MS in Business Analytics

Marketing Analytics Portfolio

Student   : Venkata saikiran Melam

Marketing Analytics Portfolio - Delta Airlines

Introduction :

Delta Airlines, founded in 1924 and based in Atlanta, is one of the world's largest airlines. With a fleet of over 800 aircraft, it serves more than 300 destinations across 50+ countries. The company is also committed to environmental sustainability. This marketing analytics portfolio aims to identify key business challenges faced by Delta Airlines and propose marketing strategies to address these issues. The primary problem identified is the negative outlook in customer reviews, which affects the company's reputation and passenger growth. Through sentiment analysis, topic modeling, and word cloud visualization, this portfolio provides valuable insights and recommends marketing solutions to overcome these challenges.

"The Pyramid Principle" (Barbara Minto):
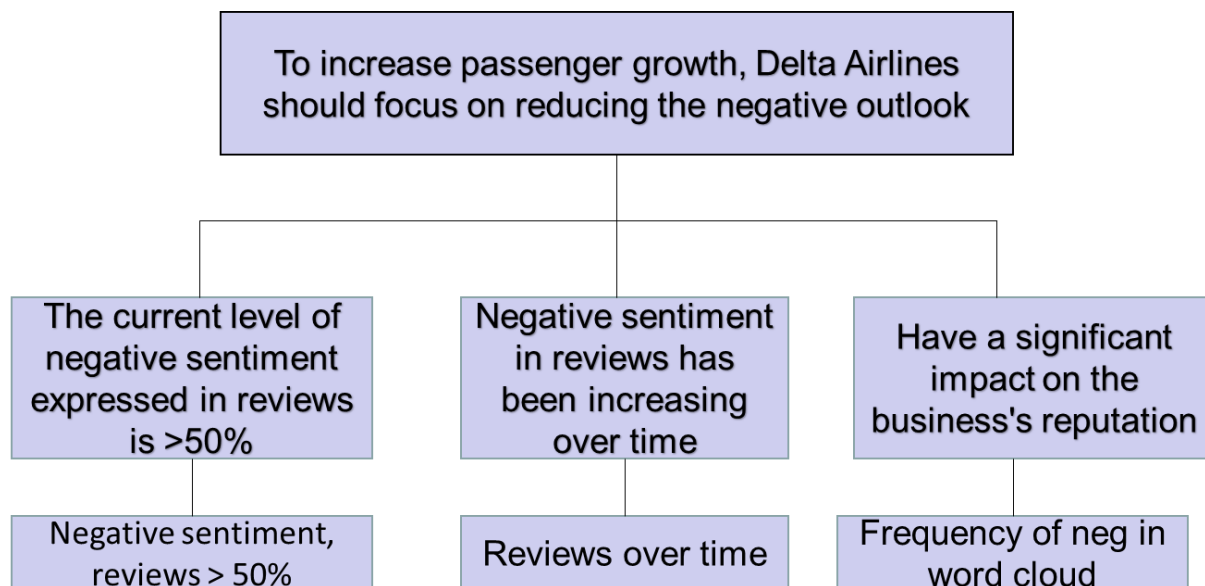
The Pyramid Principle, developed by Barbara Minto, is a structured communication technique used to present complex information in a clear and concise manner. The main idea is to start with the most important information at the top and support it with relevant arguments and evidence.

In the case of Delta Airlines, the key business challenge identified is the need to reduce the negative outlook in customer reviews. The insights derived from the data analysis are:

