

# AIRLINE INDUSTRY ANALYSIS USING UGC

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# AGENDA

## 1. INDUSTRY OVERVIEW

# **AGENDA**

**1. INDUSTRY OVERVIEW**

**2. PROBLEM STATEMENT**

# **AGENDA**

**1. INDUSTRY OVERVIEW**

**2. PROBLEM STATEMENT**

**3. METHODOLOGY & ANALYSIS**

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**1. INDUSTRY OVERVIEW**

**2. PROBLEM STATEMENT**

**3. METHODOLOGY & ANALYSIS**

**4. RECOMMENDATIONS**

# INDUSTRY OVERVIEW



700M flights in 2015



INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# INDUSTRY OVERVIEW



700M flights in 2015



\$142.5Bn in Revenues



INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# INDUSTRY OVERVIEW



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2.5% Expected CAGR over the next 5 years



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Cyclical industry, responds to key external drivers



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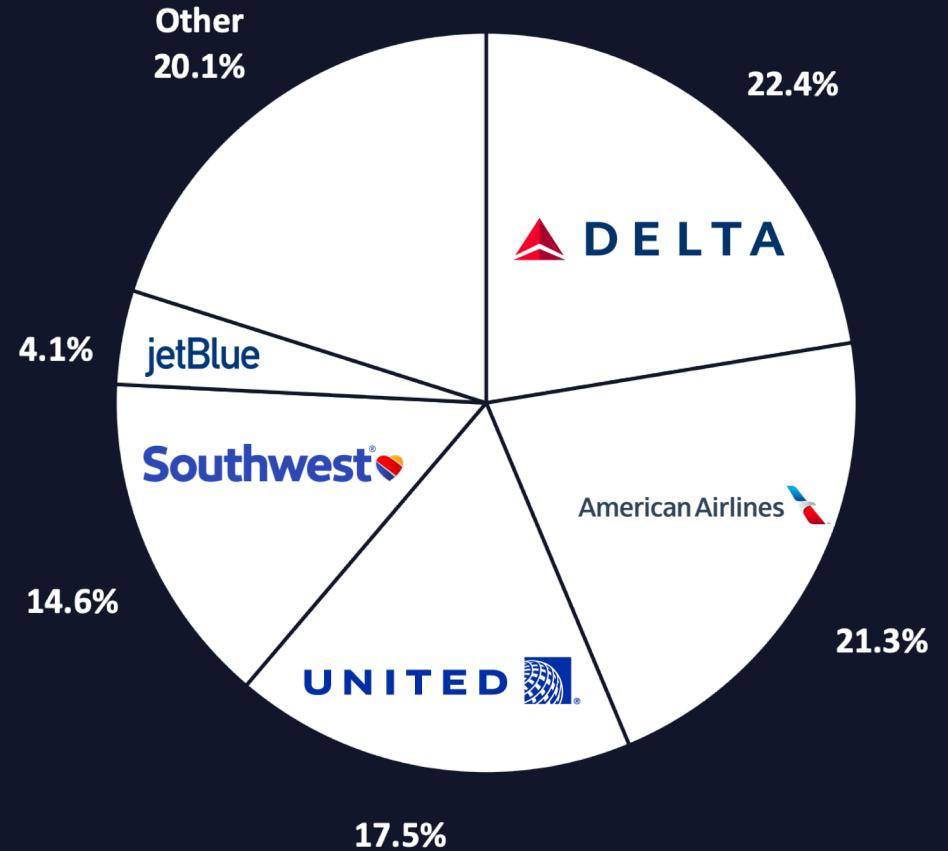
INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

BRANDS BY MARKET SHARE



# PROBLEM STATEMENT

1. Understanding how customers Feel about the top 5 US airlines



INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# PROBLEM STATEMENT

1. Understanding how customers Feel about the top 5 US airlines
2. Drawing Business Insights & Generate recommendations based on Tweets and reviews



INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# PROBLEM STATEMENT

1. Understanding how customers Feel about the top 5 US airlines
2. Drawing Business Insights & Generate recommendations based on Tweets and reviews
3. Analysis of main customer complaints to assess overall sentiment



INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# PROBLEM STATEMENT

1. Understanding how customers Feel about the top 5 US airlines
2. Drawing Business Insights & Generate recommendations based on Tweets and reviews
3. Analysis of main customer complaints to assess overall sentiment
4. Uncovering underlying issues and suggesting ways to improve from both operational and marketing perspectives



# METHODOLOGY



INDUSTRY OVERVIEW

PROBLEM STATEMENT



METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# MULTIDIMENSIONAL SCALING



Performed a word frequency analysis to identify the major conversational topics each airline generates online

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INDUSTRY OVERVIEW

PROBLEM STATEMENT



METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

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Performed a find-and-replace word list to replace all the variation of airlines as well as combine similar topics



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Computed lift and dissimilarity matrices to generated an MDS plot



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1. Flight
2. Time
3. Service



# SENTIMENT ANALYSIS



Computed a sentiment score for each airline company

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INDUSTRY OVERVIEW

PROBLEM STATEMENT



METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# SENTIMENT ANALYSIS



Computed a sentiment score for each airline company



Ran our reviews dataset on Sentistrength



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Computed a sentiment score for each airline company



Ran our reviews dataset on Sentistrength



## ISSUES:

- "Cheap" had a score of -1 although most of the time associated with a positive sentiment
- Some reviews expressed customers' satisfaction with the airport

➤ Caution when analyzing sentiment scores



# RANKING AIRLINES



Ranking based off average  
star ranking & average  
sentiment score

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INDUSTRY OVERVIEW

PROBLEM STATEMENT



METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# RANKING AIRLINES



Ranking based off average  
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Summary of flight data on flight  
delays based on the US  
Department of Transportation

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INDUSTRY OVERVIEW

PROBLEM STATEMENT



METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# RANKING AIRLINES



Ranking based off average star ranking & average sentiment score

Summary of flight data on flight delays based on the US Department of Transportation



Each delay was classified into one of 3 categories: late airplane, airline issue and weather delay

The # and % by type of delay was computed for every airline



INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

# RANKING AIRLINES



Ranking based off average star ranking & average sentiment score



Uncovering drivers of service failure



Summary of flight data on flight delays based on the US Department of Transportation



Each delay was classified into one of 3 categories: late airplane, airline issue and weather delay

The # and % by type of delay was computed for every airline

Allowed to identify the leading cause of delays and focus on tackling the main issue by brand



METHODOLOGY &  
ANALYSIS

INDUSTRY OVERVIEW

PROBLEM STATEMENT

RECOMMENDATIONS

# RECOMMENDATIONS

From our analysis, each of the 5 airlines have different recommendations based on their issues - here are 3 highlighted recommendations:



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## OPERATIONAL RECOMMENDATIONS



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## MARKETING RECOMMENDATION



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From our analysis, each of the 5 airlines have different recommendations based on their issues - here are 3 highlighted recommendations:

## OPERATIONAL RECOMMENDATIONS



## MARKETING RECOMMENDATION



## CULTURAL OVERHAUL



# OPERATIONAL RECOMMENDATIONS



## Current Situation

- Great customer reputation
- Lots of delays due to late airplanes



# OPERATIONAL RECOMMENDATIONS



## Current Situation

- Great customer reputation
- Lots of delays due to late airplanes



## Positioning

- “Point-to-point” strategy making delays worse due to lack of backup planes at points
- Highly successful strategy and source of competitive advantage



