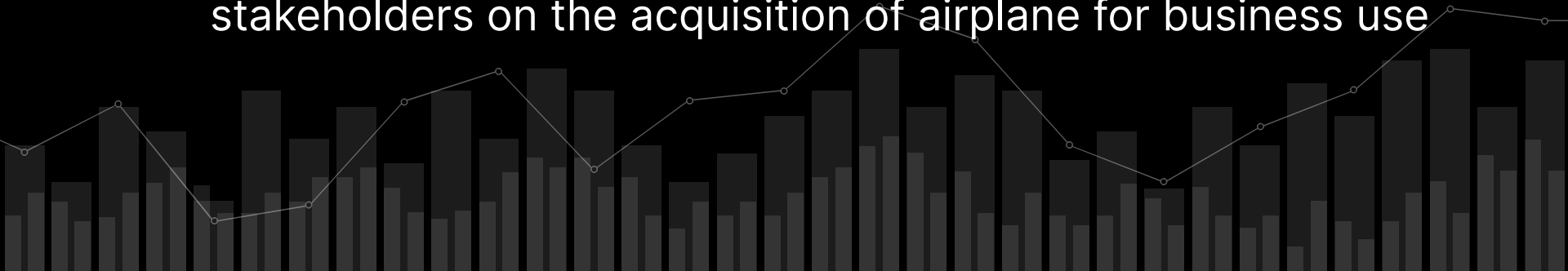


INTRODUCTION

- Who are we?
 - We are TransOrgo! A new subsidiary of the Geisinger Permanente hospital network
- What is our mission?
 - Cross-country aerial transportation of organs and other time-sensitive biological material for emergency procedures

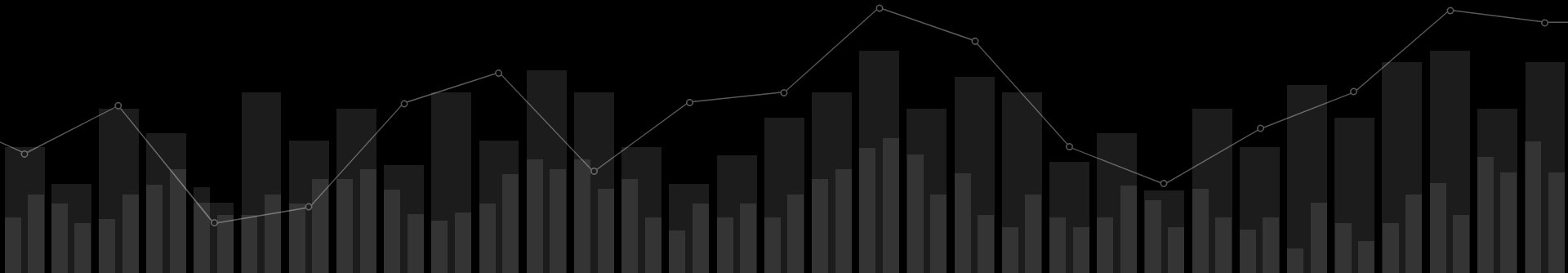
Airplane Acquisition: Risk Assessment

- As a new company, the data science team has been tasked to assess the risk of purchasing and operating airplanes
- This presentation involves three recommendations to the stakeholders on the acquisition of airplane for business use



The Data

- To assess these risks, we will use a dataset from the National Transportation Safety Board
- Civil Aviation and accidents in the U.S. and International waters from 1962 - 2023



ANALYSIS

- Clean the data
 - Remove unnecessary columns
 - Filter by
 - Airplanes
 - Non-Amateur Built
- Proportional Analysis
 - Test if any variables within the data had a significantly greater chance of “Fatal” or “Serious” incidents
 - “Serious” and “Fatal” incidents were emphasized because they would cause the greatest financial stress to the company

Recommendation #1:

**Raise Prices during IMC
Weather Conditions**



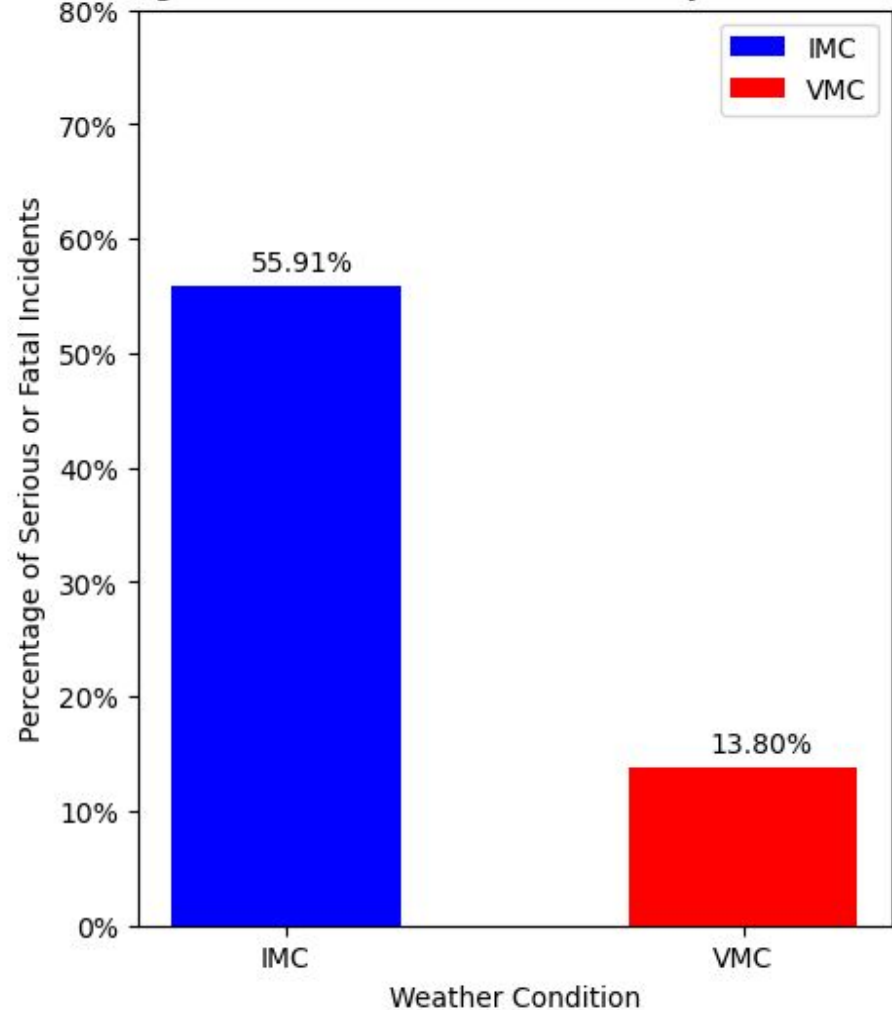
Recommendation #1: Raise Prices during IMC Weather Conditions

- What is IMC?
 - The weather condition data has two categories: IMC and VMC
 - **IMC:** Low visibility weather conditions, pilots must only rely on their instrument panels to fly
 - **VMC:** High visibility weather conditions, pilots can see well enough to use their vision, as well as use their instrument panels

Recommendation #1: Raise Prices during IMC Weather Conditions

- Why raise prices during IMC Weather Conditions?
 - **55.91%** of “IMC” weather condition incidents were “Serious” or “Fatal”
 - **13.8%** of incidents classified under “VMC” weather conditions were “Serious” or “Fatal”

