# Neha Singh

## Aircraft Safety Analysis: Recommendations for Fleet Purchase

# Overview

- Goal: identify the lowest-risk aircraft for initial commercial and private use
- Audience: head of aviation division
- Approach: data exploration and analysis

# Dataset: NTSB Aviation Accident Records (1962–2023)

- **Source:** National Transportátion Safety Board (public accident records).

- **Coverage:** Civil aviation accidents & selected incidents in the US and international waters.

- **Time Span:** 1962–2023 (~60 years of data).

- **Volume:** 80,000+ records after cleaning.
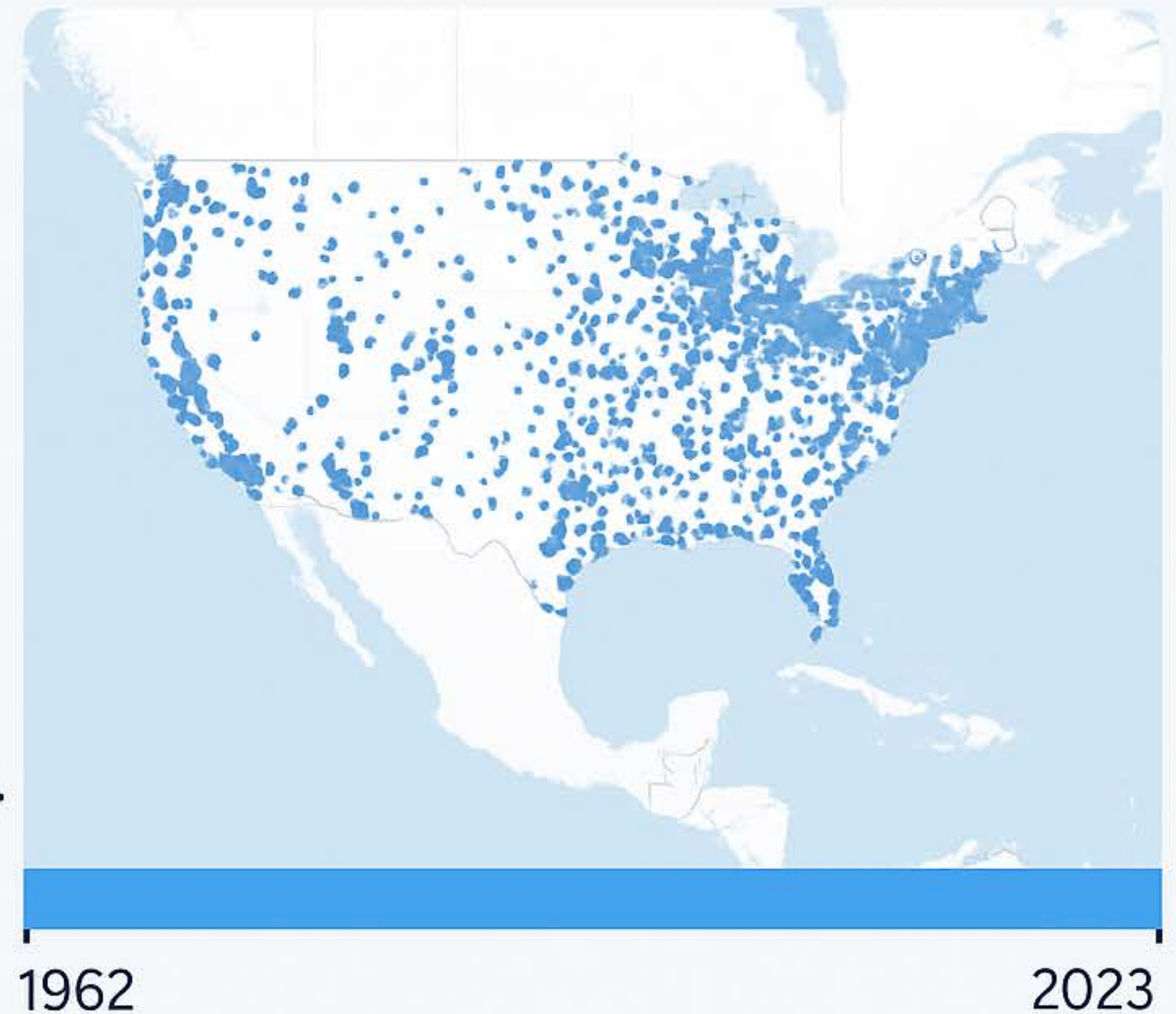
## Key Fields

