

# **Customer Experience Analysis for Singapore Airlines**

## **Objective**

The reputation of Singapore Airlines for delivering excellence in service has undergone changes according to recent reviews which show diminishing satisfaction among specific customer groups (Ban et al., 2019). This analysis intends to examine rating declines alongside NLP-based underlying cause detection methods to deliver executable strategies to the CEO for enhancing customer experience. Our effort analyzed verbal customer feedback through review text to understand both the specific reasons behind customer dissatisfaction as well as the exact times when these issues became prominent.

## **Modeling by Year (Post-2018)**

### **Understanding the Timeline of Dissatisfaction**

The analysis of customer complaint development utilized BERTopic's topics\_over\_time feature on reviews rated one to two stars collected from 2018 forward (Vermulst and Lysanne, 2024). The method achieved two main objectives which exposed the transformations that emerged in negative feedback throughout and beyond the pandemic period. Our analysis of reviews across time revealed exact periods when customer dissatisfaction became worse along with the main topics consumers discussed (Fernandes et al., 2018).

## **Key Findings**

### **1. Spike in Operational Complaints:**

Flight delays and cancellations together with uncertain schedules became more frequent throughout the pandemic period. The combination of inadequate communication and insufficient contingency services caused many disruptions which made passengers even more frustrated.

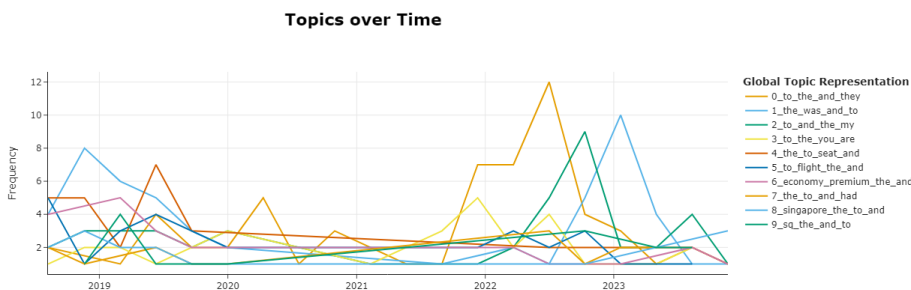
### **2. Escalation of Baggage-Related Issues:**

The aviation industry witnessed a sharp increase in misplaced luggage complaints after the year 2020. The claims process received negative feedback from passengers because of delayed feedback and inadequate assistance from ground personnel.

### 3. Service Quality Perception Deteriorated:

The general public started to develop increasingly negative emotions toward the behavior of flight crew personnel. The use of descriptors "dismissive" and "rude" and "apathetic" indicated decreasing perceptions regarding personal care that was previously characteristic of Singapore Airlines.

By applying time-based modeling Singapore Airlines can observe how frequently failures took place so leaders can establish service connection points with operational decisions and COVID-19 events.



The data graph demonstrates how post-2018 service-quality problems together with delay-relating issues have sharply increased. A surge of reviews related to the topics `*"to_the_and_they"*` and `*"the_was_and_to"*` occurs during 2022 and early 2023 based on observable peaks in our data.

### Key Themes in Reviews (Low vs High Rated)

Reviews from Dissatisfied Customers Show Distinct Themes in Different Directions from Positive Reviews The evaluation dataset required separate groupment based on satisfaction or dissatisfaction levels for review analysis.

- **Low-rated reviews (1–2 stars)**
- **High-rated reviews (4–5 stars)**

The study separated review groups based on rating scores before subjecting each grouping to BERTopic analysis to discover main themes and supporting them with both selected quotes and sentiment scores to develop an enhanced view of customer sentiment.

### **Key Findings from Low-Rated Reviews (1–2)**

#### **1. Lost or Mishandled Luggage:**

Low-rated reviews strongly focused on the problems caused by baggage handling operations. Customers experienced delayed or missing baggage deliveries without receiving appropriate support from airline staff members.

#### **2. Delays and Poor Communication:**

Customers intensified their delay-related complaints because they experienced inadequate transparency. The lack of informative updates from the airline caused many passengers to experience being ignored and left stranded during situations.

#### **3. Seat Comfort and Cabin Conditions:**

Economic class passengers consistently criticized both unduly small seating and minimal legroom as well as outdated cabin compartments during their transoceanic air journeys.

#### **4. Negative Staff Interactions:**

Negative reviews about Airway staff consistently used the words "rude," "unhelpful" and "cold" to explain poor front-line service quality which was most apparent during critical moments such as flight delays and cancellations.

