



# RISK ASSESSMENT FOR THE OPERATIONS OF PRIVATE AND COMMERCIAL AIRCRAFT

AUTHOR: PATRICE OKOITI

DATE: MARCH 28, 2025



# INTRODUCTION

This presentation aims to provide data-driven insights into the operations of private and commercial flights in the aviation industry and the risk factors associated with the industry.



# BUSINESS PROBLEM

Umoja Logistics is expanding its portfolio by entering the aviation industry. The objective is to acquire and operate aircraft for both commercial and private enterprises.



# OBJECTIVES

1. Identify the safest aircraft models based on accident history.
2. Analyze risk factors for aircraft accidents.
3. Evaluate operational risks by flight purpose.
4. Provide data-driven recommendations for aircraft selection and operations



# DATA OVERVIEW

- **Dataset:** Aviation Data from the National Transportation and Safety Board of the USA
- **Key features:**
  - ✓ Aircraft make, model, and date of accident
  - ✓ Weather conditions and broad phase of flight
- **Timeframe:** Between 2000 and 2023 (23years)



# METHODS OF ANALYSIS

1. Descriptive Statistics
2. Risk Assessments
3. Data Visualizations
4. Dashboard



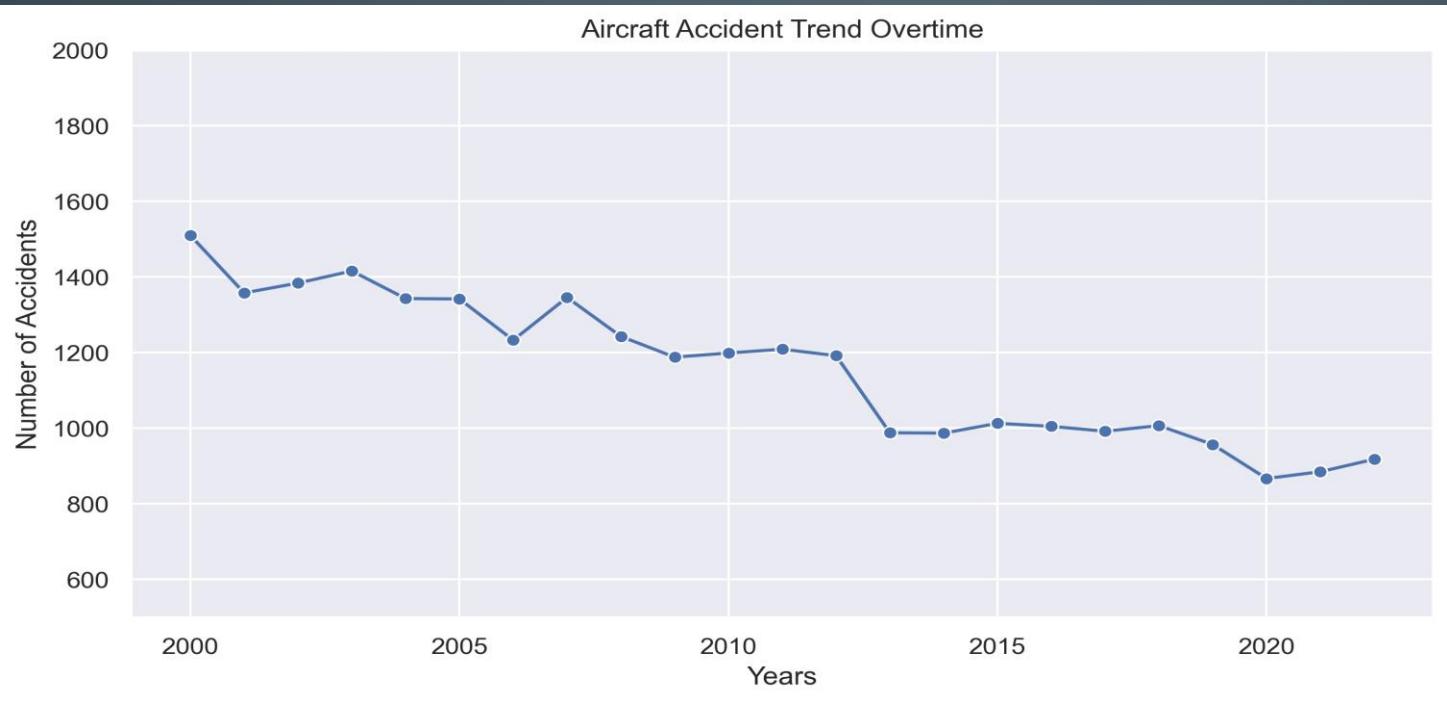
# FINDINGS

- The aviation industry offers a promising business opportunity.
- The safest aircraft models encompass various types.
- Risk factors include:
  - ✓ Weather effects.
  - ✓ Phases of accidents.
- Operational hazards.



# BUSINESS OPPORTUNITY

- Trend of aircraft accidents over the between 2000 and 2023

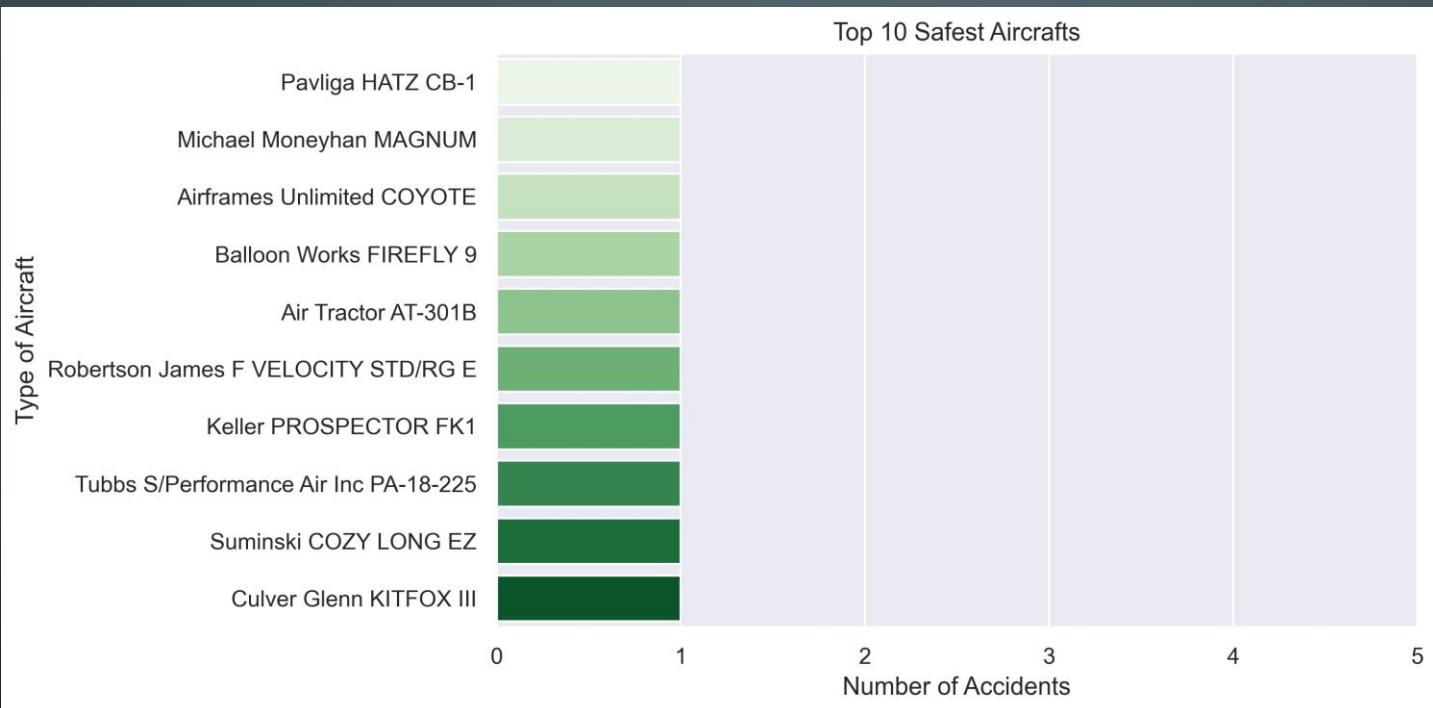


- Insights: Overall aircraft accident numbers have decreased steadily over the years possibly due to technological advancement



# SAFEST AIRCRAFT FINDINGS

- Discover the top 10 safest aircraft based on the lowest accident numbers.