Aircraft    Date    Location    Fatalities

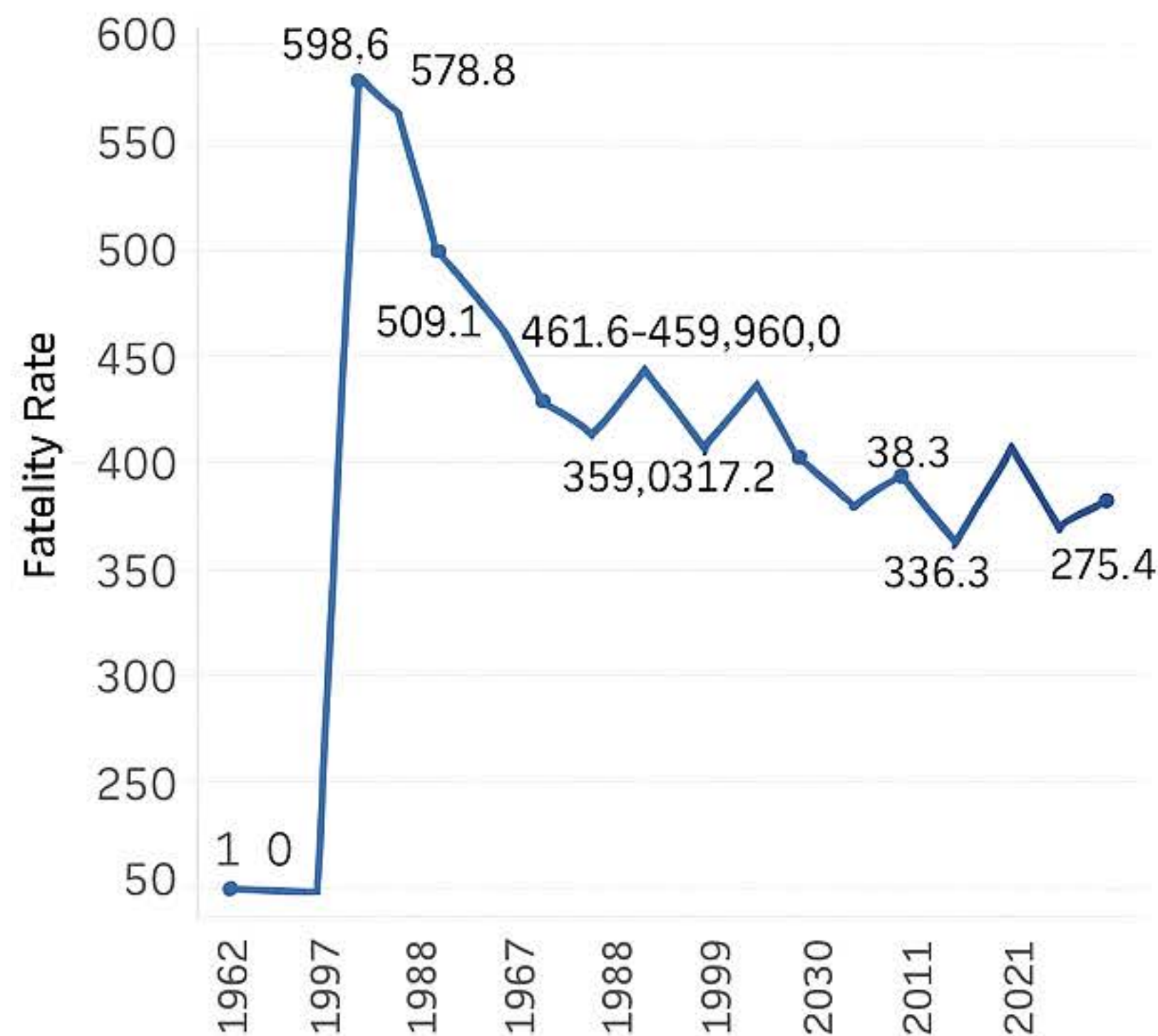1962    2023

# Business Understanding

## Business Problem:

Company is seeking to purchase aircraft to expand fleet. Need to know which aircraft have the lowest risk.
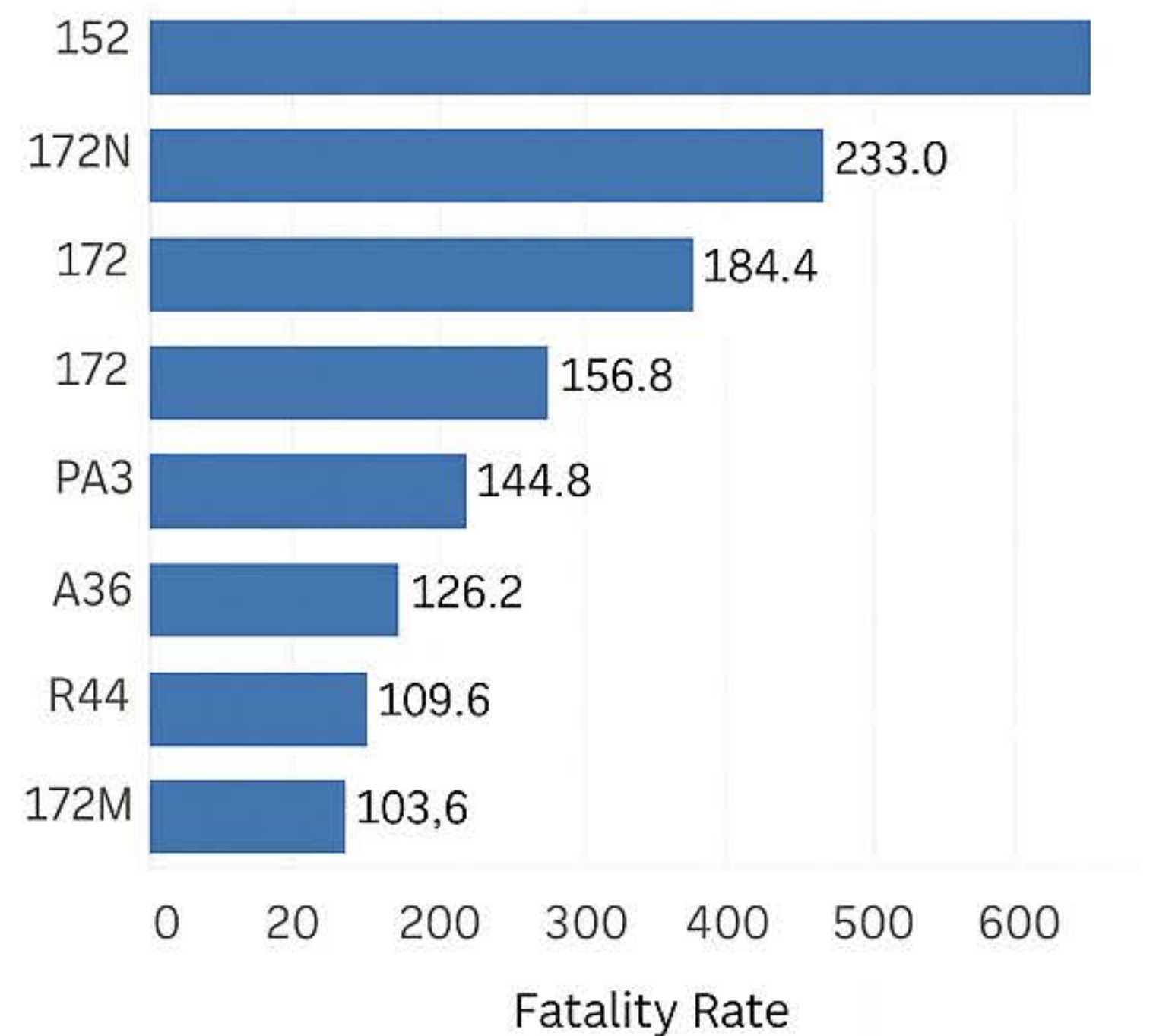
## Analysis Goal:

Analyze aircraft safety data to inform decision-making.

# Data Analysis

## Fatality Rate by Year



## Fatality rate by aircraft model

# Recommendations

## Best Aircraft Models for Business Use

- **Low Fatality Rate Models.** Choose models with consistently lower fatality rates over the recorded years.
    - Cessna 182, Cessna 172M, or Robinson R44

- **High Market Availability.** Select models that are widely available the used and new aircraft markets for ease of maintenance and parts sourcing. Cessna 172 series and Piper PA-28 variants

- **Operational Versatility**, Prefer aircraft suitable for multiple business purposes–charters, training, and short regional flights.

# Recommendations

- Prioritize aircraft with the fewest accidents
- Avoid aircraft with high or severe accident rates
- Monitor models with improving trends

# Next Steps

- Further analyze accident patterns for insights

- Monitor safety improvements in real-time

- Gather additional data on operational costs

- Evaluate other safety metrics (e.g., incidents)

# Thank You / Q&A

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