

AVIATION CONSULTING

Advice on Commercial and
Private Aircrafts



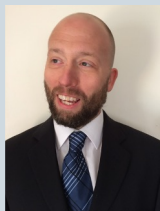
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Meet the Team



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- Design and Organizational Lead



Mike Hanson (GitHub: gjimmyq)

- Technical Lead

Agenda

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Business
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Financial Risks up to 100s of \$ Millions for Catastrophic Accidents



Costs associated with accidents:

- Insurance payouts
 - ~ \$1-5 MM per fatality
 - plus injuries (severity dependent)
- Plane replacement ~ \$80 MM

Our goal:

- Find an aircraft that has low percentile of injuries, deaths, and airplane damage per accident.

* Plane cost from <https://pilotinstitute.com/how-much-do-airplanes-cost/>

* Wrongful death lawsuits from

<https://www.raphaelsonlaw.com/verdicts-settlements/wrongful-death-settlements>

Data*-driven Decisions to Minimize Risk

Parameters of Interest	Details
geographic location of accident	US states/territories, surrounding waters
airplane manufacturer	professionally built
numbers of passengers, fatalities and injuries	per flight
date of accident	
type of travel	commercial or private
extent of airplane damage	None, Minor, Substantial or Destroyed
phase within flight	takeoff, cruising, landing, etc.



*All data from the US National Travel Safety Board (NTSB):
https://www.nts.gov/safety/data/Pages/Data_Stats.aspx

** Dataset does not include a count of flights where no accident has occurred

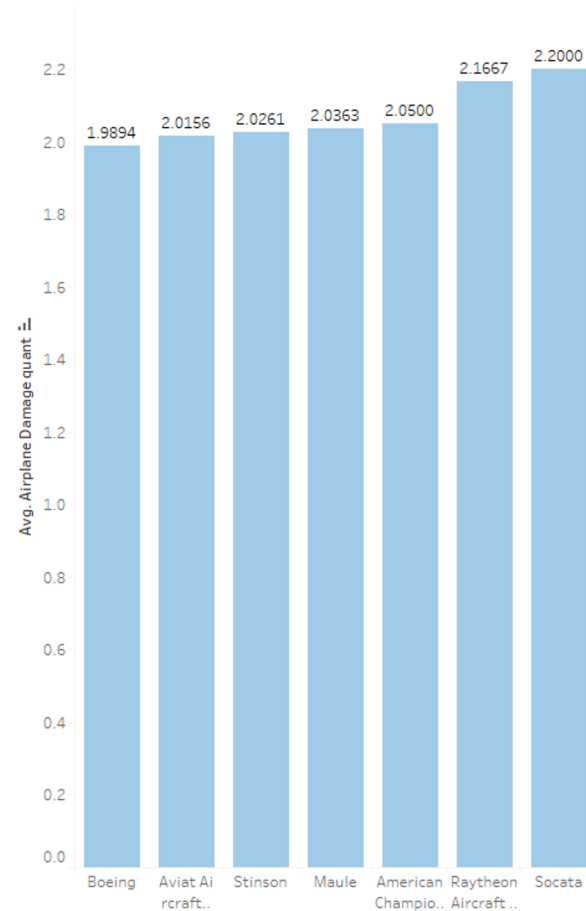
Commercial Planes Damage Similarly in Accidents across Manufacturer.

Thus, damage was not a deciding factor in choosing an airplane manufacturer.

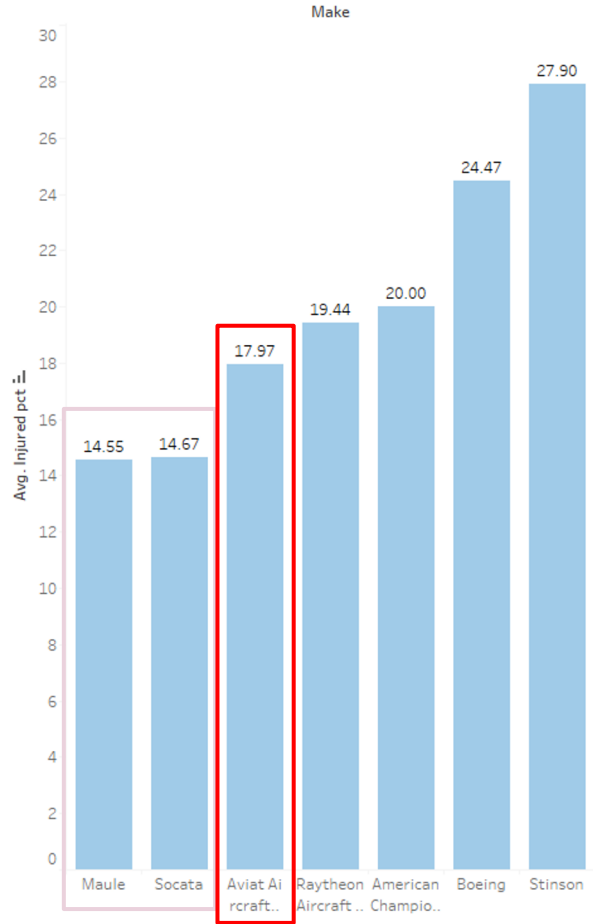
Airplane Damage Scoring:

- 0 - None
- 1 - Minor
- 2 - Substantial
- 3 - Destroyed

Commercial Makes by Airplane Damage

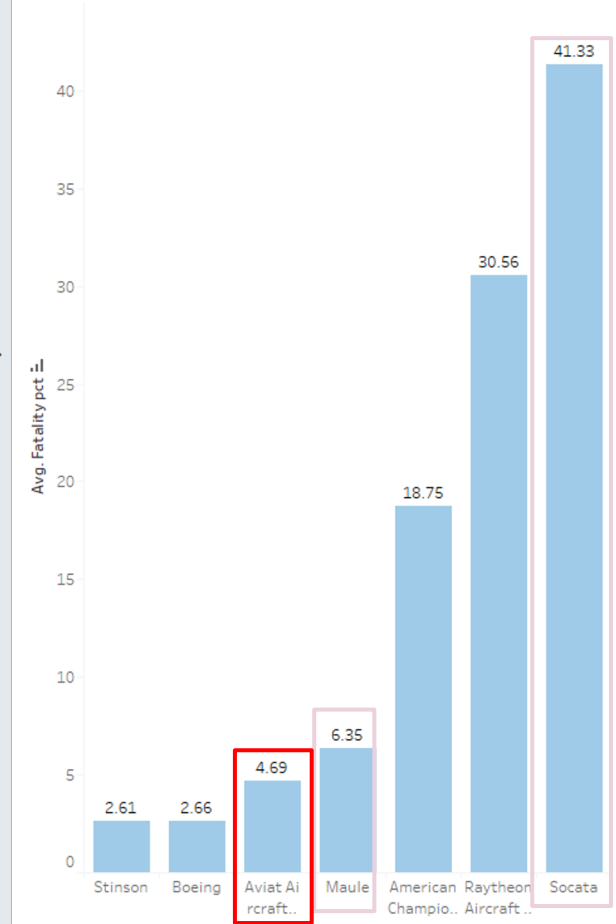


Commercial Make by Injury Pct.



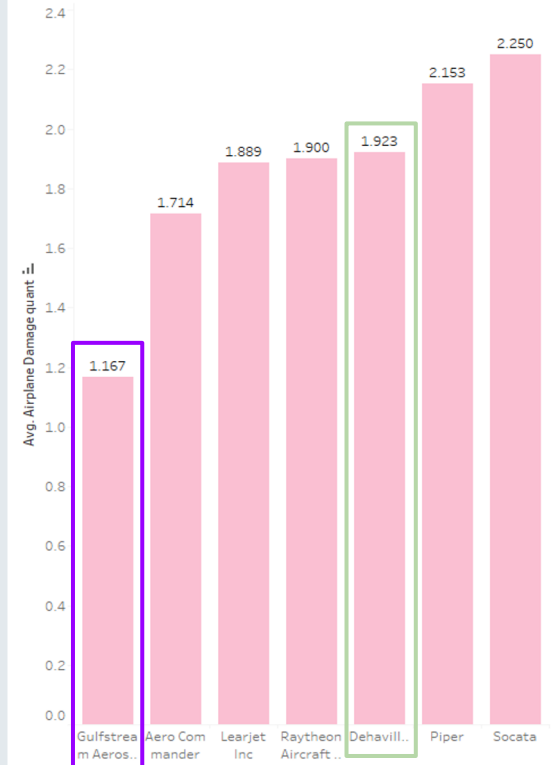
Aviat Aircraft
have the lowest
combination of
Injury and Death
rates.

