



Title: Data Driven Safety: Quantifying Aviation Risk for New Fleet Strategy

Subtitle: A Strategic Analysis for Initial Procurement and Operational Deployment

Goal: Use NTSB data to define the lowest-risk aircraft and procedures.

Value: Ensure our new Aviation Division launches with a statistically optimized safety profile, minimizing costs and liability.

Business Challenge: Building a Foundation of Safety

Our primary objective is to make three data-backed strategic decisions for the Head of the Aviation Division:

DECISIONS

Procurement: Which manufacturer offers the lowest inherent fatal risk?

Training Focus: Where should we allocate resources to prevent the most *frequent* accidents?

Severity Mitigation: Where should we allocate resources to minimize the most *catastrophic* outcomes?



Data Source & Analytical Method

Data Source **NTSB (National Transportation Safety Board) Accident Data: 1962–2023**

Methodology **Segmentation:** We created three distinct, measurable risk scores (R-Scores) by segmenting the data:

R-Score 1 (R2) **Equipment Risk (R2):** Fatal Accident Rate by Manufacturer.

R-Score 2 (R1) **Operational Frequency (R3):** Accident Count by Phase of Flight.

R-Score 3 (R3) **Operational Severity (R1):** Average Total Injuries by Phase of Flight



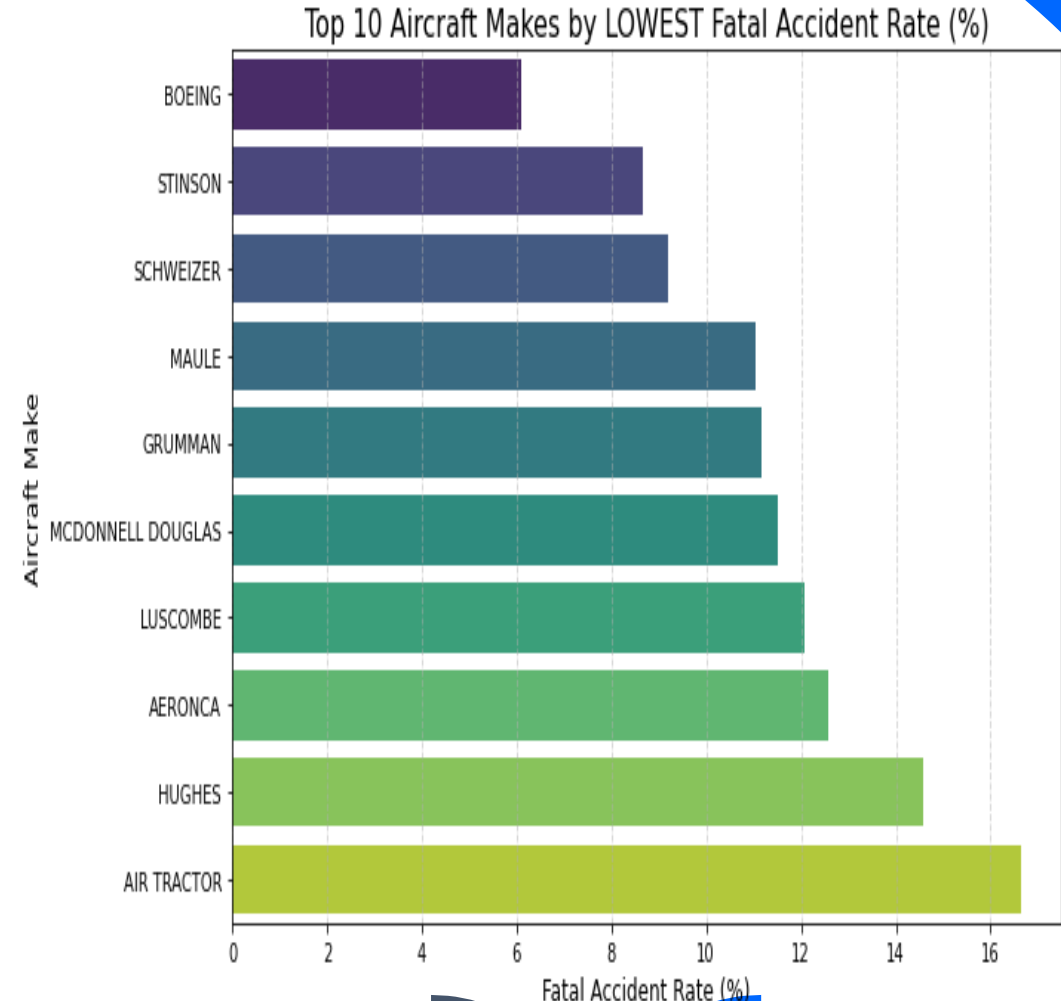
Data Analysis

Finding 1: Procurement & Equipment Risk (R2)

We filtered the data to only include manufacturers with over 500 total accidents to ensure statistical reliability in our recommendation.

Key Finding: **BOEING** sets the safety benchmark with the lowest Fatal Accident Rate in the group (6.08%).

Implication: **This finding directly informs the foundational Procurement Policy.**



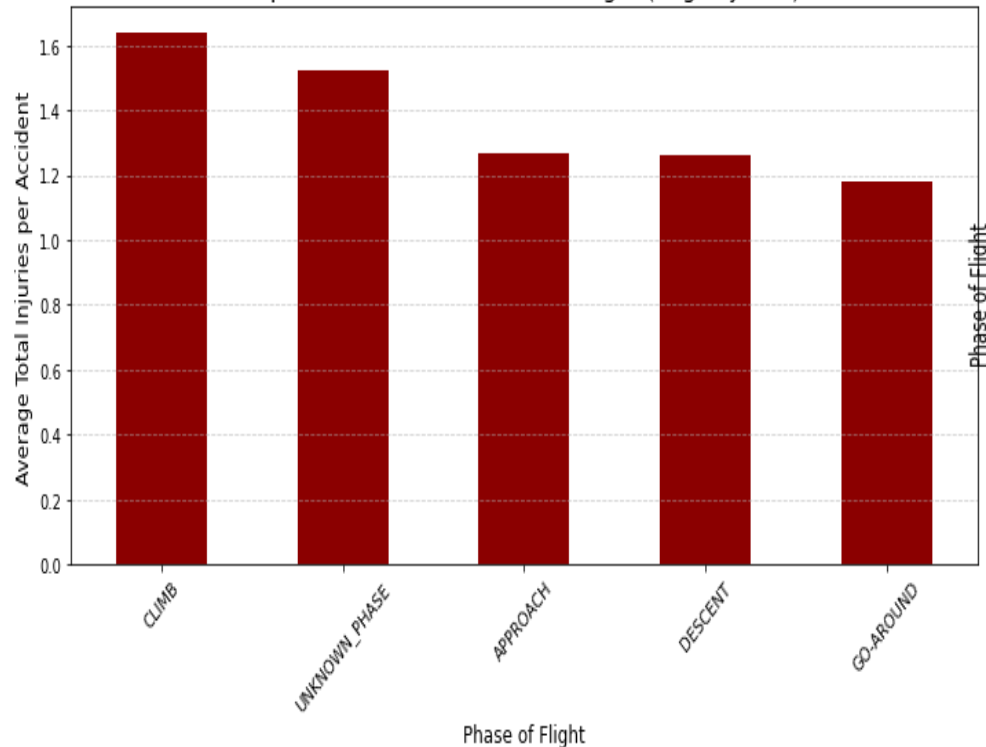
Data Analysis

Finding 2 & 3: Operational Risk (R1 & R3)