## METHODOLOGY & ANALYSIS

INDUSTRY OVERVIEW

PROBLEM STATEMENT

RECOMMENDATIONS

# OPERATIONAL RECOMMENDATIONS



## Current Situation

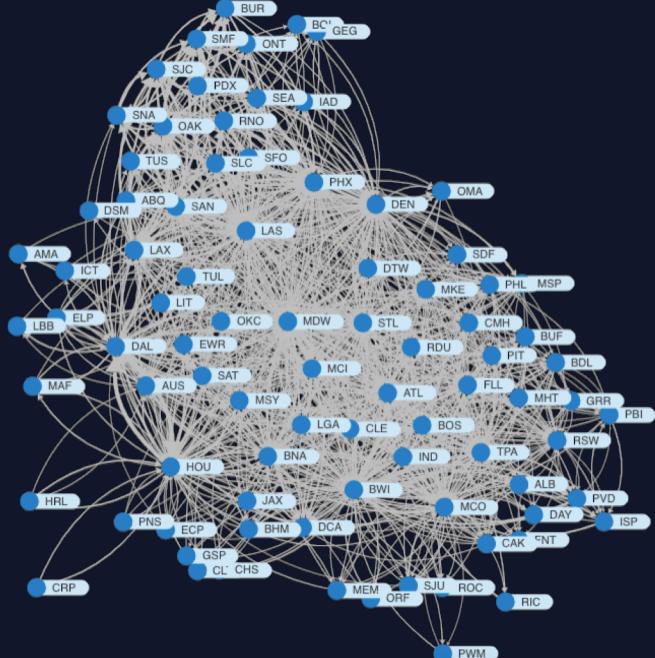
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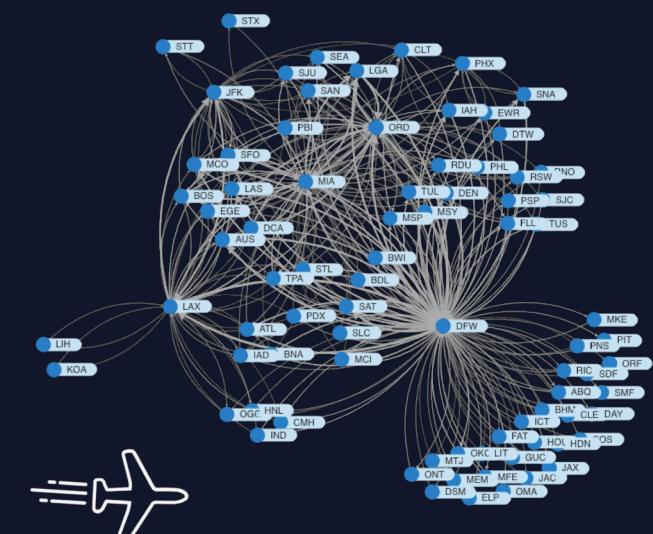
## Positioning

- “Point-to-point” strategy making delays worse due to lack of backup planes at points
- Highly successful strategy and source of competitive advantage

Southwest Airlines Network



American Airlines Network



# OPERATIONAL RECOMMENDATIONS



## Current Situation

- Great customer reputation
- Lots of delays due to late airplanes



## Positioning

- “Point-to-point” strategy making delays worse due to lack of backup planes at points
- Highly successful strategy and source of competitive advantage



## Solution

- Common in industry, add extra time to flight length to provide leeway for delays
- No need to change route structure and overhaul winning strategy



# MARKETING RECOMMENDATION



Current Situation

Negative customer reputation

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INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS



RECOMMENDATIONS

# MARKETING RECOMMENDATION



## Current Situation

Negative customer reputation



## Positioning

American is making passenger comfort worse and reducing amenities in all classes to save on costs



## METHODOLOGY & ANALYSIS

INDUSTRY OVERVIEW

PROBLEM STATEMENT

RECOMMENDATIONS

# MARKETING RECOMMENDATION



## Current Situation

Negative customer reputation



## Positioning

American is making passenger comfort worse and reducing amenities in all classes to save on costs



## Solution

Rebrand as low-cost carrier and pass cost savings to consumer

- Allow expectation to match reality
- Target price-sensitive consumers
- Ensure that existing investment in amenity reduction is not wasted



# CULTURAL OVERHAUL



## Current Situation

Horrible customer  
reputation and horrible on-  
time performance

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INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS



RECOMMENDATIONS

# CULTURAL OVERHAUL



## Current Situation

Horrible customer reputation and horrible on-time performance



## Positioning

United Airlines President blames customer focus on price as reason to provide horrible customer service



# CULTURAL OVERHAUL



## Current Situation

Horrible customer reputation and horrible on-time performance



## Positioning

United Airlines President blames customer focus on price as reason to provide horrible customer service



## Solution

Focus on one problem at a time - first, customer reputation

- Change corporate culture from top-down (new messages showing customers as partners)
- Incentivize front-line employees to improve service through bonuses and empowerment



INDUSTRY OVERVIEW

PROBLEM STATEMENT

METHODOLOGY &  
ANALYSIS

RECOMMENDATIONS

**THANK YOU**

**ANY QUESTIONS ?**

# TABLE OF CONTENTS

## PRESENTATION

[Industry Overview](#)