1. The current level of negative sentiment expressed in reviews is >50%.
2. Negative sentiment in reviews has been increasing over time.
3. This trend has a significant impact on the business's reputation.
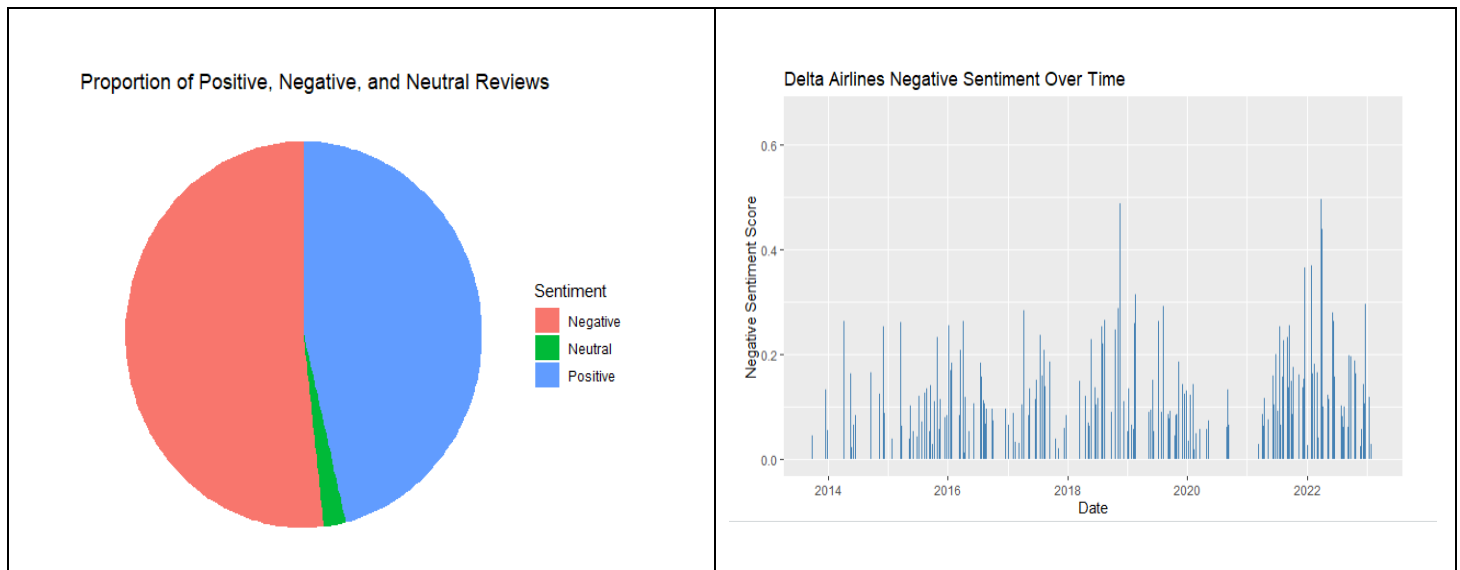
These insights are supported by:

1. Sentiment analysis showing that negative sentiment in reviews is over 50% (support 1).
2. A time series analysis indicating an increase in negative sentiment over time (support 2).

3. A word cloud visualization highlighting the frequency of negative words in the reviews (support 3).

By applying the Pyramid Principle, the portfolio presents the information in a logical and structured manner to grasp the key challenge faced by Delta Airlines and understand the supporting evidence that underpins the proposed marketing strategies.

Summary of Data Analysis 1: Sentiment Analysis

Sentiment analysis was conducted using VADER packaeg in R on a dataset of 2,689 customer reviews that resulted in sentiment scores (positive, neutral, and negative). The analysis revealed that more than 50% of the reviews had a negative sentiment and it is increasing over the years. This finding highlights the need

for Delta Airlines to address the issues causing customer dissatisfaction and improve their overall service quality.

