

A decorative graphic on the left side of the slide, consisting of a network of white lines and circles on a blue gradient background. The lines are vertical and horizontal, with some diagonal segments, and the circles are of varying sizes, resembling a circuit board or a stylized tree structure.

AVIATION SAFETY RISK ANALYSIS

GUIDING SAFER INVESTMENT DECISIONS

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PROJECT OVERVIEW

- This project analyzes aircraft accident data to guide safer investment decisions.
- We explore patterns in injury severity by aircraft make, purpose of flight, and engine type using Jupyter and Tableau.

BUSINESS UNDERSTANDING

- Stakeholders seek to understand safety risks before investing in aircraft operations.
- Key Questions:
 - 1. Which aircraft makes are involved in the most fatal accidents?
 - 2. Which flight purposes carry higher injury risks?
 - 3. Are certain engine types associated with higher accident severity?

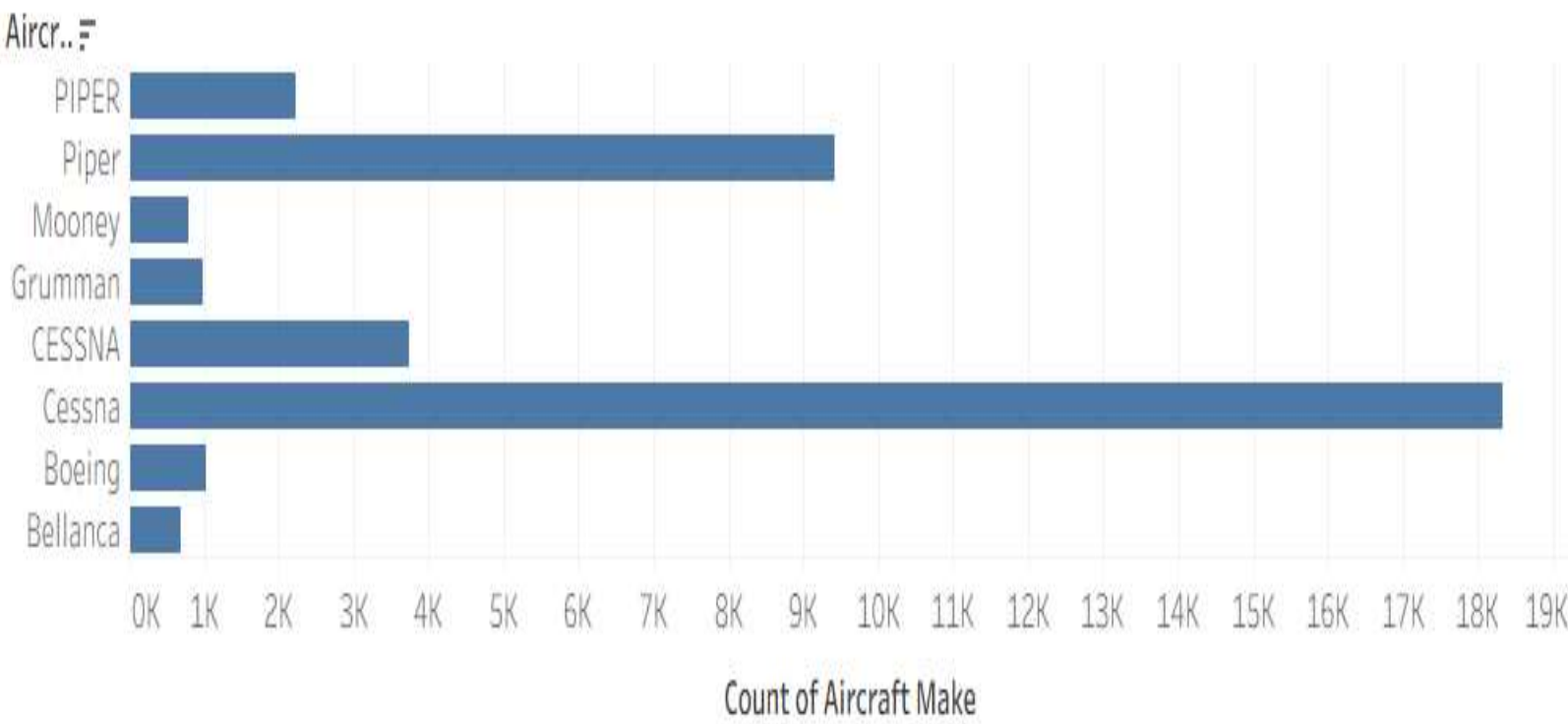
DATA UNDERSTANDING

- Data Source: US Aviation Accident Dataset
- Key Fields Used: Aircraft Make, Injury Severity, Flight Purpose, Engine Type, Location
- Cleaned using Python (Pandas), filtered missing values, and exported to Tableau.

