

IDS 567: Business Data Visualization

Summer 2020

Group Project Description and Requirements

The Bureau of Transportation Statistics (BTS) publishes monthly information about airline on-time flight performance. Included in the monthly datasets is information about commercial domestic flights under the jurisdiction of the Department of Transportation. The detailed flight data includes information about scheduled flight times, actual flight times, length of departure delays and arrival delays, delay types, delay causes, and cancellations. Details about every flight in the monthly BTS are available to every airline – i.e. any airline can evaluate their own on-time performance against every other commercial airline operating in the US.

Your group project will make use of the BTS dataset to implement the visualization practices we discuss in this course. Specifically, each group will be assigned a specific airline to research against all other airlines. Each group will prepare a Visual Dashboard using Tableau that provides a visual overview of the group's airline's key performance features.

Requirements

Data: Procure Data from [here](#).

(https://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=236&DB_Short_Name=On-Time)

You are to utilize 12 monthly files, from January 2018 through December 2018. Do not use data from any month outside of that range. Along with the 12 monthly files, there are various tables available at the BTS site that contain important lookup information for the BTS data. You will need to utilize those lookup tables where project requirements dictate.

Software: You may use the software of choice to stage and manage the flight performance data. Your Visual Dashboard, however, should be prepared in Tableau using the Dashboard and Story features. Your final Dashboard deliverable should be prepared as a packaged workbook in Tableau – i.e. the presentation file should be self-contained and not require any live data connections during your presentation in class.

Project Scope

Data Visualizations: You are to prepare visualizations from the BTS data set that describe the on-time performance of your assigned airline. Your visual evidence will consist of three (3) parts. First, you will prepare visual descriptions of metrics that best describe the

on-time performance of your assigned airline. You should also prepare the visualization depictions of any patterns or associations between metrics that help explain on-time performance.

Second, you will prepare visualizations of your assigned airline's on-time performance contextualized by information about the on-time performance of other airlines in the BTS data set. In other words, you will use appropriate data visualization practices to compare your assigned airline against the industry as a whole.

Finally, you will prepare visual evidence that identifies the airline that is the most similar competitor of your assigned airline. You will include visualizations that explain how you selected the closest competitor. You will also include visualizations that compare your assigned airline directly against the closest competitor that you select.

Guidelines

Dimensions: Your data visualizations should incorporate appropriate visual depictions of time and geography to better illustrate your airline's on-time performance. Your rendering of geography should favor visualization of airline performance at the airport level rather than city or state level. Where possible, prioritize flight route over origin or destination alone.

Metrics: You should select the measures that best illuminate on-time performance in your visualizations. For consistency across all groups, you should, however, focus on Departure Delays rather than Arrival Delays. (Feel free to explore visually why I want you to prioritize Departure on-time performance over Arrival on-time performance.)

Evaluation: Project deliverables will be evaluated for the use of higher order visual devices and for the clear depiction of high-dimensional information.

Presentation: Presentations will be made with the Tableau story feature. The story should be self-contained (i.e., every visual should be sufficiently annotated to be self-explanatory). Your final presentation should depict your information by minimizing unnecessary text in favor of visual depictions of data that minimize the noise-to-ink ratio.

Deliverables:

Final Deliverable: Submit your final project deliverable. You will present your project submission via Zoom from the presentation you submit on this date. In addition to the visual description of your assigned airline, and the comparison of its performance against the other airlines in the industry, your final deliverable should also identify one other airline that can be described as your airline's most similar competitor. (You may identify the competitor airline by any of several criteria: e.g., it may be one that has the most flights to common airports as your own; it may be one that flies a similar number of miles; etc.) The third component of your deliverable will consist of a visual comparison of your airline with your primary competitor that shows how your on-time performance compares with that of your closest competitor.

Final group presentations:

All final project deliverables will be due at the specified submission deadline prior to the class. (See the submission requirements above.) There is one session designed for the group presentation. Each group will have up to 10 minutes for presentation and 2 minutes for Q&A. The order of the presentations will not be known until the presentation day.