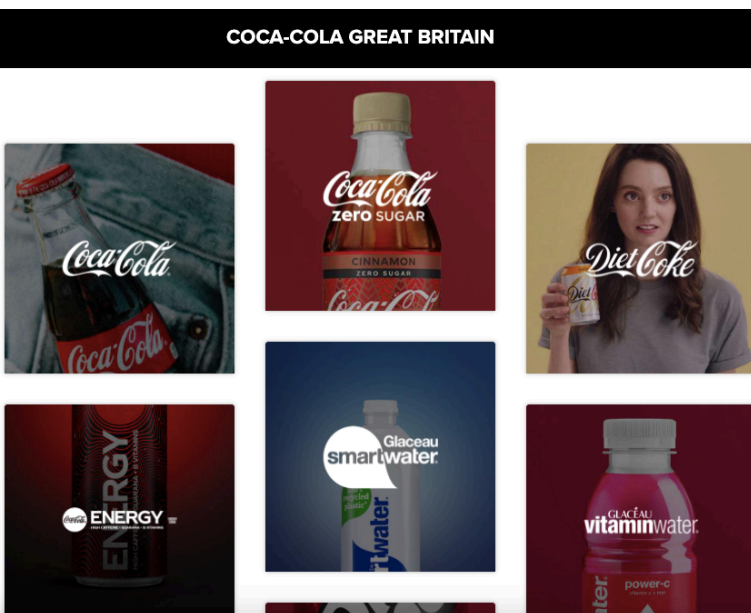
Task 1. Which Twitter users are the most popular ? (10%)
TIP: CONSIDER RETWEET AND FAVOURITE COUNTS AS PROXIES FOR POPULARITY

The most popular user was by far Greenpeace.
On average, it was way ahead of any other user in terms of retweets, favourited tweets and number of followers.
Greenpeace also had the tweet with the most favourites and second on most retweets.

We can see that in the top 5 we have 2 main kinds of stakeholders: NGOs and Multinationals.

The top accounts of followers are dominated by multinationals (PepsiCo, Nestle, Unilever). Nevertheless, we can see that NGOs such as Algalita, Plastic Pollutes, and Greenpeace are very popular. In fact, several influential NGOs fighting plastic pollution are constantly coming up in the charts, especially in most retweets.

Task 2. Which Stakeholders users are the most emotional ? (10%)
TIP: VISUALISE LEVELS OF EMOTIONS ACROSS STAKEHOLDERS (NGOS, ARTISTS, MULTINATIONAL)

In general, we can see that the tweets with the most negative emotions come from NGOs (anger, fear, sadness) and positive emotions by artists, multinationals or other organisations (joy, love, trust).

• 5gyres is the NGO with the angriest tweet
• Plastic Pollutes is the NGO with the most fearful tweet
• PlasticfreeBeth is the Artists with the most joyful tweet
• PlasticfreeBeth is the Artists with the most loveful tweet
• Plastic Pollutes is the NGO with the sadder tweet

The most emotional users per stakeholder are:

• NGOs —> PlasticPollutes
• Scientific —> EnvirHealthNews
• Artists —> PlasticfreeBeth
• Other Institution —> EndPlasticWaste
• Multinatioanl —> Nestle

Task 3. Do emotions play a role in the number of retweets and favourites achieved by tweets ? (20 %)
TIP: CORRELATIONS BETWEEN VARIABLES
TIP: VISUALISATIONS RELATING VARIABLES
TIP: OPTIONALLY CONSIDER BASIC REGRESSION MODELS TO DETERMINE THE IMPACT OF SOME VARIABLES ON OTHERS (E.G. IMPACT OF LOVE ON FAVOURITE, IMPACT OF FEAR ON RETWEET)

The Marketing Analytics Department created a plot to identify if there was an apparent relationship between variables, with feelings on the x-axes and popularity on the y-axes. However, the graphic showed no evident relationship. To identify if a relationship existed, the department needed to do a more in-depth analysis.

By doing a correlation between retweets and total emotion, and favourite count and total emotion, no relationship was evident either.

To reveal any relationship between the variables, the tweets of the most popular users were extracted and analysed to see how they used emotions in their tweets.

	anger	fear	joy	love	sadness
Plastic Pollutes	80%	67%	92%	54%	61%
Greenpeace	70%	49%	42%	15%	55%

The most popular users definitely used emotions as part of their tweets, indicating a relationship between emotions and popularity. However, to increase confidence in the results, a comparison with retweets or favourites count of the most emotional tweets took place.