### **Key Findings from High-Rated Reviews (4–5)**

#### **1. Exceptional Cabin Crew:**

The crew received positive praise from travelers because they displayed friendliness and attentiveness and professionalism throughout their service. Excellent service warmth emerged as the main characteristic of satisfied customers.

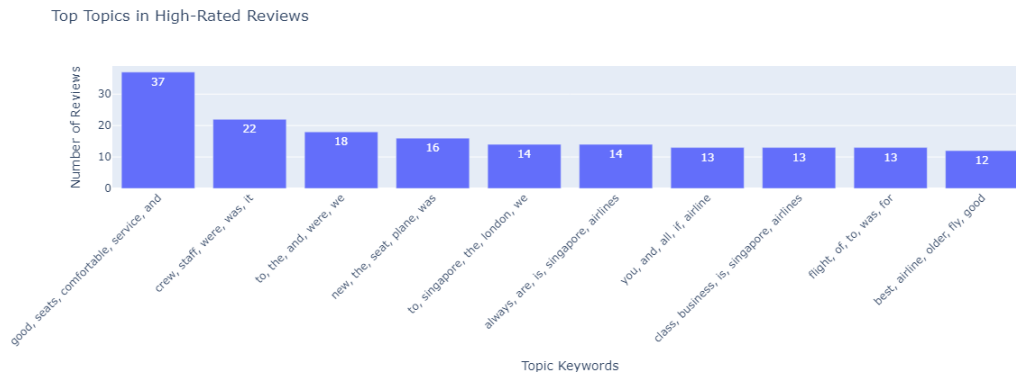
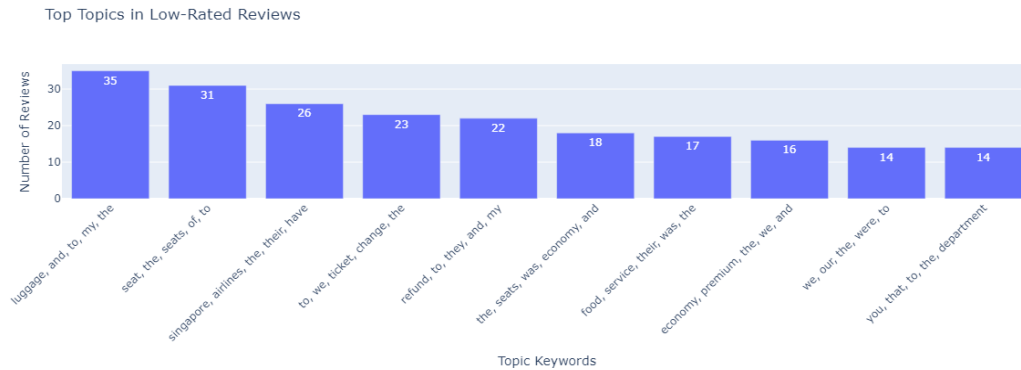
## 2. Smooth, On-Time Flights:

Most passengers emphasized both punctual takeoffs and orderly boarding processes. Travelers identified efficient travel operations together with the ability to maintain control as their main values during journeys.

## 3. Premium Experience in Business Class:

Reviewers who gave the airline high ratings specifically appreciated the comfortable experience of lie-flat seating and top-tier meals alongside advanced entertainment features which they praised specifically in premium-class accommodations. Satisfied passengers highlight proper operational reliability along with service consistency and human connection yet complaints mostly come from avoidable service blunders and weak communication.

Customer satisfaction develops from consistent services and friendly human interactions and dependable operations yet preventable service breakdowns and inadequate communication generate passenger dissatisfaction.



The graphical display demonstrates how different rating groups perceive the difference between their expectations and experience levels.

## **Sentiment Analysis**

The detection of customer emotions forms the basis of sentiment analysis while topic modeling serves to uncover the matters customers discuss (Calheiros et al., 2017). Our evaluation of customer satisfaction and dissatisfaction used VADER (Valence Aware Dictionary and sEntiment Reasoner) to measure emotional sentiment in both low-rated and high-rated reviews (Sharma et al., 2020).

The scoring system based on VADER assigned compound sentiment values between -1 representing highly negative sentiments and +1 representing highly positive sentiments for comparison between different rating groups.

## **Findings**

### **1. Low-Rated Reviews Skew Strongly Negative**

Reviews rated from one star to two stars presented an average negative sentiment score of -0.28 which indicates a clearly negative emotional sentiment.

- A total of 75% of reviewed scores from various sources demonstrated negative scores.
- Negative emotional content in review responses matches the subject matter of lost luggage plus staff misconduct and delayed flights.
- Many reviews expressed their experiences using powerful emotional terms that included "never again," "horrible experience," as well as "completely unacceptable."