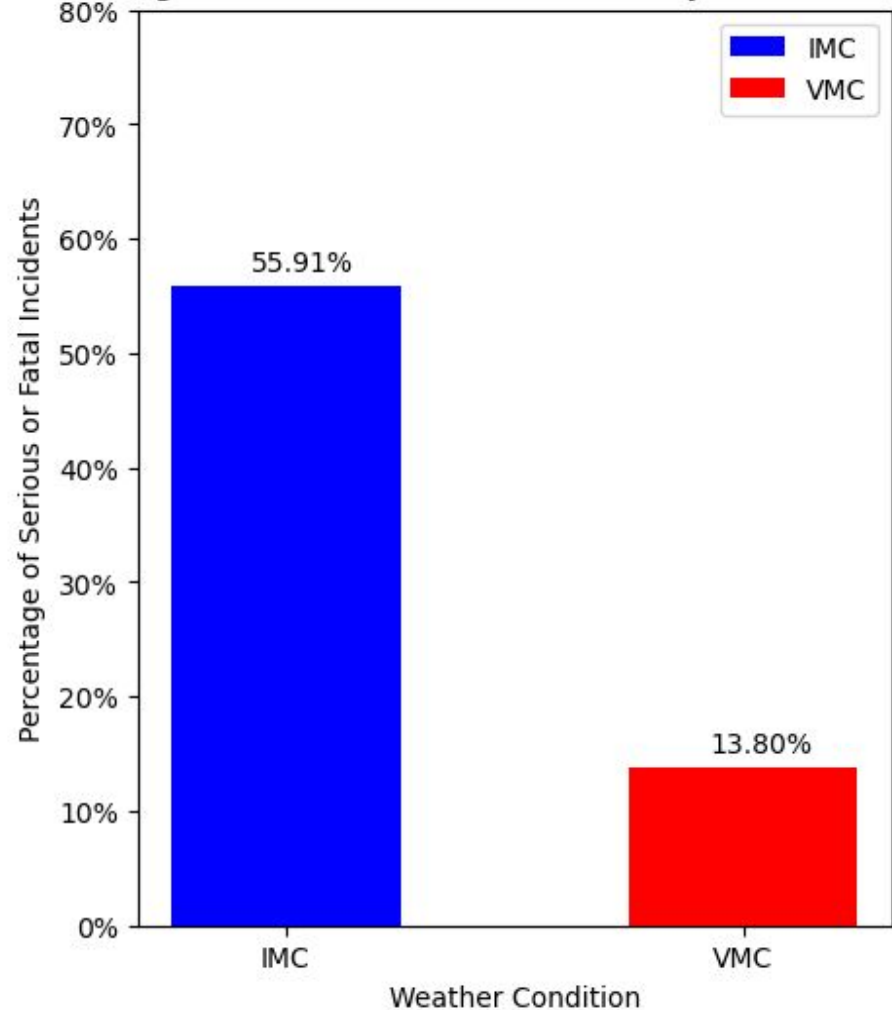
Percentage of Serious or Fatal Incidents by Weather Condition



Recommendation #1: Raise Prices during IMC Weather Conditions


- Why raise prices during IMC Weather Conditions?
 - To manage financial exposure prices must be raised during “IMC” weather conditions to justify the increased risk of flying

Percentage of Serious or Fatal Incidents by Weather Condition



Recommendation #2:

**Use Airplanes with Turbo
Fan Engines**

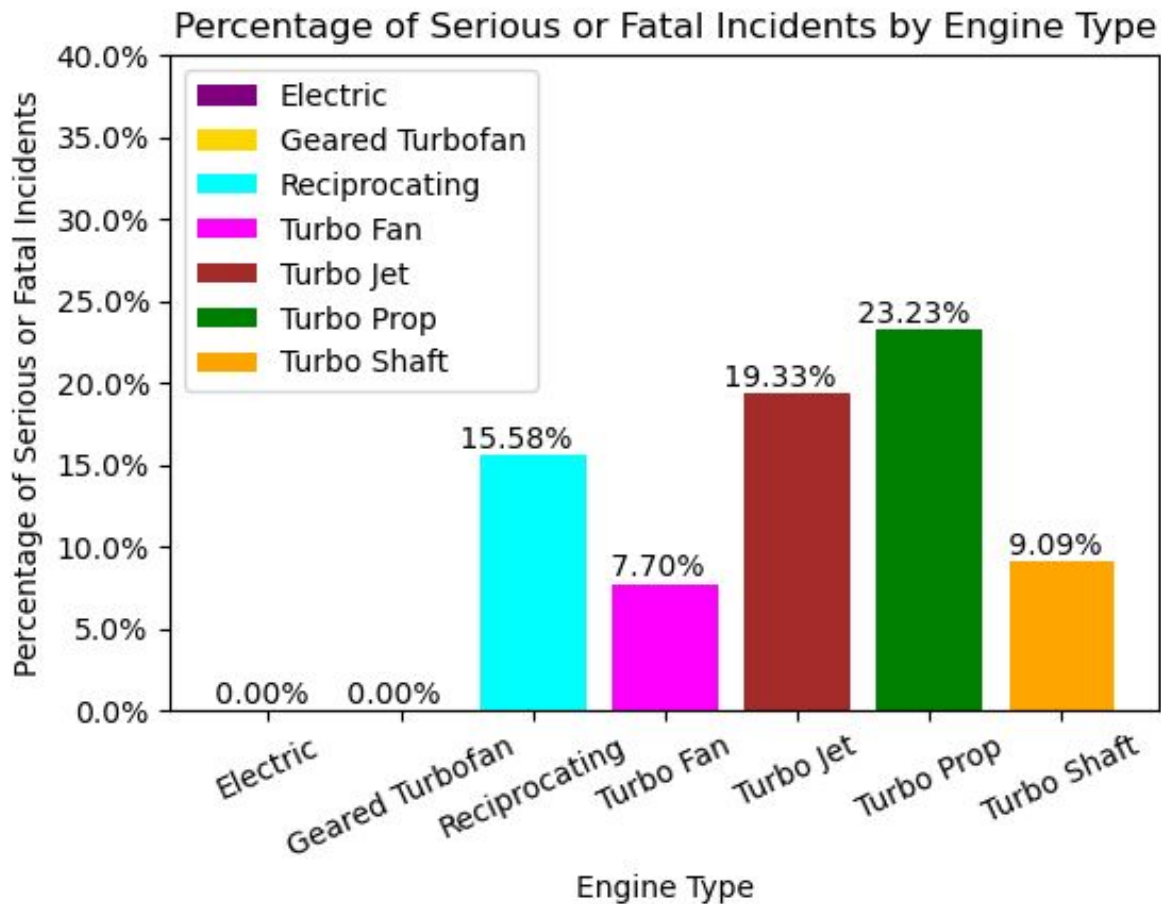
A decorative background graphic at the bottom of the slide. It consists of a series of vertical bars of varying heights, creating a bar chart effect. Overlaid on these bars is a line graph with small circular markers at each data point. The line graph shows a fluctuating trend, starting low on the left, rising to a peak, dipping, rising again to a higher peak, and then fluctuating towards the right.

Recommendation #2: Use Airplanes with Turbo Fan Engines

- Our data contains 7 types of engines:
 - Reciprocating
 - Turbo Fan
 - Geared Turbofan
 - Electric
 - Turbo Prop
 - Turbo Jet
 - Turbo Shaft

Recommendation #2: Use Airplanes with Turbo Fan Engines

- Why Turbo Fan:
 - Only **7.7%** of Turbo Fan Engine incidents were serious or fatal
 - Electric, Geared Turbofan, and Turbo Shaft did not contain enough data to be reliable



Recommendation #3:

Use Multi-engine Turbo Fan Airplanes

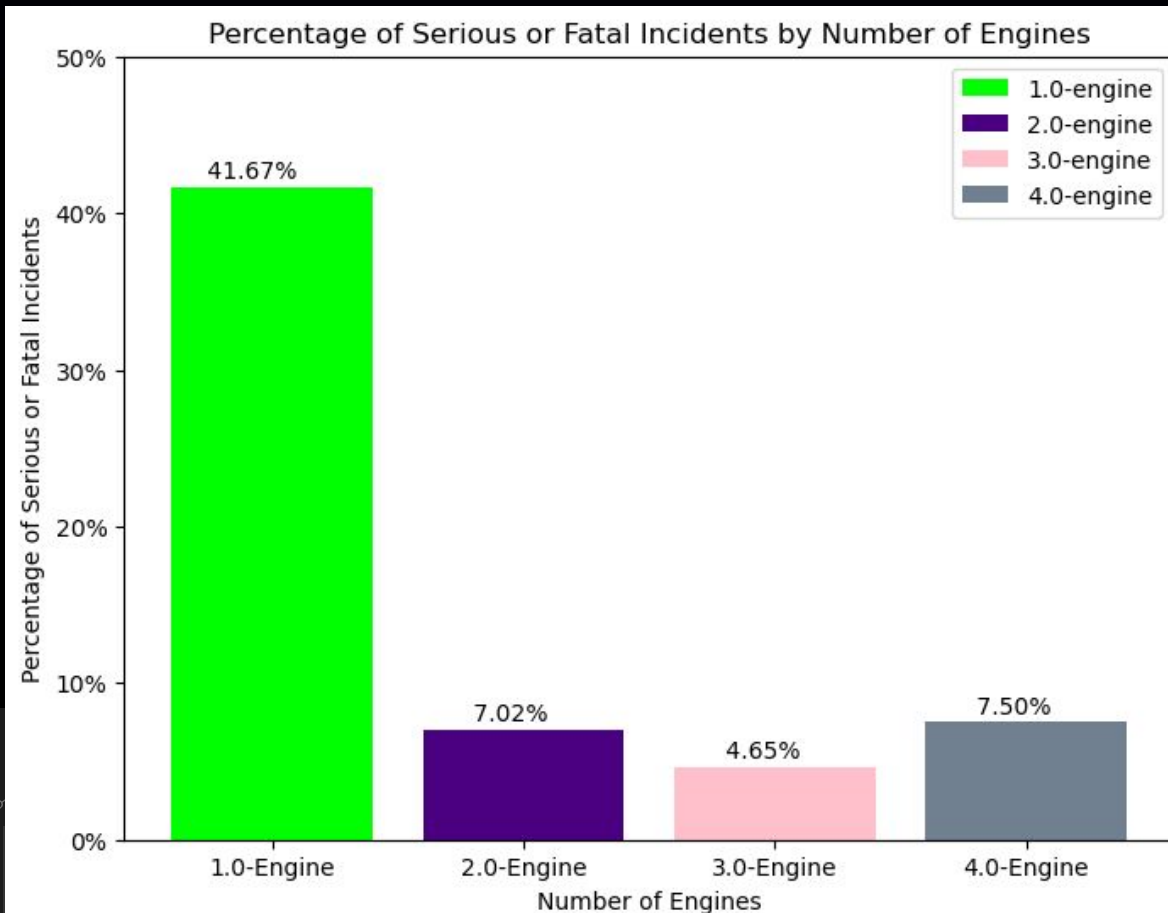
A decorative graphic at the bottom of the slide. It features a line chart with white circular markers connected by a thin white line, showing an overall upward trend with some fluctuations. Below the line chart is a bar chart with numerous vertical bars of varying heights, rendered in a dark gray color.

Recommendation #3: Use Multi-engine Turbo Fan Airplanes

- Our data consists of single and multi engine airplanes:
 - One-engine
 - Two-engine
 - Three-engine
 - Four-engine