Commercial Makes by Fatality Pct

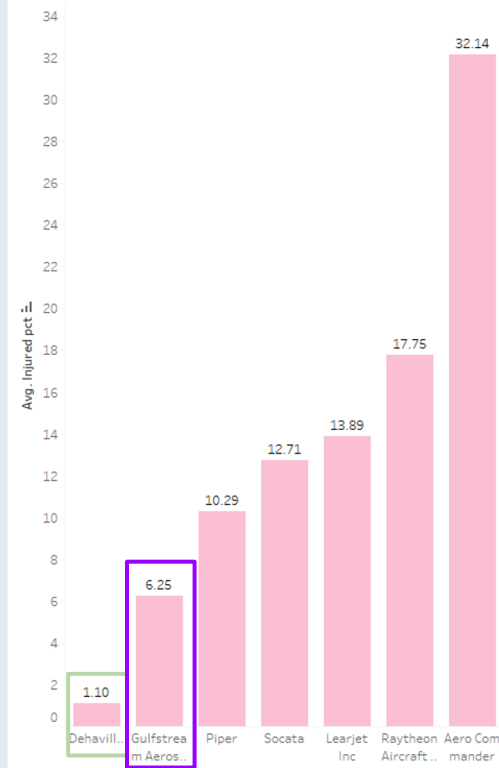


Gulfstream Private Planes sustain the Least Damage and the Injury and Fatality Rates are Among the Lowest

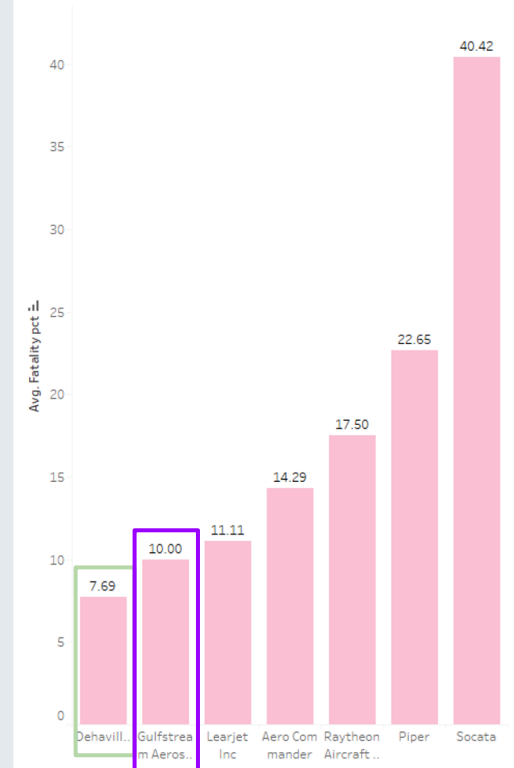
Private Makes by Airplane Damage



Private Makes by Injury Pct.



Private Makes by Fatality Pct.



Most Accidents Occur During Takeoff and Landing.

Establish hubs in the Southeast and Northwest US for travel to and from those regions since they have the lowest number of accidents.

Investigations by region and phase of flight

Region	Broad phase of flight									
	Standing	Taxi	Takeoff	Climb	Cruise	Descent	Maneuver..	Approach	Go-around..	Landing
NE	9	13	96	9	38	7	8	60	12	256
NW	2	13	83	1	15	4	13	27	7	177
SE	2	5	54	8	60	10	12	26	16	165
SW	10	26	78	13	67	14	21	46	14	263

Findings

Commercial

Aviat Aircrafts



Region Flying

NW/SE

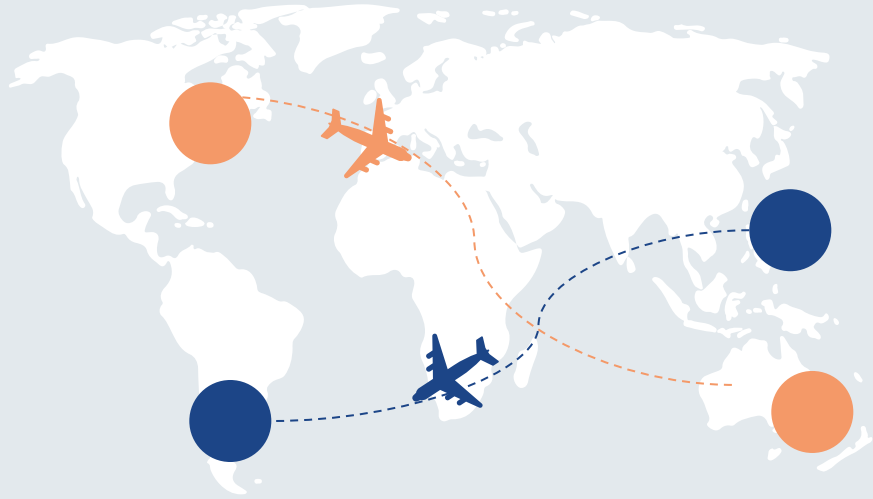


Private

Gulfstream Aircrafts



Future Potential Research



- Take plane recommendation a step further to airplane models
- Investigate whether accidents are related to weather conditions
- Explore whether geographic trends are specific to airports

Acknowledgements

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Jelly the Aviation Head - Providing the data and the opportunity to work on the project

Fellow Project Team - Collaboration on technical issues

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Appendix

Investigations by Year