The number of retweets and favourites was not necessarily high by analysing the angriest and most joyful tweets on the database.

Overall, there seems to be a relation between popularity between emotions and popularity, but it is not very strong.

Task 5. what are the differences between stakeholders ? (30%)
TIP: EXPLORE DIFFERENCES IN TERMS OF EMOTIONS, POPULARITY, HASHTAGS USED, NUMBER OF TWEETS, ETC

It was essential to understand how they communicated and used Twitter to analyse the difference between stakeholders. To better comprehend it, an analysis of the following took place:

- How are emotions used across stakeholders
- What is the tweet tone across stakeholders
- Hashtags usage across stakeholders
- Frequency of tweets
- Which stakeholders are more popular (followers, retweets and favourites)

	stakeholder	tweet.favorite_count	tweet.retweet_count	anger	fear	joy	love	sadness	trust	TotalEmotion
0	Artist	1.403846	2.701923	0.191531	0.142912	0.511195	0.123589	0.179675	0.054033	1.148902
1	Multinational	52.850000	19.550000	0.158001	0.157787	0.523263	0.105483	0.160258	0.063770	1.104792
2	NGO	46.456432	38.680498	0.356121	0.245599	0.293706	0.063486	0.272420	0.048228	1.231332
3	OtherInstitution	12.411765	10.039216	0.207091	0.169765	0.394409	0.059978	0.188679	0.056795	1.019921
4	Scientific	1.250000	28.333333	0.283057	0.160679	0.407954	0.098758	0.244664	0.051185	1.195113

Stakeholder Emotions Differences
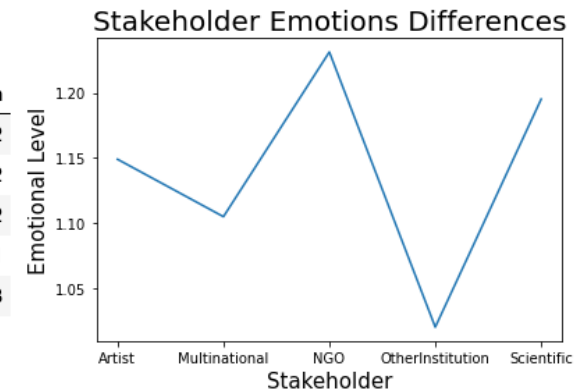
In terms of emotions, we can say that NGOs are much more emotional than the rest of the stakeholders, followed by artists. The least emotional group was Other Institution.

	stakeholder	tweet.favorite_count	tweet.retweet_count	trust	identity_hate	insult	obscene	severe_toxic	threat	toxic	Tone
0	Artist	1.403846	2.701923	0.054033	0.002312	0.004153	0.003898	0.001976	0.002006	0.017433	0.081913
1	Multinational	52.850000	19.550000	0.063770	0.002394	0.002865	0.002714	0.002283	0.002258	0.005048	0.078619
2	NGO	46.456432	38.680498	0.048228	0.002920	0.008715	0.006713	0.002021	0.002076	0.038602	0.102563
3	OtherInstitution	12.411765	10.039216	0.056795	0.002396	0.002867	0.002694	0.002226	0.002192	0.005053	0.071529
4	Scientific	1.250000	28.333333	0.051185	0.002766	0.008543	0.007881	0.001990	0.002107	0.042202	0.108793

Stakeholder Tweet Tone Differences
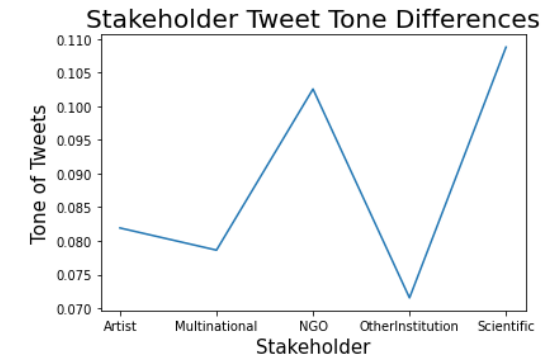
To see the differences on how different stakeholder use their tone of voice in tweets I added all negative tones into one column. The sum revealed that the most negative stakeholder is Scientific and the least is Other institution

	stakeholder	max
0	Artist	[#wastedialog, #plasticfree]
2	NGO	[#viralvideo, #plasticfree]
1	Multinational	[#veolia, #nestle, #BeatPlasticPolution, #circulareconomy]
3	OtherInstitution	[#ukplasticspact, #changeplasticforgood, #recycling]
4	Scientific	[#recycling]

Even though all users use hashtags, It is evident from the table on the left that even though NGOs use the most hashtags, the do not use multiple in singular tweets, as opposed to multinationals.

it is clear that the two main stakeholders in term of frequency of tweets are
• NGOs
• Artists
And even though they tweeted the most, NGOs have more than twice as much tweets than Artists.

