

## Delta Twitter Sentiment Analysis Final Report

It's no secret that the airline industry has taken a hit since Covid 19 changed the world. Now more than ever, it is important to review the main priorities for customer satisfaction in order to be more adapted to new passenger needs and emerge from the pandemic stronger than before. While data from Net Promoter Scores and Delta's GST system have provided invaluable customer information, adding outside sources of information can shed light on areas of the company that have not yet been addressed. Social media continues to be a place for people to express their experiences, both positive and negative, and so it is a great place to turn to when looking for a snapshot of customer sentiment. Scraping Twitter data from the past two years, I was able to develop interesting insights on passenger experience.

Overall general sentiment of the airline actually increased from the year 2019/20 to 2020/21, albeit by a small amount: .04 points on a scale of -1 to 1. Interestingly, the seasonal dips were much more extreme in the covid period vs the year prior. The main reason for these accentuated dips seem to be political in nature and additionally, when isolating for tweets that just revolved around the topic of safety, Delta's average sentiment score actually went down by .9. While safety is Delta's top priority, the most common words associated with a negative safety sentiment had to do with the aircraft's seat cleanliness, distancing, crew mask enforcement and seating issues in general. Examples include:

- "In the middle of covid Delta is not cleaning the seats, or following any safety protocols for their passengers, this flight LA-New Orleans, business class, and that kleenex was there from the previous flight!!! 😡"
- "I'm on a Delta flight and two men seated in my row are blatantly disregarding the mask rule, playing on their phones without any sort of face covering. Flight attendants have yet to approach them reminding them of the rule. I feel unsafe."
- "Delta books a stranger in the seat next to me on a flight, I discovered this after boarding, and the answer by the flight attendant was, this is a fully booked flight... Very unhappy with Delta in these days of rising cases."
- "Hey Delta! Little confused as to why I'm sitting next to someone on my flight when you guys tout having seats blocked? And say to keep a safe distance?"

In order to provide more health and safety to passengers onboard during covid, Delta opted for a reduced snack service to limit the amount of time spent with masks off. When isolating for tweets with a subject of snacks, beverages and in flight food offerings, yearly average sentiment scores went up in the 2020 covid period: .13 to .23 respectively. However, the polarization of the sentiment also increased, with a large range of highly satisfied scores to much less satisfied scores; the standard deviation in sentiment during the precovid period was only .05 as opposed to .11 once covid started. When looking at the content of why the variation in scores was so high, scores were pretty evenly mixed based on polarization of mask-wearing in general. Most positive scores were underlying the fact that further snack options were discontinued to minimize time spent not wearing a mask and applauded the emphasis on safety, whereas most negative scores questioned the efficacy of masks and emphasized the desire for increased snack and beverage options due to that questioned efficacy.

The lowest sentiment score day in total out of the entire two year period took place on December 4<sup>th</sup> 2020, and the highest sentiment score day was also in 2020, on April 5<sup>th</sup>. Further research into April 5<sup>th</sup> shows that is when Delta announced they would be extending their medallion member positions for the next year due to Covid, and the average sentiment due to that earned a very high .48 score. The most negative day actually had to do with a slurry of tweets regarding Delta's financial support of Kelly Loeffler, a politician in the Georgia area. That lead to a score of -.30.

There are three main takeaways from this analysis that can be done to increase sentiment scores in the future. The first and most pressing given the amount of negative tweets was due to the financial endorsement of a political figure. Given the polarization of politics today, Delta would do best to avoid all associations with politicians online and in general to prevent itself from alienating a portion of its client base supporting an opposing politician. The second is to figure out a process for dealing with seating issues more efficiently. An easy fix to the primary seat cleanliness issue is to increase cleaning time or cleaning crew power in between flights to make sure the planes are as spotless as can be. In addition, because another concern from tweets regarding safety in a negative rating had to do with seating issues, creating a process in between flight attendants and gate agents to minimize middle-seat exceptions before the plane takes off will help as well. Mask polarization was very high when it came to positive and negative sentiment but overall those in favor of mask wearing and enforcement gave delta a higher sentiment score, so staying the course and keeping up with the safety emphasis and mask compliance by employees is the right way to go.