

Aviation Accident Risk Analysis

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What is the problem?

BlueJet Ltd is expanding into aviation, but need to understand aircraft safety risks before investing.



Why does it Matter?

- ✈ The impact of aviation accidents on **safety, costs, regulations, and reputation.**

Key Questions:

- ✈ Which aircrafts are the riskiest?
- ✈ What factors contribute to accidents?
- ✈ How can we mitigate these risks before investing?



Data & Analysis

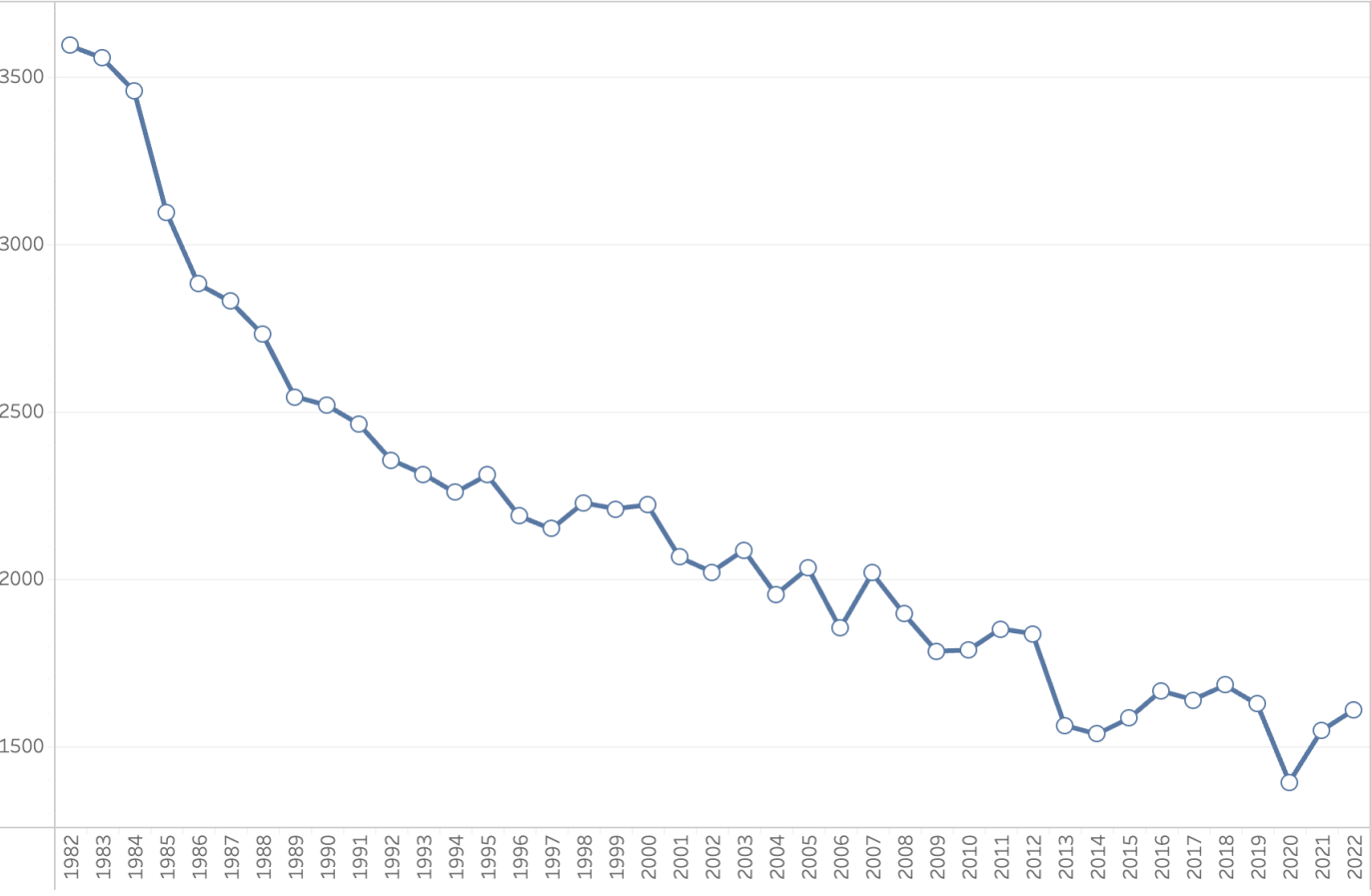
- ✈ The source of the dataset is NTSB.
- ✈ Data structure: aircraft make, engine type, purpose of flight, weather conditions, casualties, etc.
- ✈ Analysis was done using Python language and the data visualization was performed using Tableau

As per the analysis:

Total Accidents
88,889

High Risk Make
CESSNA

Accidents (1982-2022)