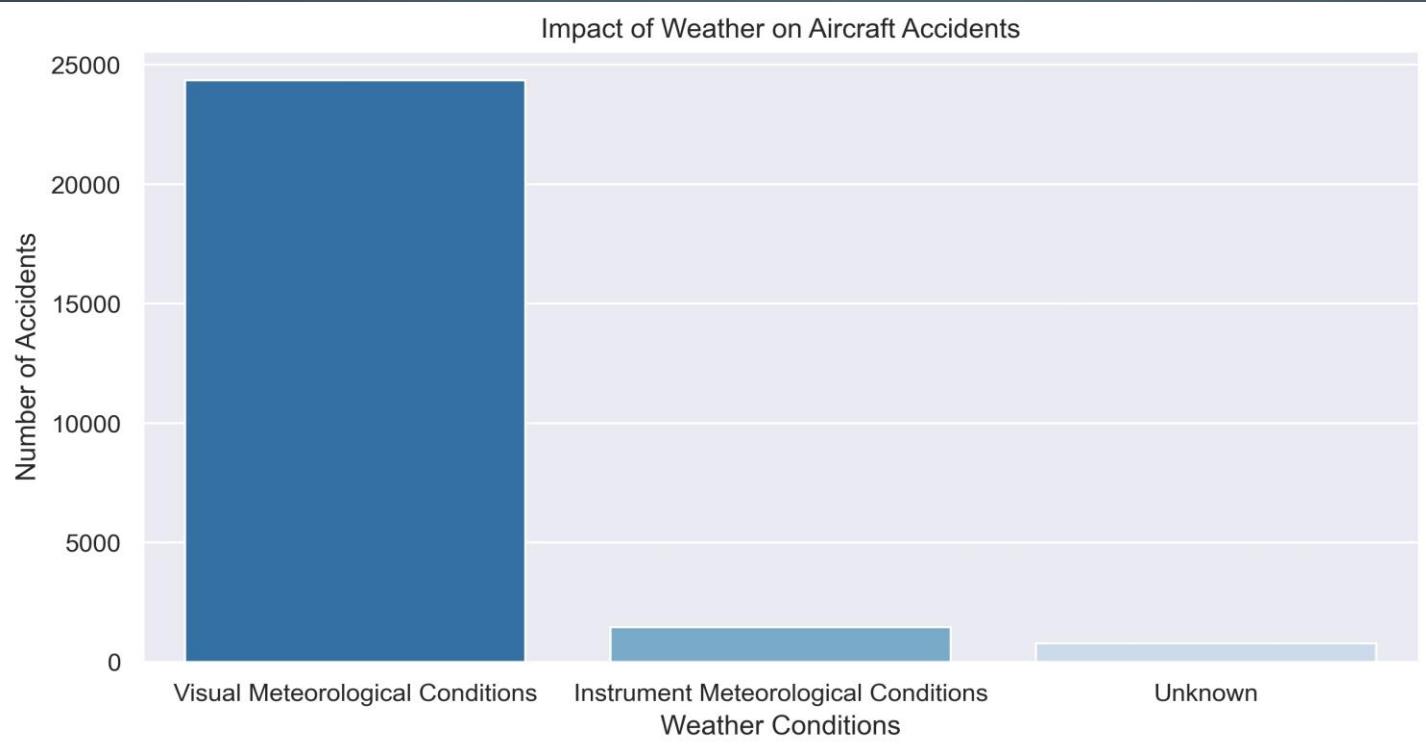


- Insights: The safest aircraft had only one accident recorded over the analyzed period



