Risk Assessment for Strategic Aircraft Fleet Expansion

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Aviation Safety Analysis

⮑ Our company is entering the aviation industry without prior experience in aircraft safety risks, creating potential operational and financial exposure. High operational and financial risk.

Objective: Identify safest aircraft models using historical accident data.

Which aircraft models have the lowest accident frequency?

Which aircraft models have the lowest fatality rates per accident?

How have aviation accident rates changed over time?

- **Dataset Overview**

- **Source:** Aviation Safety Network (ASN).Global historical aviation accident data,

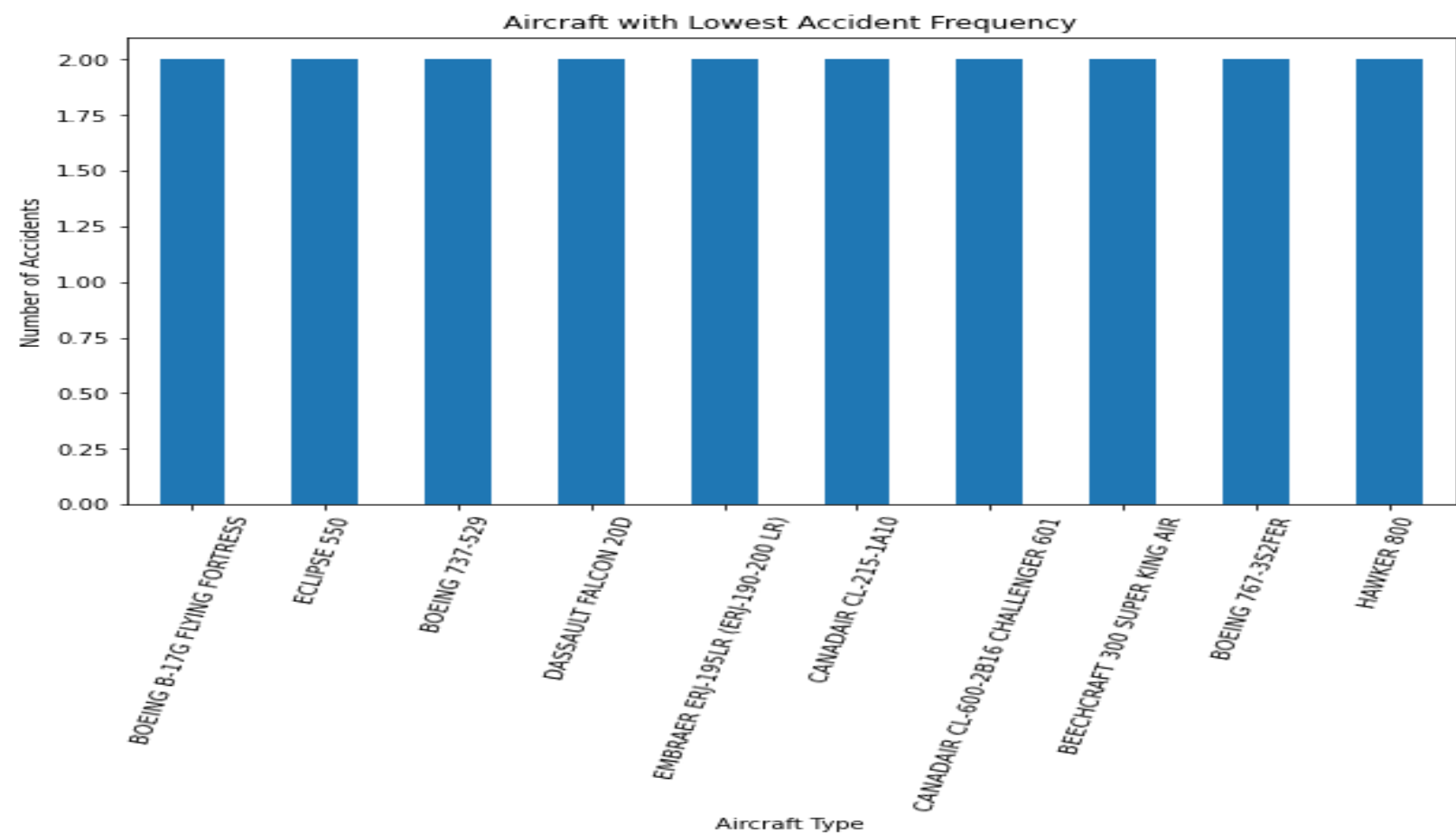**Data Preparation**

Removed missing critical values

Standardized aircraft names

Converted dates and fatalities to numeric formats
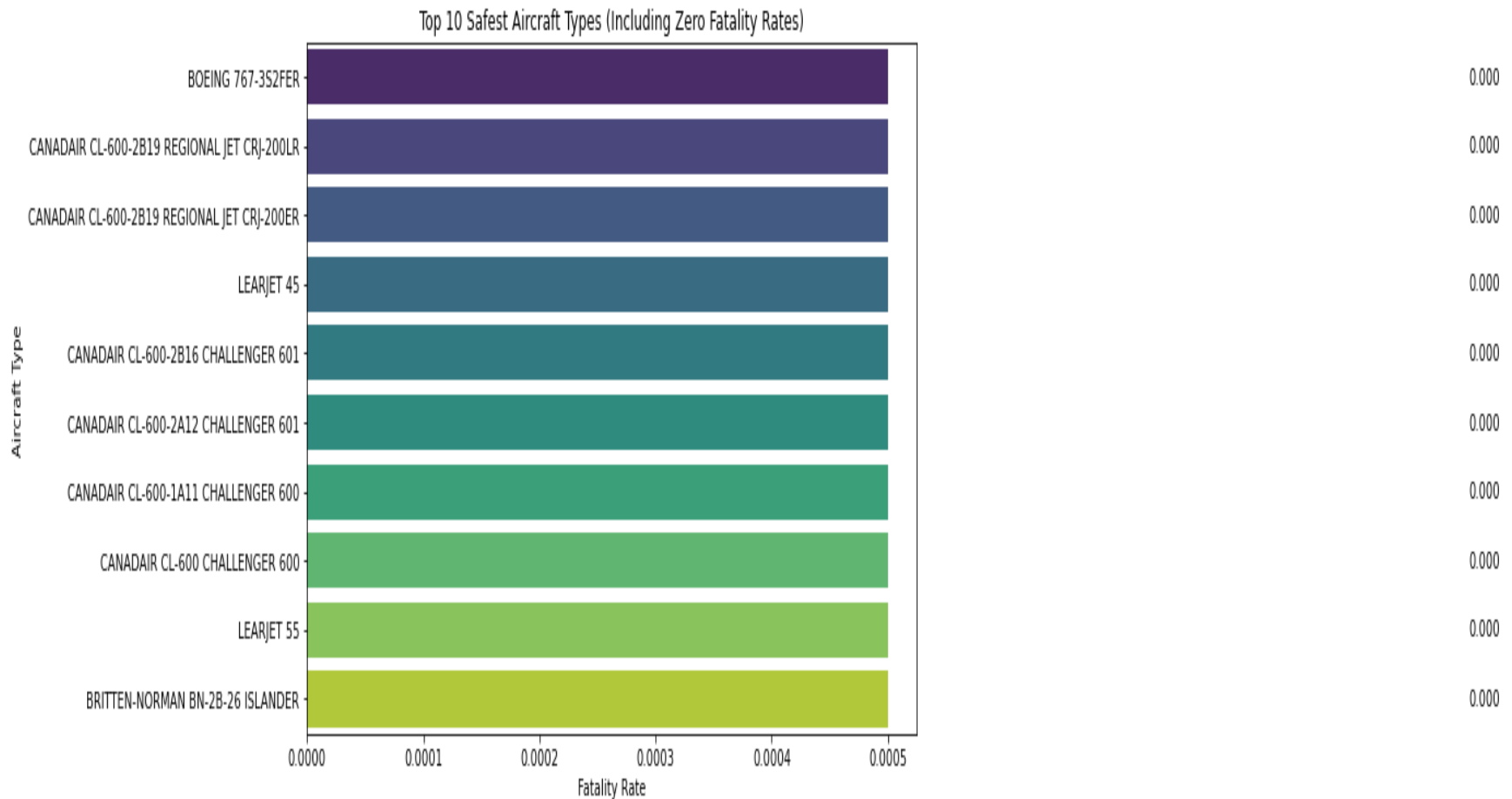
Extracted aircraft manufacturers