### **2. High-Rated Reviews Are Consistently Positive**

The average sentiment rating for reviews that received 4–5 stars amounted to +0.79.

- Most high ratings demonstrated either appreciation or contentment or pure joy toward the airline's service.

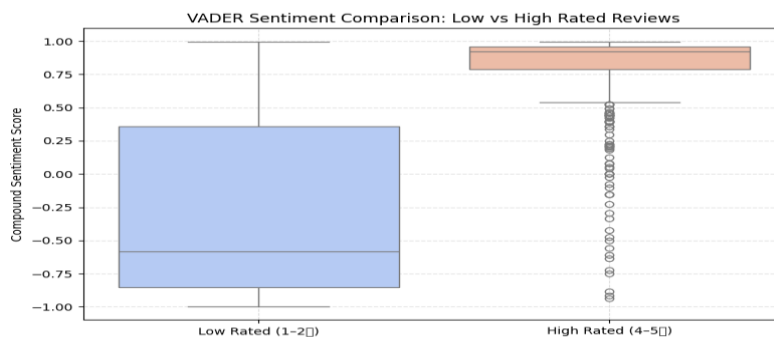
- The main comments from reviewers included "best flight ever," "wonderful crew" along with "above expectations".

### 3. Clear Emotional Divide Between Rating Groups

A boxplot analysis revealed that sentiment scores from both groups nearly excluded each other which validated the BERTopic detected thematic variations.

The application of sentiment analysis validates the topic modeling findings and displays an emotional separation between customers who are satisfied and dissatisfied with the service. Emotional polarity creates essential knowledge regarding customer behavior patterns between loyalty and churn.

#### Boxplot showing sentiment comparison (Low vs High Rated)]



The graphical representation visually demonstrates an emotional gap that substantiates the results found through data analysis.

## Recommendations to the CEO

### Data-Driven Action Plan

Based on our review of over 500 customer reviews using BERTopic, sentiment analysis, and time-based trend modeling, we've identified key pain points affecting customer satisfaction (Gargari and Mandis, 2023). The following recommendations are directly informed by these findings and aim to help Singapore Airlines restore its premium reputation and customer trust.

## **1. Improve Baggage Handling and Communication**

Deadlocked luggage stayed at the forefront of complaints that reviewers gave low ratings to. The problem frequently worsened because of insufficient timely communication about situations and failed to achieve proactive resolution.

The solution requires businesses to acquire a system that tracks baggage in real-time accompanied by automated notifications through email and SMS channels. The organization should improve customer service workflows by putting baggage concerns at the front of service priorities.

## **2. Re-train Staff in Empathy and Conflict Management**

Passengers strongly disapproved of unresponsive staff behavior when dealing with stressful situations such as delays and flight cancellations.

The company needs to introduce updated soft-skills education which focuses on emotional intelligence together with empathy and crisis management training primarily for frontline staff.

## **3. Address Economy Seating Comfort Issues**

The majority of Economy class passengers reported discomfort from their seats and limited space during their long flights.

The organization should perform an internal seat configuration assessment while investigating ergonomic solutions that use lightweight materials.

## **4. Enhance Communication During Disruptions**

The discontent in negative reviews arose mostly from customers not having proper information about what was taking place.

During delays installation of real-time automated communication systems should be deployed for passenger information updates. The transmission of routine updates

about the delay situation should remain consistent to establish openness and minimize passenger stress.

## **5. Monitor Emerging Issues Proactively**

The complaints process transformed during the time span of 2020–2022 to demonstrate why organizations must use flexible feedback systems.

The organization should employ BERTopic in combination with NLP dashboards to monitor review data weekly for emerging complaints that could develop into major issues.

## **References**

Ban, H.J. and Kim, H.S., 2019. Understanding customer experience and satisfaction through airline passengers' online review. *Sustainability*, 11(15), p.4066.

Vermulst, L., 2024. *Detecting Emerging Trends in Customer Satisfaction through Topic Modeling and Mathematical Optimization* (Doctoral dissertation, Tilburg University).

Fernandes, T. and Fernandes, F., 2018. Sharing dissatisfaction online: Analyzing the nature and predictors of hotel guests negative reviews. *Journal of Hospitality Marketing & Management*, 27(2), pp.127-150.

Sharma, A., Park, S. and Nicolau, J.L., 2020. Testing loss aversion and diminishing sensitivity in review sentiment. *Tourism Management*, 77, p.104020.

Gargari, M.K., 2023. Improving Customer Experience Management: A Dynamic Topic Modelling Approach.

Calheiros, A.C., Moro, S. and Rita, P., 2017. Sentiment classification of consumer-generated online reviews using topic modeling. *Journal of Hospitality Marketing & Management*, 26(7), pp.675-693.