TOP 10 AIRCRAFT BY FATAL ACCIDENTS

- This bar chart highlights aircraft makes involved in the highest number of fatal accidents.
- Recommendation: Avoid aircraft makes with historically higher fatality rates.

Top 10 Aircraft by Fatal Accidents



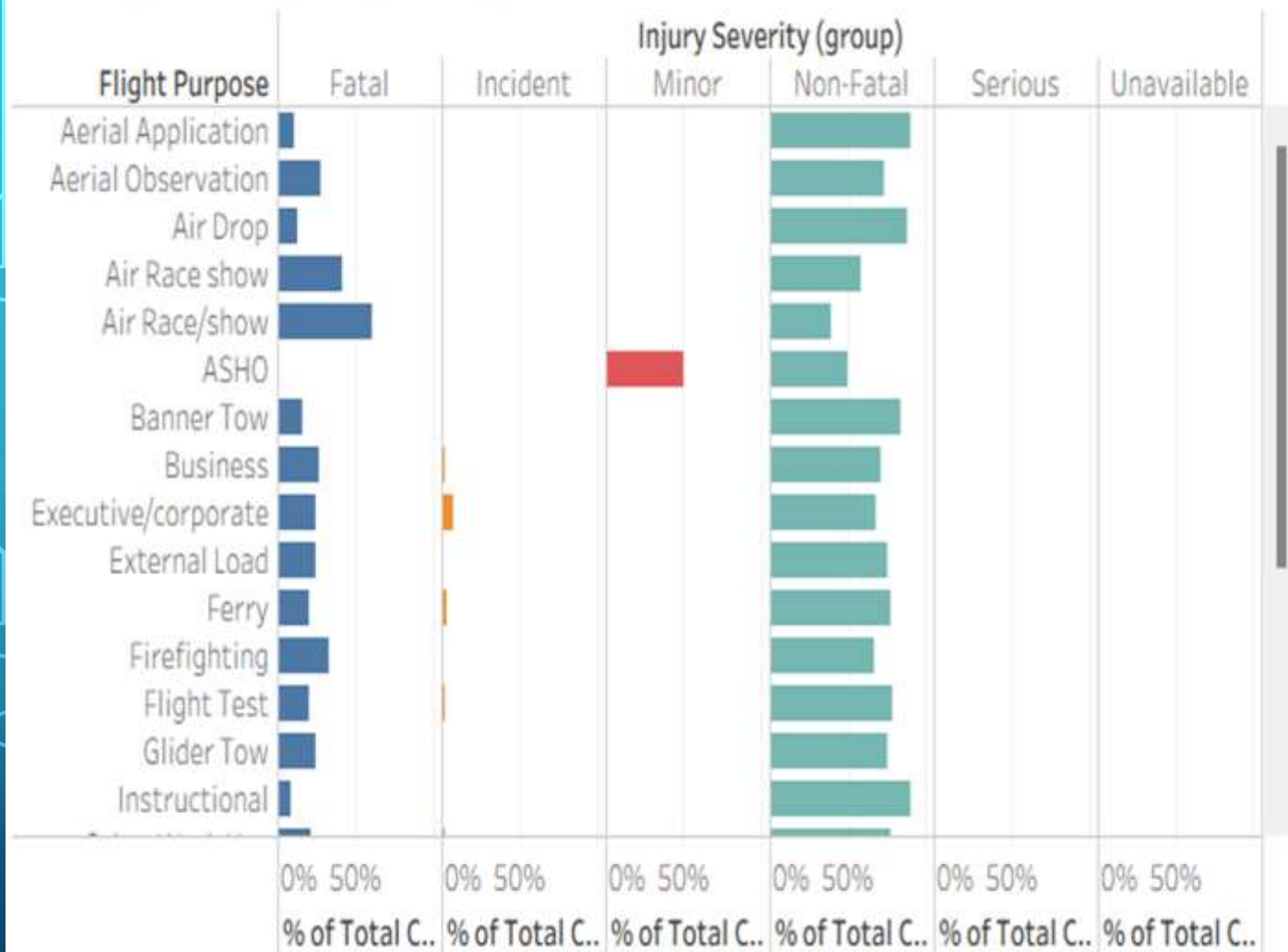
Injury Severity (gro..

- Fatal
- Incident
- Minor
- Non-Fatal
- Serious
- Unavailable

FATALITY RATE BY FLIGHT PURPOSE

- Stacked bar chart comparing injury severity across flight purposes.
- Recommendation: Investment in personal and instructional flights may involve lower risks.