Data Analysis – Lowest Accident Frequency

⮕ Bar chart showing aircraft models with the fewest recorded accidents
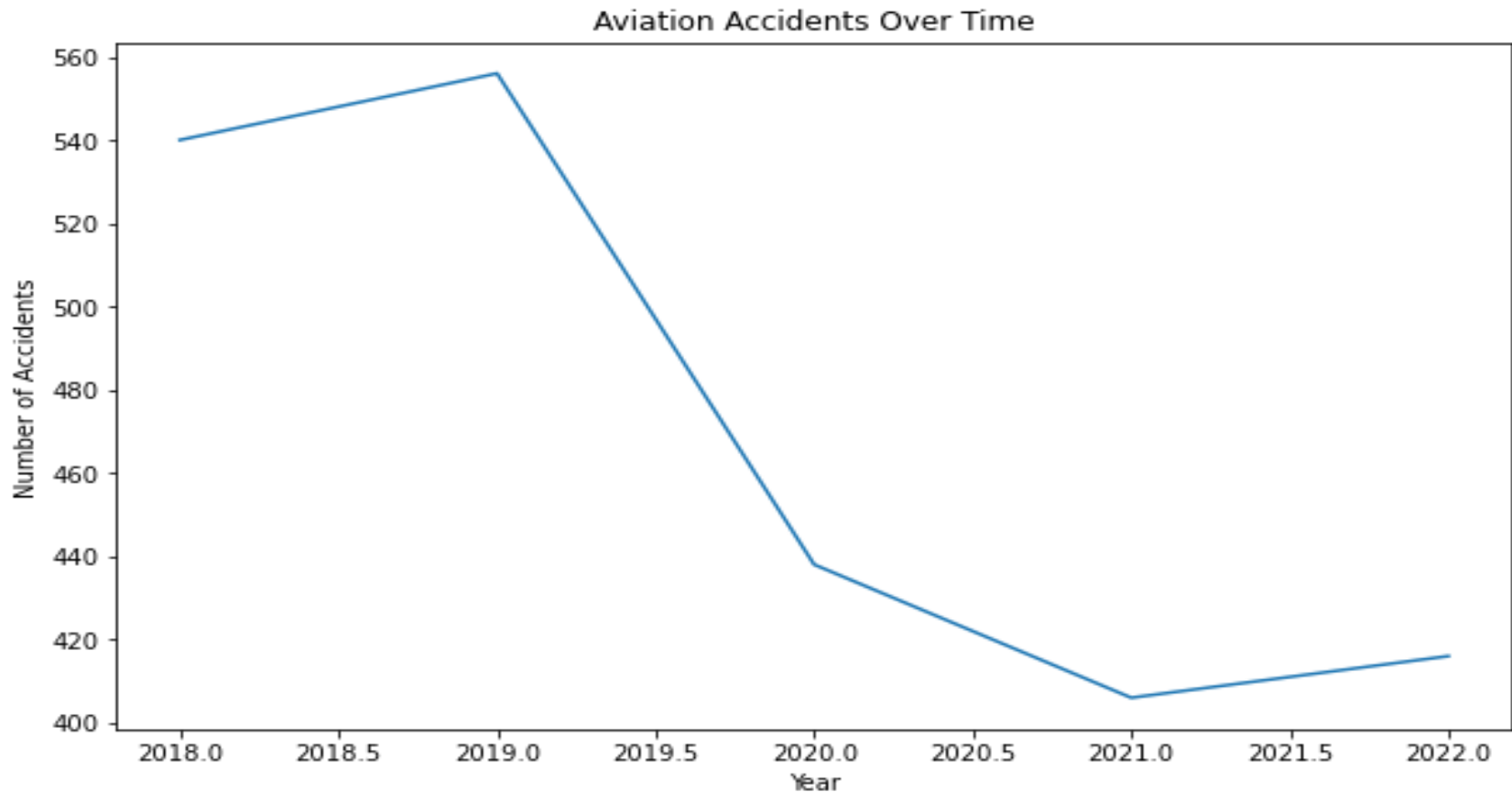Key Insight: Several aircraft appear only twice in the dataset

