

# Jelly Bean Airlines



A Comprehensive Analysis of Aircraft Fatality Risk in the U.S.

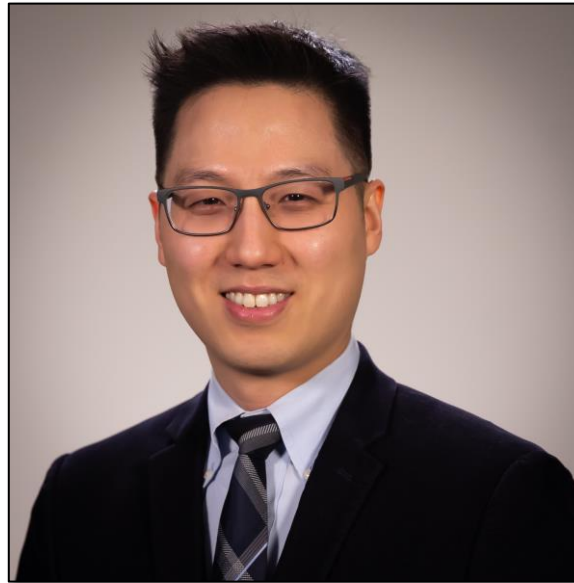
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# Jelly Bean Airlines

## Corporate Strategy - Data Science Team



Name: Danny Fox  
Role: Github Lead  
Contact: DBAfox



Name: Sam Choe  
Role: Presentation/Tableau Lead  
Contact: schoe4208



Name: Travis Clark  
Role: Tech Lead  
Contact: TravisClark1432

# Agenda

Business Problem



Data Overview



Analysis



Recommendations



Future Steps



# Main Finding

Operating BEECH or AERO private aircraft in the U.S. Mainland reduces fatality rate by up to ~86%

**BEECH**



**AERO**



Fatality Rate  
Is Reduced  
By  
~86%



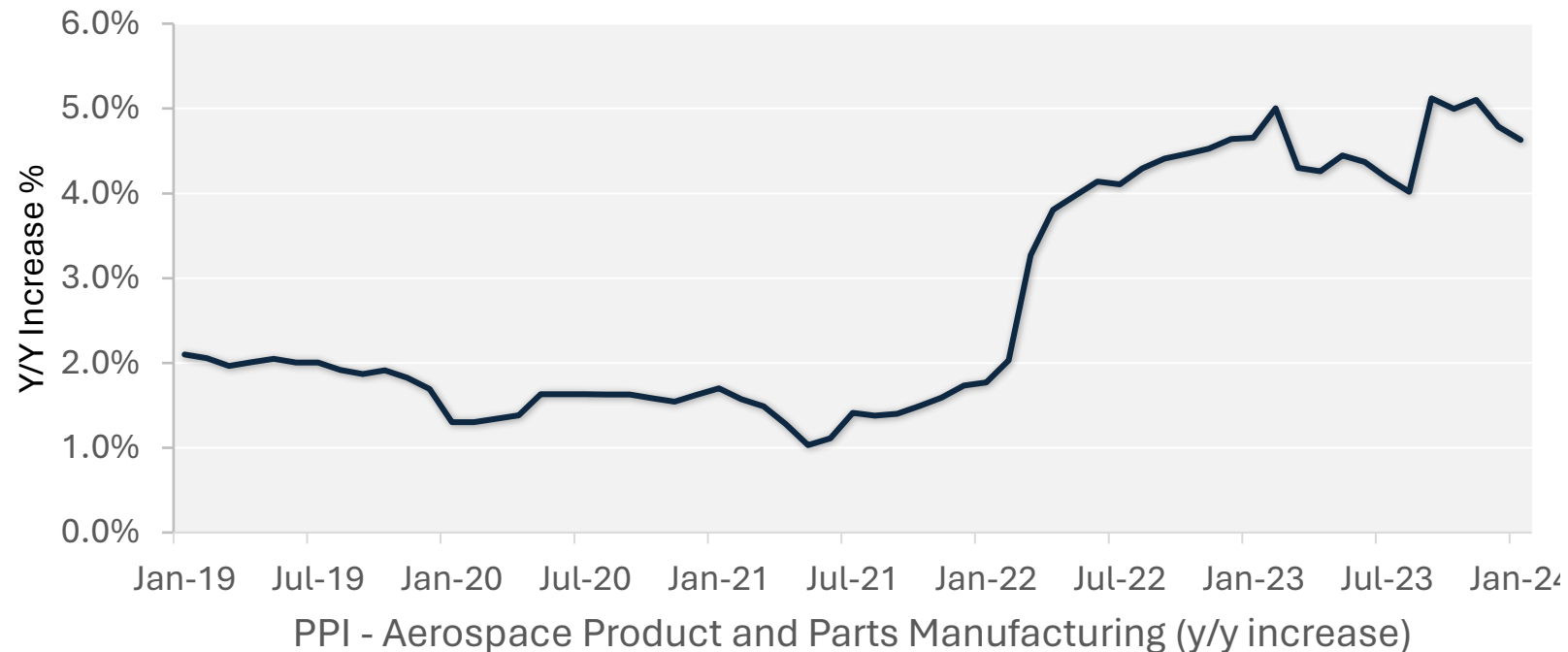
A white private jet with a blue stripe is parked on a tarmac. The cabin door is open, revealing the interior. The text "Business Problem" is overlaid on the image.

# Business Problem

# Purchasing Aircrafts Have Become More Expensive...

- More recently, inflation and supply chain issues have driven up costs.