[Problem Statement](#)

[Methodology](#)

[Multidimensional Scaling](#)

[Sentiment Analysis](#)

[Ranking Airlines](#)

[Recommendations - Southwest](#)

[Recommendations - American Airlines](#)

[Recommendations- United](#)

## APPENDIX

[Recommendations - Delta](#)

[Recommendations - JetBlue](#)

[MDS Plots](#)

[Rating & Delay Information](#)

# ADDITIONAL RECOMMENDATIONS - APPENDIX



## Current Situation

Doing very well in both reputation and on-time performance



## Positioning

Delta's improvements are more marginal and meant to solidify lead



## Solution

Marketing campaign based on on-time performance

- Combine both strengths
- Attract time-sensitive travelers



# ADDITIONAL RECOMMENDATIONS - APPENDIX



## Current Situation

Great reputation, but most delays of all carriers

- JetBlue is concentrated in Northeast of US (70% of flights)
- Congested airspace weather events severely impact operations



## Positioning

- Short-haul flights in NE US do not allow for much schedule padding



## Solution

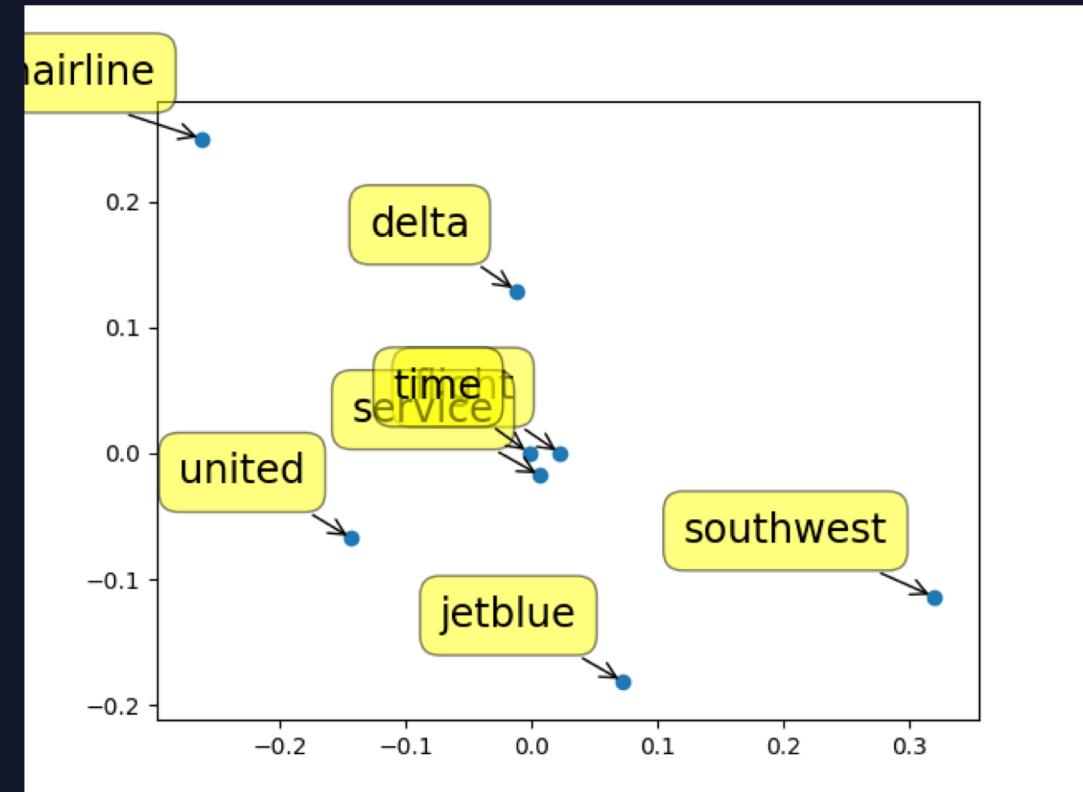
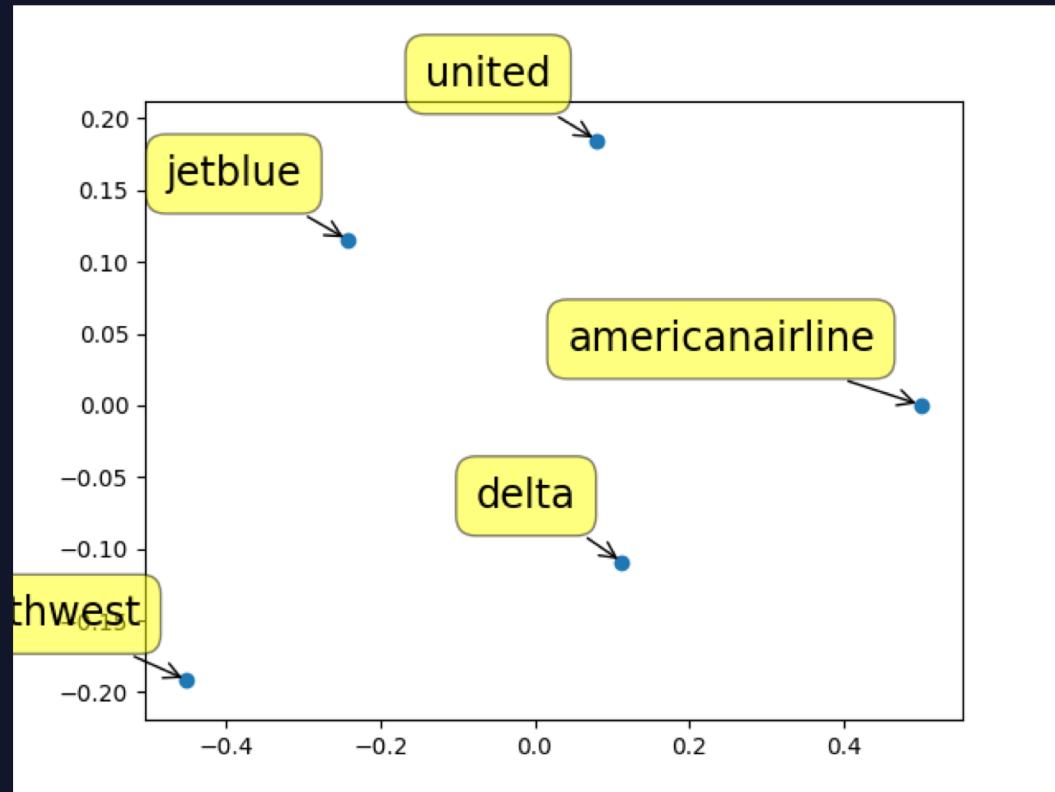
### Increase flight time on ground