# IMPACT OF WEATHER

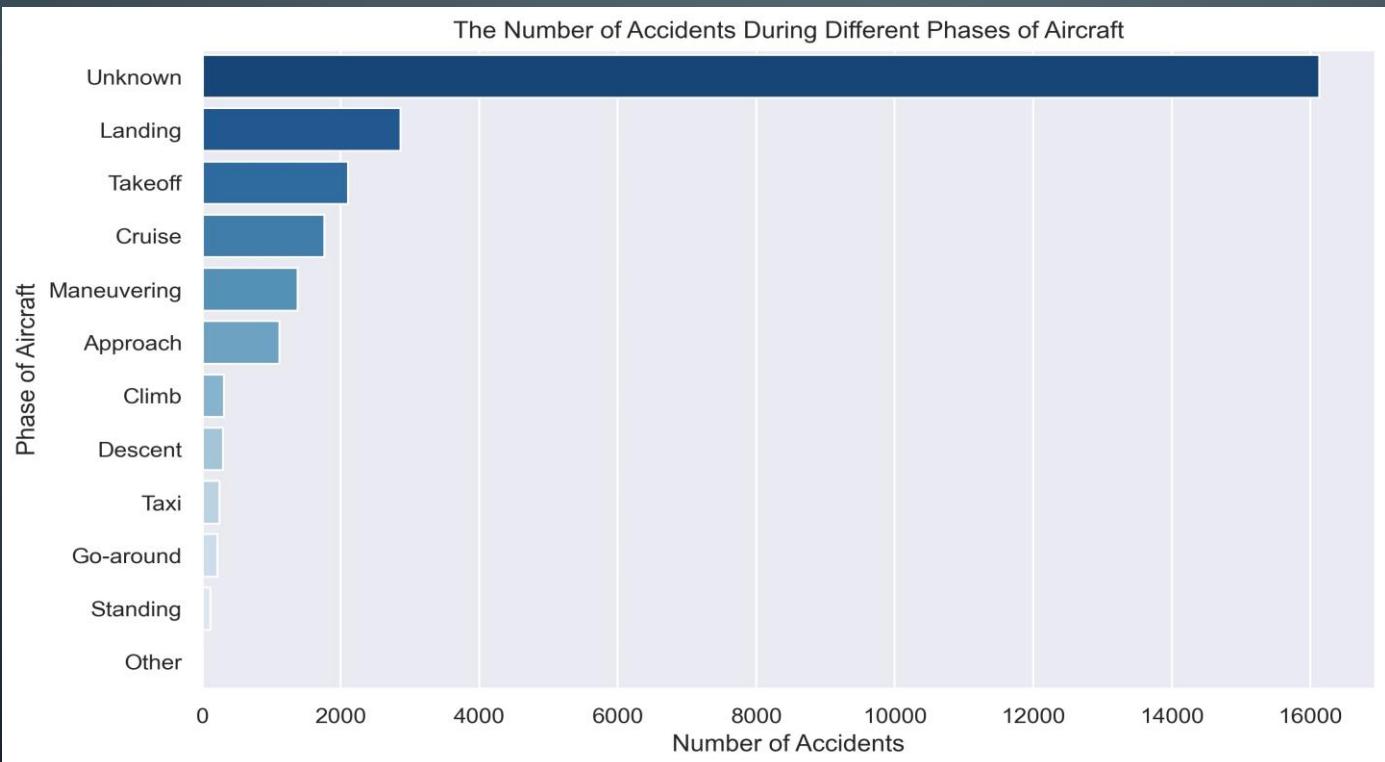
- Majority of accidents occurred in VMC (clear weather conditions)



- Insights: Weather is not the primary risk factor. Other factors like human error, mechanical failure, or operational decisions play a bigger role.