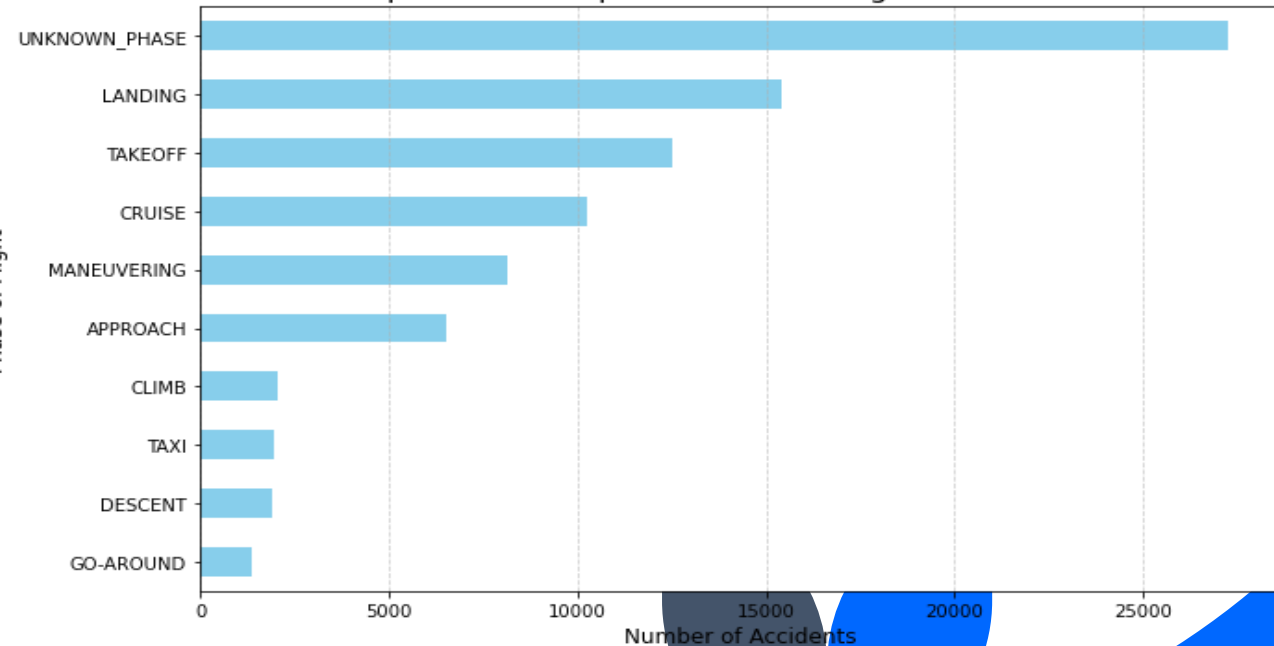
FREQUENCY R3 : LANDING and TAKEOFF are the highest-frequency accident phases. This is where we focus resources to reduce the sheer number of incidents.

SEVERITY R1 : CLIMB and MANEUVERING have the highest Average Total Injuries per event. This is where we focus resources to mitigate catastrophic consequences

Top 5 Most SEVERE Phases of Flight (Avg. Injuries)



Top 10 Most Frequent Phases of Flight for Accidents



Strategic Recommendations

Recommendation 1 : **Foundational Procurement Policy (R2):**

Mandate initial fleet acquisitions from **BOEING** to secure the lowest inherent risk profile.

Recommendation 2 : **High-Frequency Mitigation (R3):** Implement rigorous SOPs and supervision specifically for **LANDING** and **TAKEOFF**.

Recommendation 3 : **Advanced Scenario Training (R1):** Prioritize high-stress simulator time focused on failure modes during **CLIMB** and **MANEUVERING**.

Next Steps for Continuous Risk Management

Integration : Begin integrating internal maintenance and operational flight logs with this NTSB data for continuous, real-time risk monitoring (SMS).

Cost Analysis : Conduct a Phase 2 analysis to integrate acquisition/maintenance costs with the R-scores, providing a final **Risk-Adjusted Cost** recommendation.

Summary : The data foundation is established to make our aviation division the safest in the sector.



Thank you

Questions?

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