Aircraft with Lowest Accident Frequency

- Horizontal bar chart of average fatalities per accident. Several aircraft models recorded zero fatalities

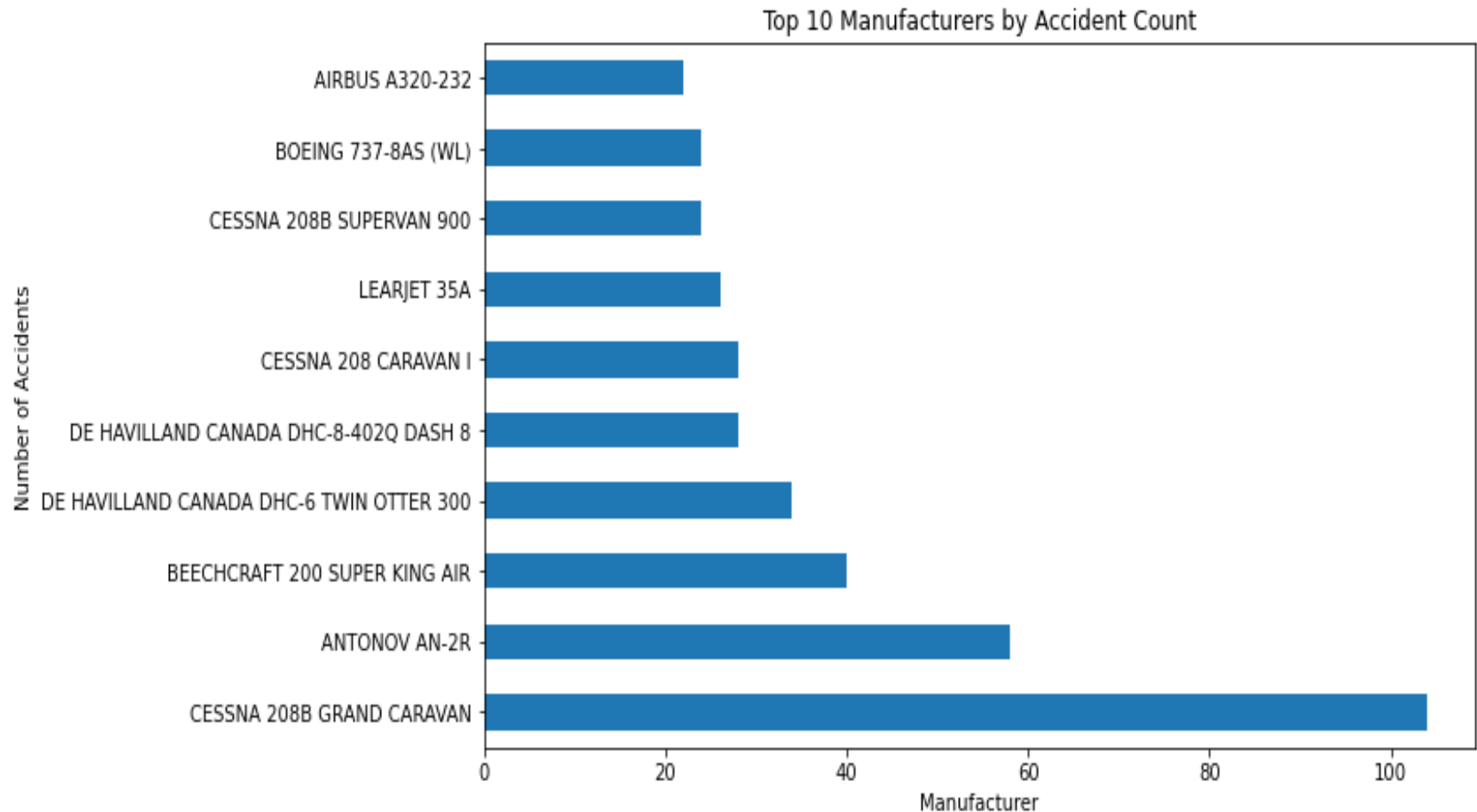- Bombardier/Canadair and Learjet dominate lowest-risk group

