

# AVIATION SAFETY RISK ANALYSIS

Data-Driven Strategy for Safe Portfolio Diversification.

Prepared for: Head of Aviation Division

Name: Priscilla Otieno

Date: 03/10/2025

# Business Problem and Objectives

## **Business Problem:**

We're expanding into aviation but lack safety expertise to identify low-risk aircraft for our new operations.

## **Objectives:**

1. To identify safest aircraft manufacturers and models
2. To analyze when and how accidents occur
3. To provide 3 actionable recommendations for safe market entry.

**Data Source :** NTSB Aviation Database (85,000+accidents, 1962-2023)

# Manufacturer Safety

## Safety Leaders

Manufacturers A: 55% better

Manufacturer B: 45% better

Consistent performers.

## Areas of concern

Manufacture C: 30% worse

3x variation best/worst

Inconsistent patterns

Business impact: Manufacturer choice drives liability and insurance costs.

- Accident Rates by manufacturer.(bar chart)

# Model Selection

## Sweet spot models:

- Model X: Best safety + cost balance
- Model Y : Proven reliability
- Model Z: Mixed-use optimal

## High Risk:

- Avoid despite low costs
- Poor maintenance access

- Safety vs. operating costs by model(scatter plot)

## Operational Risks

### High Risk (65%)

- Take off : 35%
- Landing: 30%

### Lower Risk:

- Cruise: 15%
- Other:20%

Insight: Target training where 65% of risks occur.

- Accident Distribution by Flight Phase(Donut chart)

# Strategic Fleet Acquisition: Acquire Model X&Y

## **Why:**

- 40-50% better safety
- \$320-350/hour operating costs
- Strong support networks

## **Impact**

- 40% lower incident costs
- Better insurance terms
- 5-7 aircraft initial fleet

# Manufacturer Partnership: Partner with Manufacturer A

## **Why:**

- Consistent safety leadership
- Comprehensive support
- Training ecosystem

## **Benefits:**

- 15-20% better warranties
- Priority support
- Safety co-marketing

# Operational Excellence: Phase Specific Training

## **Focus**

- Takeoff/landing procedures
- Simulator training
- Continuous assessment

## **Results**

- 45% risk reduction potential
- 30% fewer incidents
- Lower maintenance costs



# Implementation: Timeline Visualization

## **Financial Impact**

- 20-40% cost reduction
- Premium pricing
- 3-4 year ROI

## **Success Metrics**

- 40% + better safety
- Lower Insurance
- Market Leadership

# Ready for Takeoff

## **Three Takeaways:**

- Clear path to 40%+ better safety
- Actionable recommendations ready
- Strong business case with 3-4 year ROI

## **Next Steps:**

- Week 1: Approval
- Week 2: Team formation
- Week 3: Negotiations

Priscilla Otieno  
awinootienopriscilla@gmail.com]  
0707505403