Surprisingly, the group that tweets the least are Multinationals, even lees than Scientists

	stakeholder	count
2	NGO	241
0	Artist	104
3	OtherInstitution	51
4	Scientific	24
1	Multinational	20

Lastly, the differences in terms of popularity was explored. To do this we plotted the number of retweets and favourites to be able to easily compare the two at a glance. In both categories NGOs are the most populars.

Stakeholder with most retweets

Stakeholder with most favourites
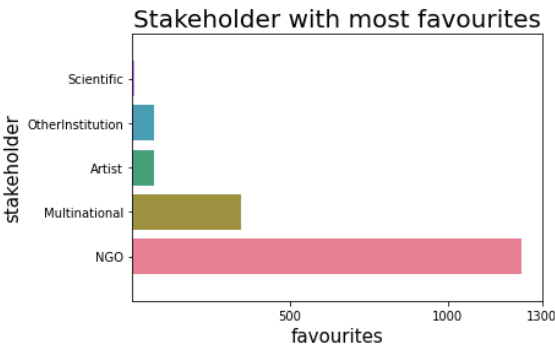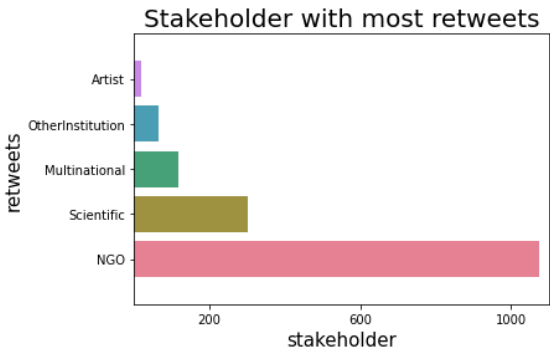
Task 6. what are your recommendations for Coca Cola as far as social media is concerned ? (20%)

Contact the leading NGOs based on their Tweeter engagement) and open a public conversation demonstrating the efforts the company is making to reduce plastic pollution. This way, they can start changing their dialogue from being angry and fearful to be happier and trustful.

Some NGOs go as far as promoting brands that are making efforts to reduce plastics. See PlasticOceansUS

> *"RT @aplastic_planet: New #market stall sells #plasticfree products \n\nMarkets .... plastic-free .... what's not to love* 💚
>
> 💙💚💙*\n\nhttps://t.co/n…"*

Therefore, by making them aware of the multinational efforts to become plastic-free, NGOs might even create organic views of the company's strategy and increase awareness of it.

It is critical to make the most of the influence multinationals seem to have on tweeter. They are one of the user groups with the most favourites and retweets. By making the conversation public on social media, followers will be aware of plans to reduce plastic waste across the company. This strategy can expand the number of followers the account has, as people will want to know the updates the company shares online and the number of retweets and favourites.

It could also engage with the scientific community in the conversation on how to improve their products to be more environmentally friendly. Doing this would bust credibility on the future packaging and take advantage of their followers.

By doing the above, Coca Cola would be using "influencers" renewed from being against them to advocate their brand instead of diminishing it.

Once this conversation has happened in public with the prominent representatives of the different user groups studied, Coca Cola can destine part of its marketing budget to showcase its efforts across various social media platforms (which is what PepsiCo does)
• Facebook
• Twitter
• Instagram
• Tik Tok
• LinkedIn
• YouTube
By making videos and images showing Coca Cola not only makes people happy but also the environment. This strategy would increase awareness, which would lead to gaining marketplace as the consumers who would not buy because of the environmental consequences of the product could now pick Coca Cola products.

As part of the campaign, the company could also show videos or images of them clearing plastic from different areas such as beaches and rivers to mitigate some of the plastic already produced. Coca Cola could then recycle this plastic, and the company could also advertise this process on social media.

As part of the marketing campaign, Coca Cola can use the following hastags:
#plasticfree can be used to say that the company aims to be plastic free in the next X years.
#circulareconomy is a concept CocaCola can start to evaluate in their messaging, alluding at how they already are …
#BeatPlasticPollution would be an excellent way to let CocaCola's followers know that this is their aim