# PHASE OF AIRCRAFT

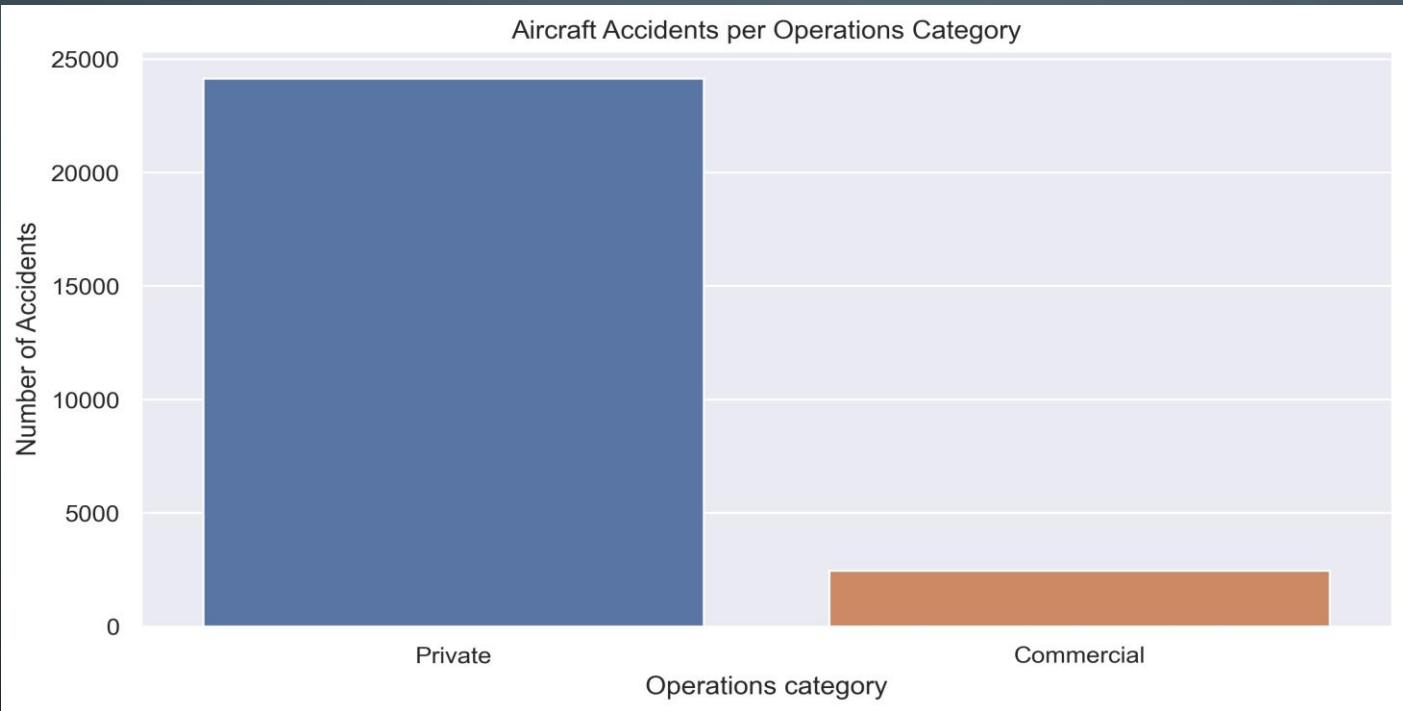
- Discover the phases when most aircraft accidents occur.



- Insights: Landing and taking off have high accident rates

# OPERATIONS RISK

- Compare private and commercial flight operations



- Insights: Private flights had a higher accident numbers than commercial flights

# RECOMMENDATIONS

1. Invest in aircraft with a strong safety record
2. Invest in pilot training
3. Establish safety protocol
4. Establish a protocol for regular maintenance and safety check
5. Mitigate risks during landing and taking off
6. Encourage technological advancements



# CONCLUSION AND NEXT STEP

- Takeaways:
  - ✓ Identified safest aircraft models
  - ✓ Analyzed risk factors
  - ✓ Provided data-driven recommendations
- Next steps:
  - ✓ Further analysis of the fleet size of the aircraft for the analysis period
  - ✓ Further analysis for future predictions
  - ✓ Collaboration stakeholders in the aviation industry
- Q&A session



# CONTACT INFORMATION

-  Email: [patrice.okoiti@student.moringaschool.com](mailto:patrice.okoiti@student.moringaschool.com)
-  Phone: +254711354186
-  Location: Nairobi
-  LinkedIn: [www.linkedin.com/in/patrice-okemo-okoiti](https://www.linkedin.com/in/patrice-okemo-okoiti)

THANK YOU