Summary of Data Analysis 2: Topic Modeling
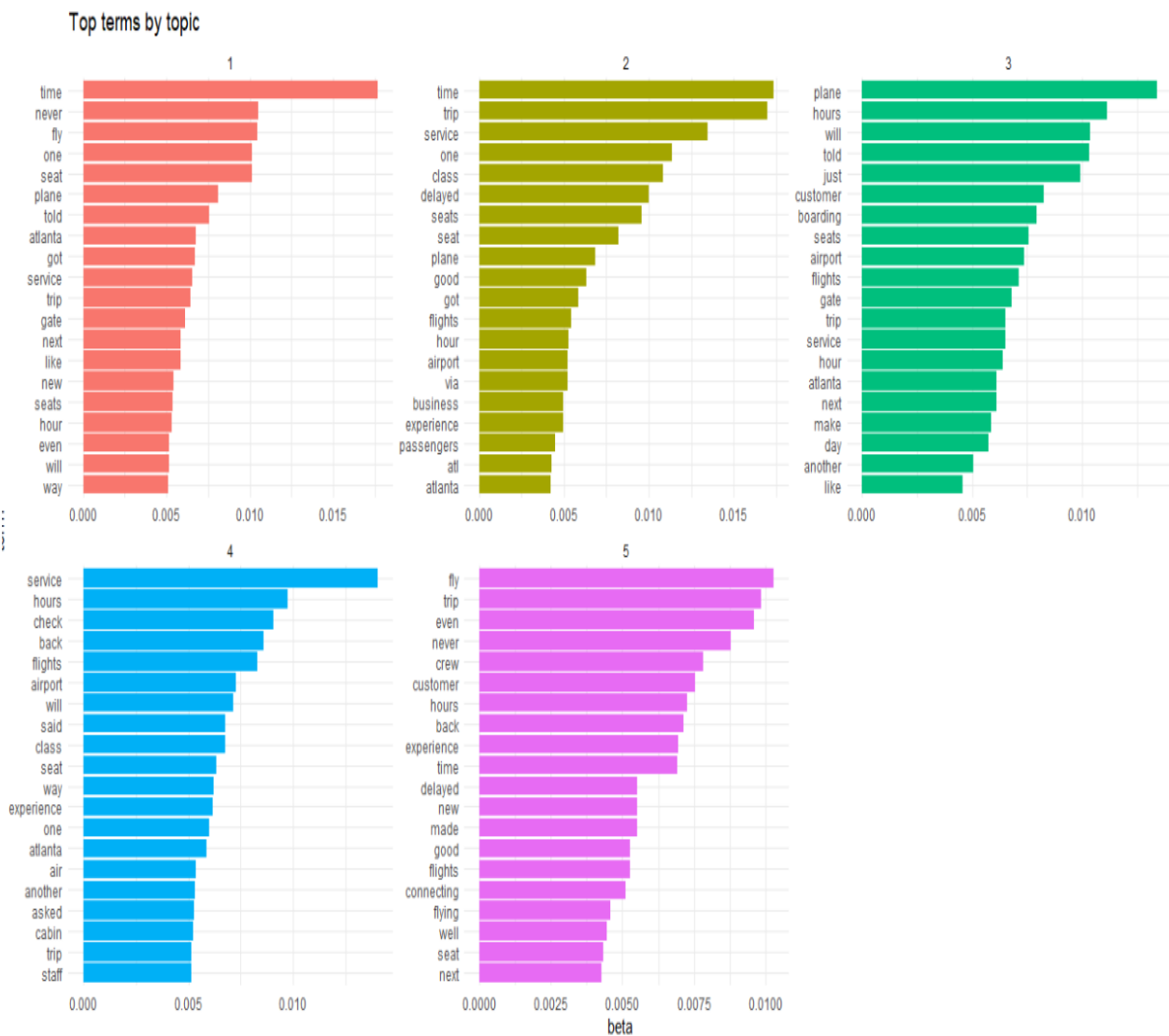
Topic Modeling

Using Latent Dirichlet Allocation (LDA), five main topics were identified in the reviews: airline services, travel time and airport experience, customer support, travel and class preferences, and customer experience. These topics can provide insights into the areas where Delta Airlines can focus on

improvements. For example, enhancing customer support and addressing travel and class preferences could lead to more positive customer experiences and improved reviews.

Summary of Data Analysis 3: Word Cloud

Word Cloud analysis

A word cloud was generated based to visualize the most frequently mentioned words in the reviews. The analysis revealed that time spent and trip duration, service quality and plane experiences, seating preferences and availability, travel schedules and flight availability, and customer support and airport experiences were the primary concerns of customers. By addressing these concerns, Delta Airlines can significantly improve customer satisfaction and reduce negative sentiment in reviews.

Marketing Strategies :

Based on the insights derived from the data analyses, the following marketing strategies are recommended for Delta Airlines:

Identify Routes with more negative sentiment:

Improve services in high negative sentiment routes.Analyze routes, address pain points(Food,service,Flight delays.,etc.) in word cloud and follow tailored marketing per route.

Improve customer support: Invest in training and development programs for customer support staff to enhance their problem-solving abilities and communication skills.

Enhance in-flight experience: Focus on improving service quality, including the cleanliness and comfort of the aircraft, as well as food and entertainment options.

Address seating preferences and availability: Optimize seat allocation processes to ensure that customers can select their preferred seating arrangements.

Improve travel schedules and flight availability: Evaluate and optimize flight schedules to minimize travel time and maximize convenience for customers.

Enhance airport experience: Collaborate with airport authorities to improve airport facilities and streamline the boarding and check-in processes.

Conclusion :

In conclusion, this marketing analytics portfolio has identified the primary challenge faced by Delta Airlines as the negative outlook in customer reviews, which directly impacts the company's reputation and passenger growth. Through the application of sentiment analysis, topic modeling, and word cloud visualization techniques, this portfolio has provided valuable insights into the root causes of customer dissatisfaction and the areas where Delta Airlines can focus on improvements. By enhancing customer support, improving the in-flight experience, addressing seating preferences and availability, and optimizing travel schedules and flight availability, Delta Airlines can significantly improve customer satisfaction. Implementing these marketing strategies will help the company to reduce the negative sentiment in reviews, which in turn will strengthen its reputation and contribute to increased passenger growth.

References :

https://www.kaggle.com/datasets/datazng/delta-airline-review-dataset-sentiment-analysis