Top 10 Safest Aircraft Types (Including Zero Fatality Rates)

Data Analysis – Accident Trends Over Time
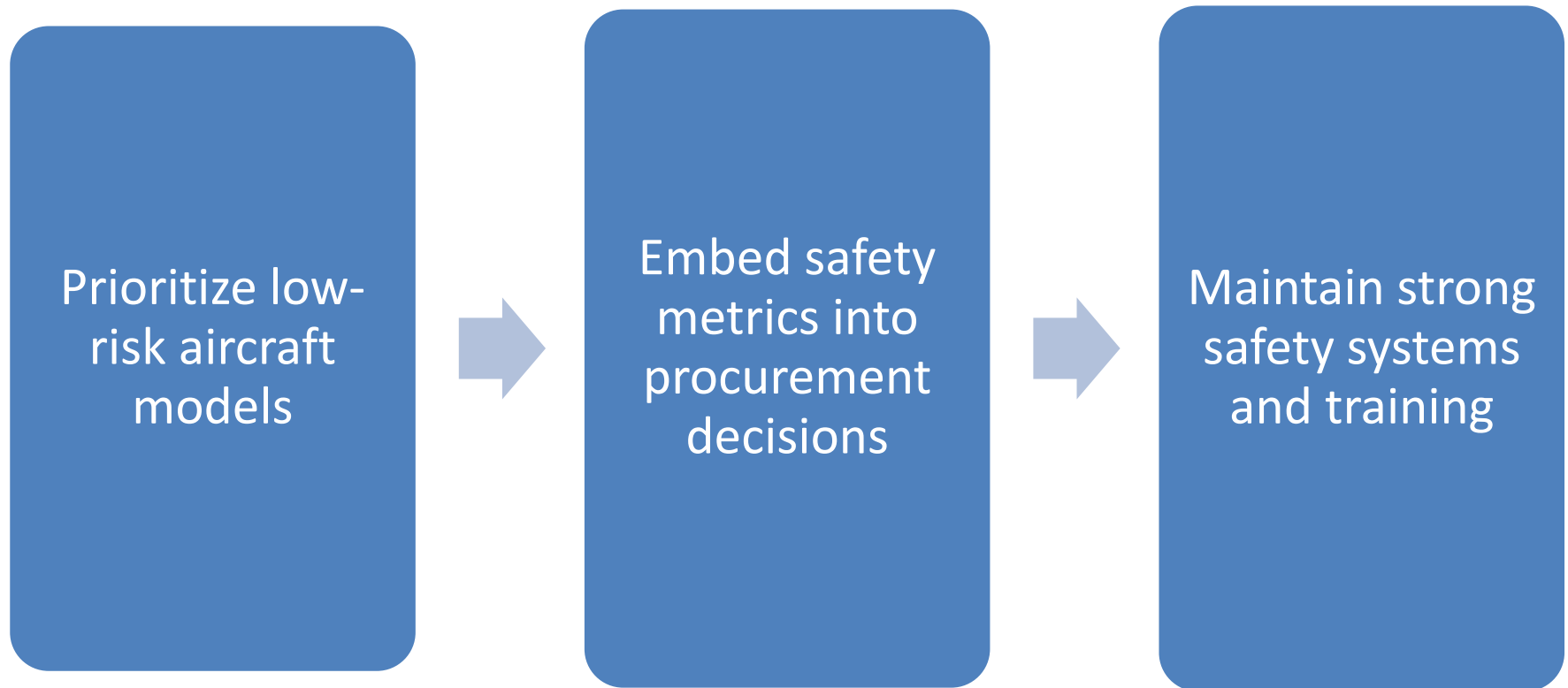
- Line chart showing accidents counts per year.

- Clear downward trend in aviation accidents.

- Reflects improvement in technology, regulation and training.