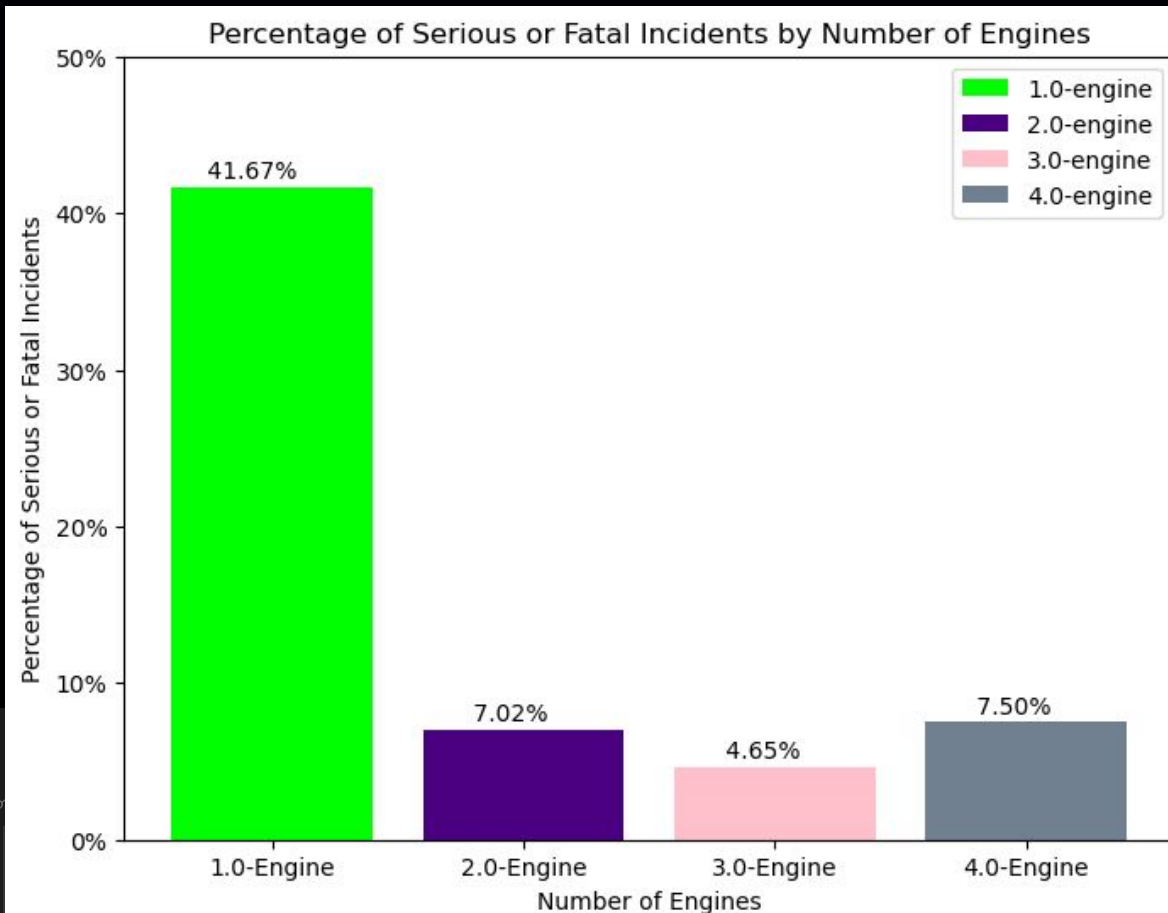
Recommendation #3: Use Multi-engine Turbo Fan Airplanes

- Why Multi-engine:
 - **41.67%** of single-engine Turbo Fan airplane incidents were serious or fatal



Recommendation #3: Use Multi-engine Turbo Fan Airplanes

- Why Multi-engine:
 - Two, Three, and Four-engine Turbo Fan airplanes were statistically close in severity and all much safer than single-engine



Airplanes

- Cessna Citation X (Model 750)
 - **Buy Price:**
\$3,897,500
 - **Operating Costs/Year:**
\$2,711,301
- Gulfstream G150
 - **Buy Price:**
\$5,398,333
 - **Operating Costs/Year:**
\$1,802,666



Airplanes

- Beechcraft 390
 - **Buy Price:**
\$2,489,000
 - **Operating Costs/Year:**
\$1,258,155
- Hawker 400
 - **Buy Price:**
\$4,500,000
 - **Operating Costs/Year:**
\$2,534,698



Airplanes

- Learjet 60
 - **Buy Price:**
\$1,976,667
 - **Operating Costs/Year:**
\$1,895,570



Thank you!

Questions?