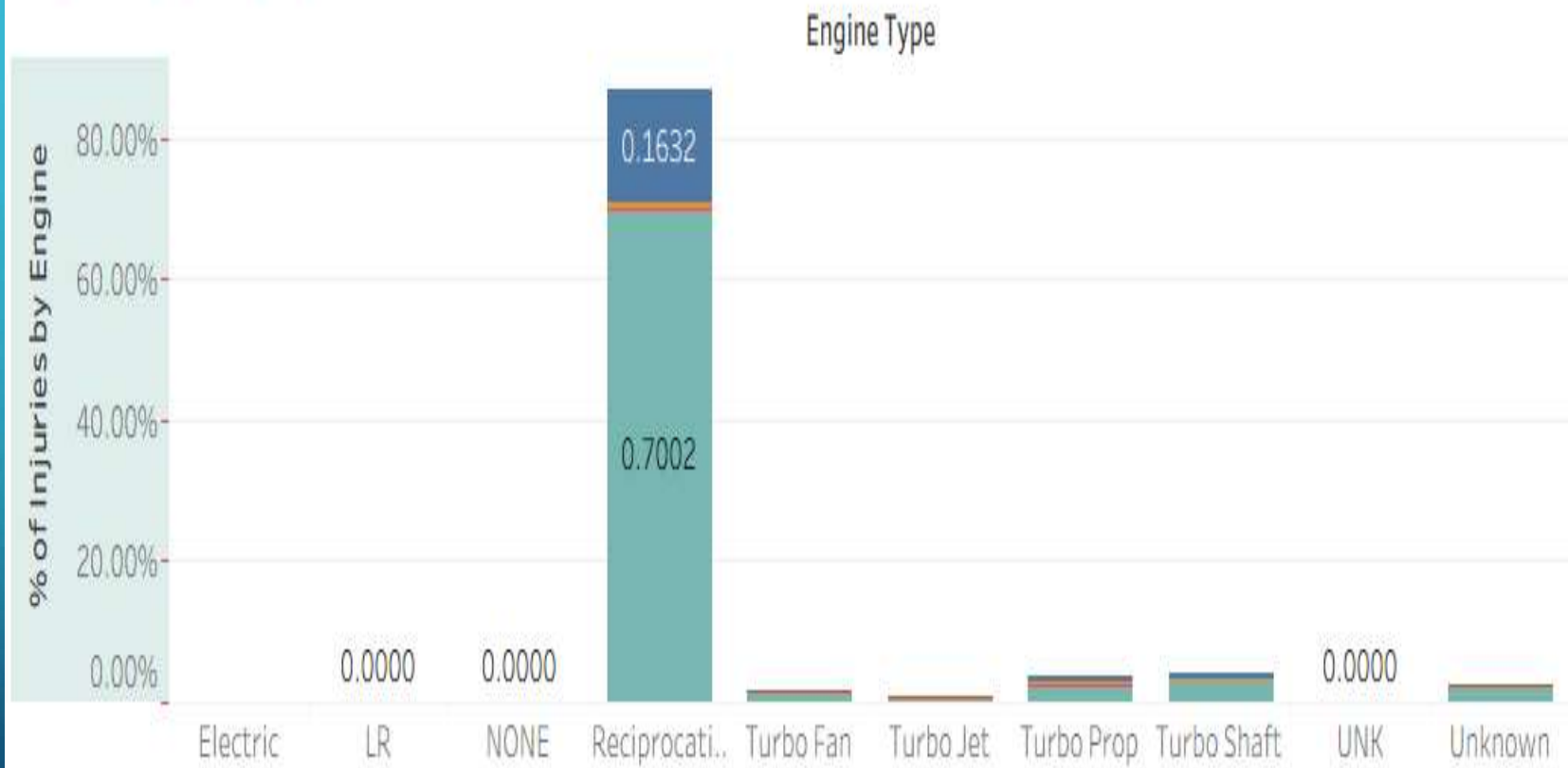
Fatality Rate by Flight Purpose



ENGINE TYPE AND INJURY BREAKDOWN

- This visualization shows the proportion of injury severity by engine type.
- Recommendation: Reciprocating engines appear in more incidents; consider safety records of engine types.

Engine Type Injury Breakdown



KEY RECOMMENDATIONS

- 1. Prioritize aircraft makes with lower historical fatality involvement.
- 2. Avoid high-risk flight purposes (e.g., Air Races, Banner Towing).
- 3. Review engine type safety profiles before investment.


NEXT STEPS

- Perform time-series analysis on accident trend
- Integrate weather and location for contextual risk analysis.

Explore predictive modeling for proactive safety insights.



THANK YOU

- For further questions:
 - Abigael Musyoka
 - Happy to take your questions!
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