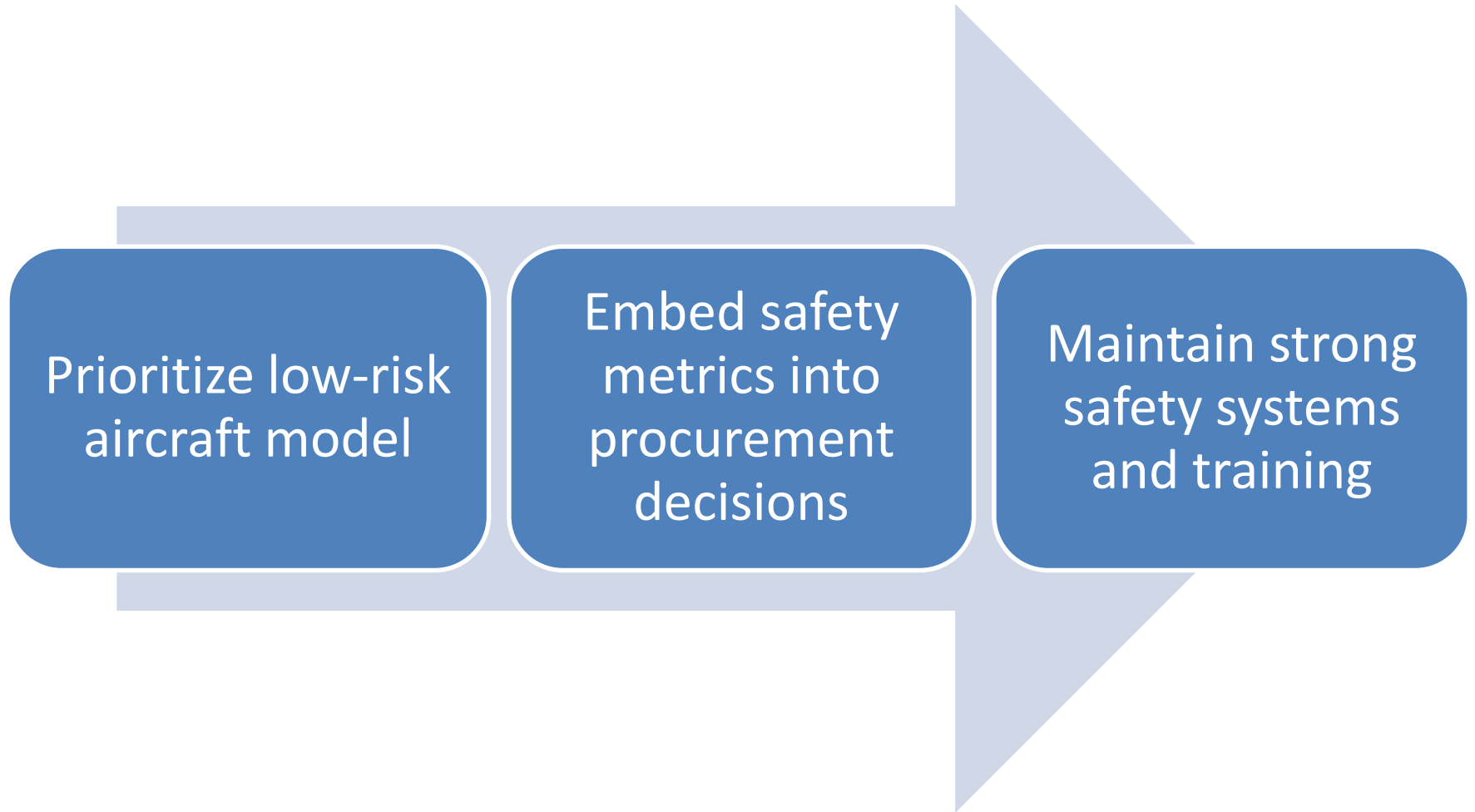
Aviation Accidents Over Time

Manufacturers by Accident Count

➲ Horizontal Barchart of accidents by manufacturer.

➲ Higher counts often reflect higher operational exposure

Top 10 Manufacturers by Accident Count

Prioritize low-risk aircraft models

Embed safety metrics into procurement decisions

Maintain strong safety systems and training

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Maintain strong safety systems and training

Thank You

Questions?

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