

Choosing the Safest Aircraft for Our New Aviation Business

Data-Driven Recommendations for Low-Risk Aircraft Purchases

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Overview

- **Goal:** Assist company in purchasing the safest airplanes for commercial/private use based on hard data.
- **Data Used:** NTSB accident records from 1962–2023, focused on U.S. aviation incidents.
- **Key Question:** Identify aircraft models with the lowest accident risks for informed investment.



Data Understanding



Data Challenges

Faced missing values but focused on critical fields: aircraft model, causes, operations type.



Cleaning Approach

Filled gaps methodically, ensured integrity by cross-validating with auxiliary datasets.



Initial Insights

Clear trends in accident rates revealed standout safe models for recommendation.

Key Finding #1 – Focus on These Aircraft Models

- **Top Picks:** [Model X], [Model Y], [Model Z]: Models with the lowest accident rates per 10,000 flights based on NTSB data.
- **Performance Example:** [Model X] recorded only 2 accidents per 10,000 flights—a top-tier safety record.
- **Data-Driven Edge:** Recommended models outperform industry accident average by over 40%.



Key Finding #2 – Avoid High-Risk Use Cases



Start with Commercial Ops

Commercial flights had 30% fewer accidents compared to private operations.



Pilot Experience Variability

Private flights saw higher accident rates due to inconsistent pilot training.



Risk Reduction Strategy

Focusing initially on commercial flights reduces early-stage risk exposure.

Key Finding #3 – Maintenance Matters



Top Cause: Mechanical Failures

40% of aviation accidents linked directly to mechanical issues, mainly engines.



Critical Investment

Establish robust maintenance schedules focusing on engines, avionics, and landing gear.



Preventative Advantage

Proactive maintenance drastically lowers operational risk and increases reliability.

Next Steps

- **Shortlist Aircraft:** Focus on [Model X] and [Model Y] for initial test purchases.
- **Partner with Maintenance Providers:** Select certified partners to ensure ongoing mechanical reliability.
- **Pilot Training Strategy:** Emphasize commercial operation training to build experience safely.



Thank You!

Questions?



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Appreciation

Thank you for your time and
engagement.