- More leeway for delays
- Reduce knock-on effects



### METHODOLOGY & ANALYSIS

# MDS PLOTS - APPENDIX



# RATING & DELAY INFORMATION -APPENDIX

Figure 4: Average Review Rating versus Sentiment for Airlines

Airline	Avg. Sentiment	Avg. Rating
JetBlue	0.810	4.06
Delta	0.733	4.00
Southwest	0.732	4.27
American Airlines	0.257	3.40
United Airlines	0.116	3.24

Figure 5: Average Delays per Airline

Airline	Average Departure Delay (mins)	Averaged Arrival Delay (mins)
Southwest	10.60	4.37
JetBlue	11.50	6.68
Delta	7.37	0.187
American Airlines	8.90	3.45
United Airlines	14.40	5.43

Figure 6: Delay Analysis per Airline

Airline	Ranking By Delay Type (1 = most delays of this type, 5 = least)				Percentage of all flights with Issue		Biggest Issue
	Late Airplane	Airline Issue	Weather Delay	Flight Cancelled	Flight Diverted		
Southwest	1 (12.9%)	3 (11.5%)	5 (0.79%)	3 (1.27%)	3 (0.270%)	Late Airplane	
JetBlue	2 (11.9%)	1 (14.5%)	4 (0.81%)	1 (1.6%)	2 (0.273%)	Airline Issue / Cancelled Flight	
Delta	5 (5.7%)	5 (7.2%)	3 (1.35%)	5 (0.44%)	5 (0.203%)	Weather Delay	
American Airlines	4 (7.9%)	4 (9.5%)	2 (1.37%)	2 (1.5%)	1 (0.293%)	Diverted Flight	
United Airlines	3 (9.6%)	2 (12.8%)	1 (1.46%)	3 (1.27%)	4 (0.269%)	Weather Delay	