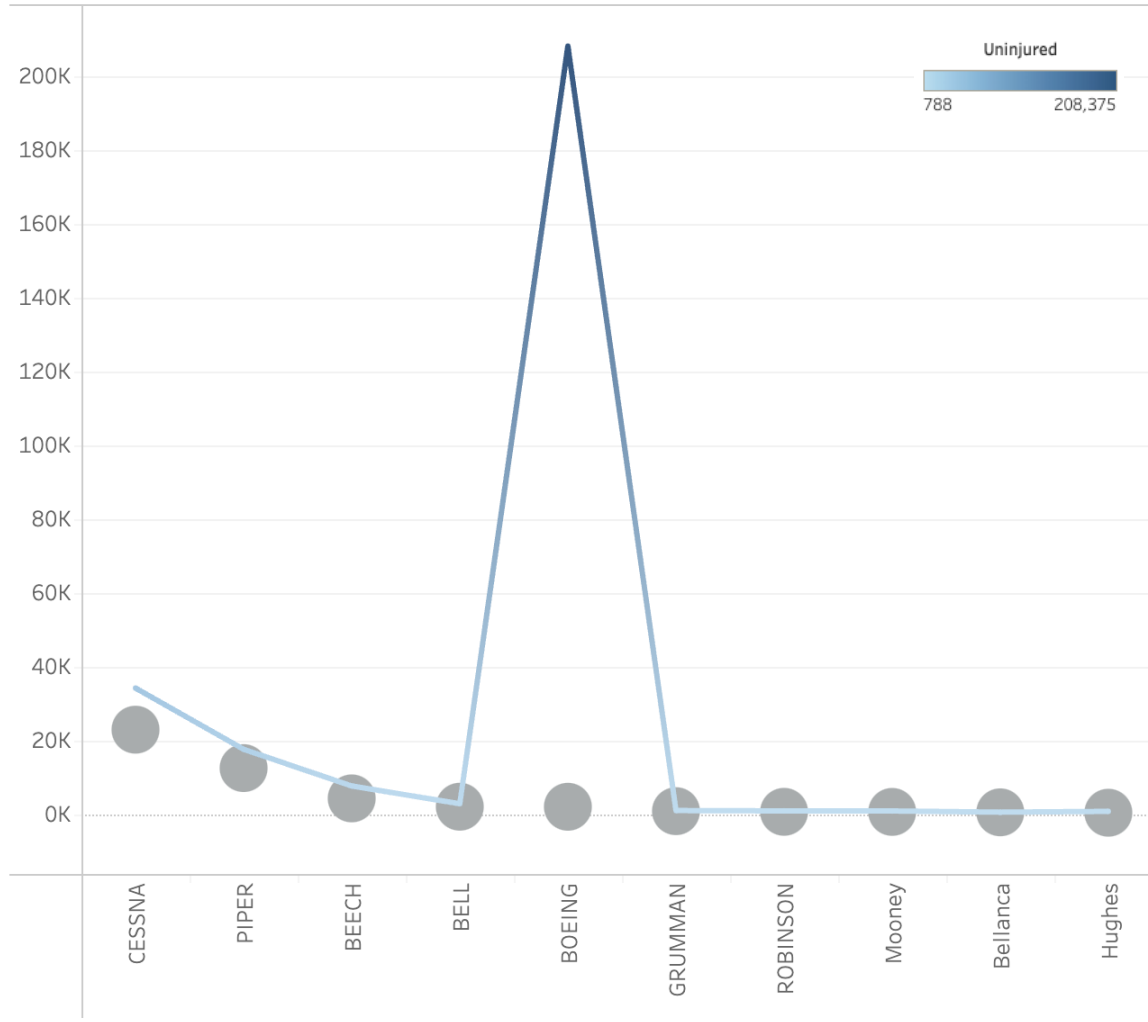


Over the years CESSNA have the highest accident rate—this should be a red flag for future investments.



Across the different makes the degree of injury varies:

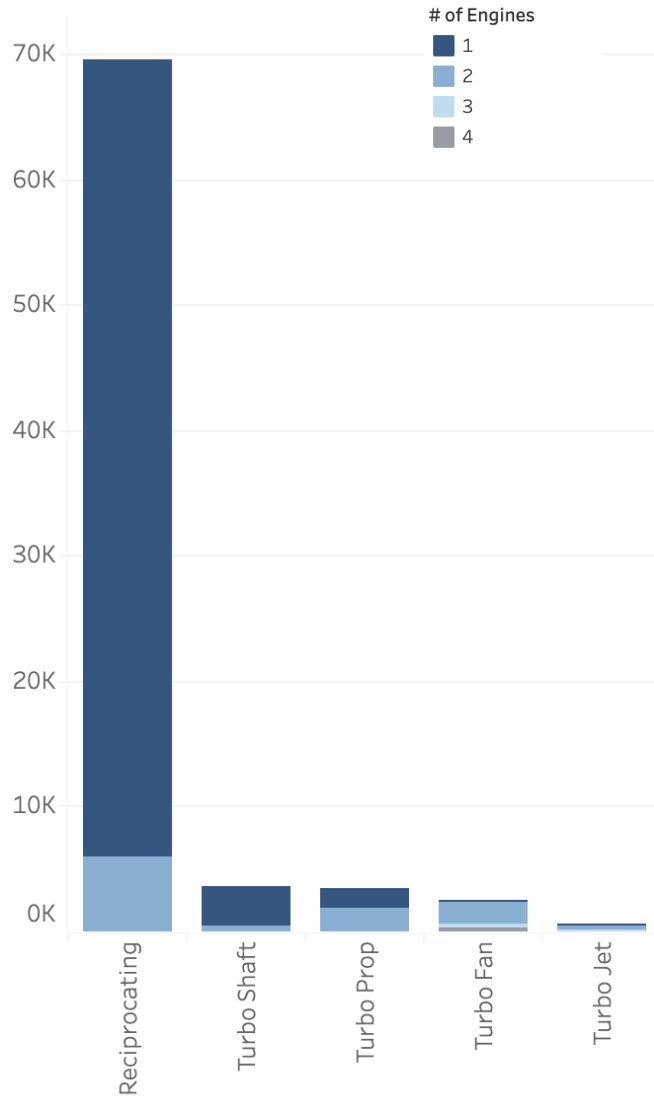
Casualties and Uninjured



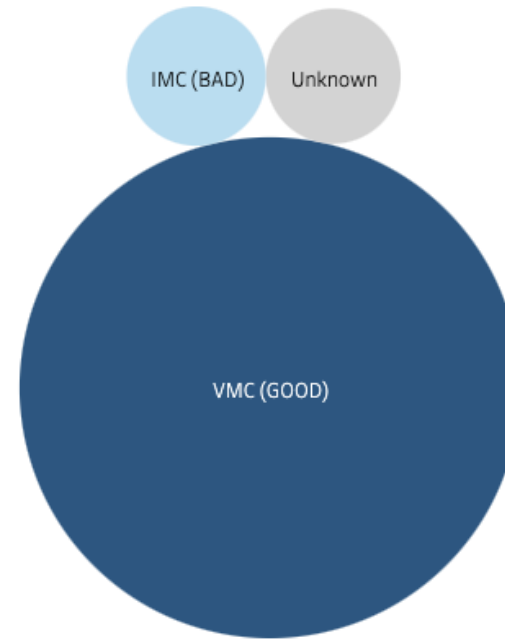
Some aircraft types have more survivable accidents than others, in this case, the make Boeing stands out. This could inform our insurance and fleet decisions.

When looking at the # of accidents other contributing factors include:

Engines



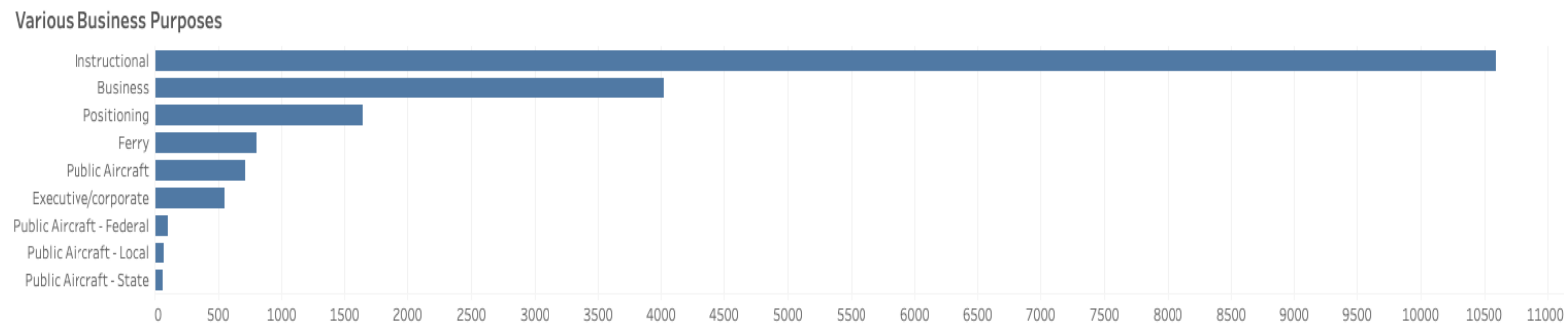
Weather Conditions



Fewer engines, notably the reciprocating engine, are more prone to accidents. Weather was not a key factor for over 90% of the factors.



We explored the different business model:



Instructional flying is a significantly riskier business venture than executive/corporate flying.



Business Recommendations

- ✈ **Investment Strategy:** Avoid investing in aircraft makes and models with high accident rates.
- ✈ **Fleet Selection:** Prioritize aircraft with fewer casualties, numerous engines and better safety records.
- ✈ **Prioritize safer business models:** Invest in aircraft activities with lower accident risk, instead of high-risk operations.



Next Steps

How do we proceed?

- ✈ Conduct **deeper analysis on accident causes**.
- ✈ Investigate **insurance costs and regulations**.
- ✈ Develop **a risk assessment framework for future investments**.
- ✈ Expand analysis to **global accident datasets** for broader insights.