## Cost of Aerospace Products and Parts Have Risen Considerably



Source: Federal Reserve Economic Data (Producer Price Index by Industry: Aerospace Product and Parts Manufacturing, Index Jun 1985=100, Monthly, Not Seasonally Adjusted)

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# ... We Don't Want Our Investment to Come Crashing Down



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# Data Overview



# Our Data Filtering Process Was Intensive

**Data Source:** Our Accidents Data Came From the NTSB Database

Filtered Data	
Date Range	1993 to 2023
Data Points	~18,000 Accident/Incidents
Location	U.S. and Territories

**Data Limitations:** No successful flight data and the international dataset was insufficient.



# We Defined a Unifying Risk Metric

Fatality  
Rate



Total Fatal Count  

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(Total Accidents & Incidents)

- This helped us have a standardized risk metric to compare risk across the 3-Level Analysis we completed.





# Analysis





# We Asked the Following Questions In Our Analysis

## Level 1

- Focus More on Commercial or Private to Lower Risk?

## Level 2

- What Private Aircraft Make Lowers Risk?

## Level 3

- What parts of the U.S. should be serviced?

Business Problem

Data Overview

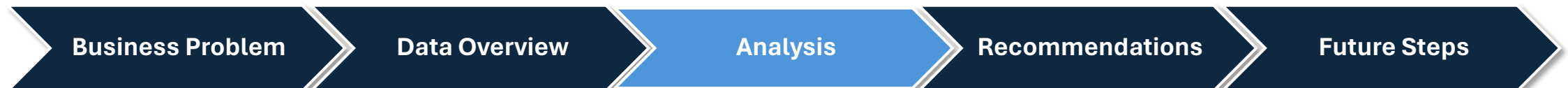
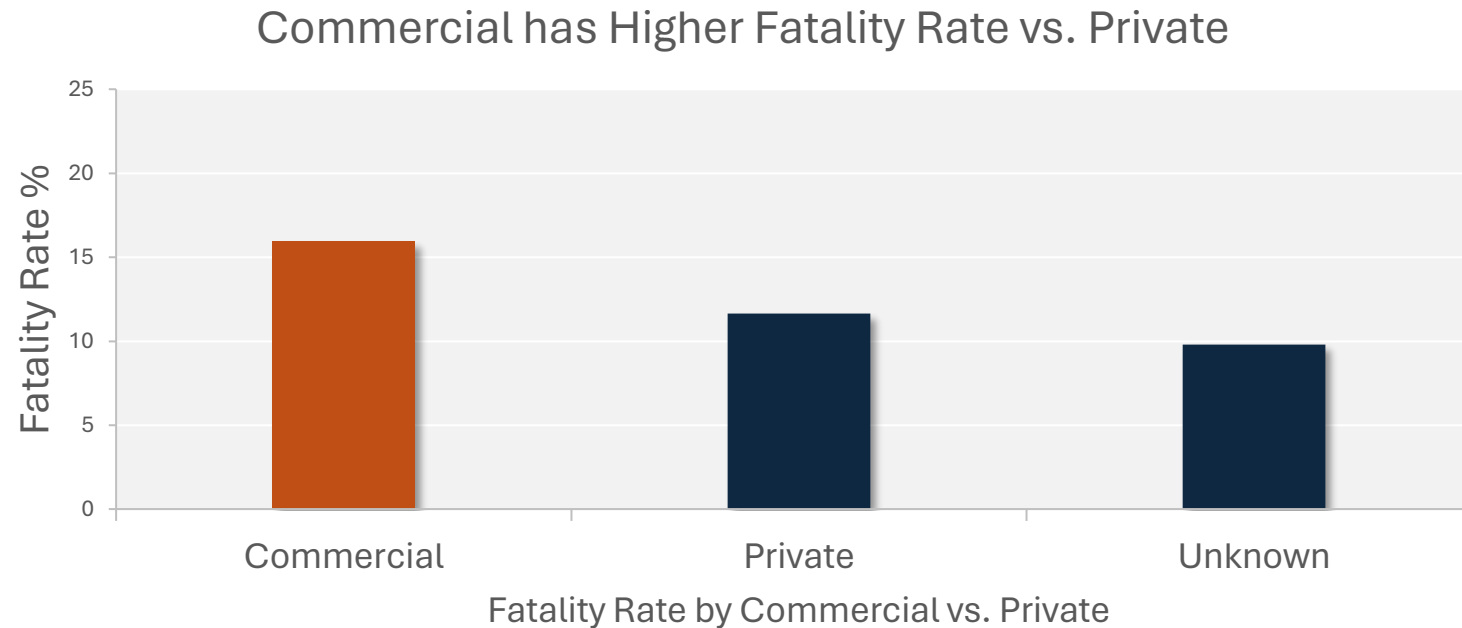
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# Level 1: Focus More on Private Flights

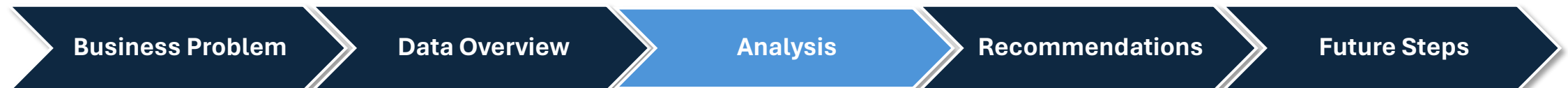
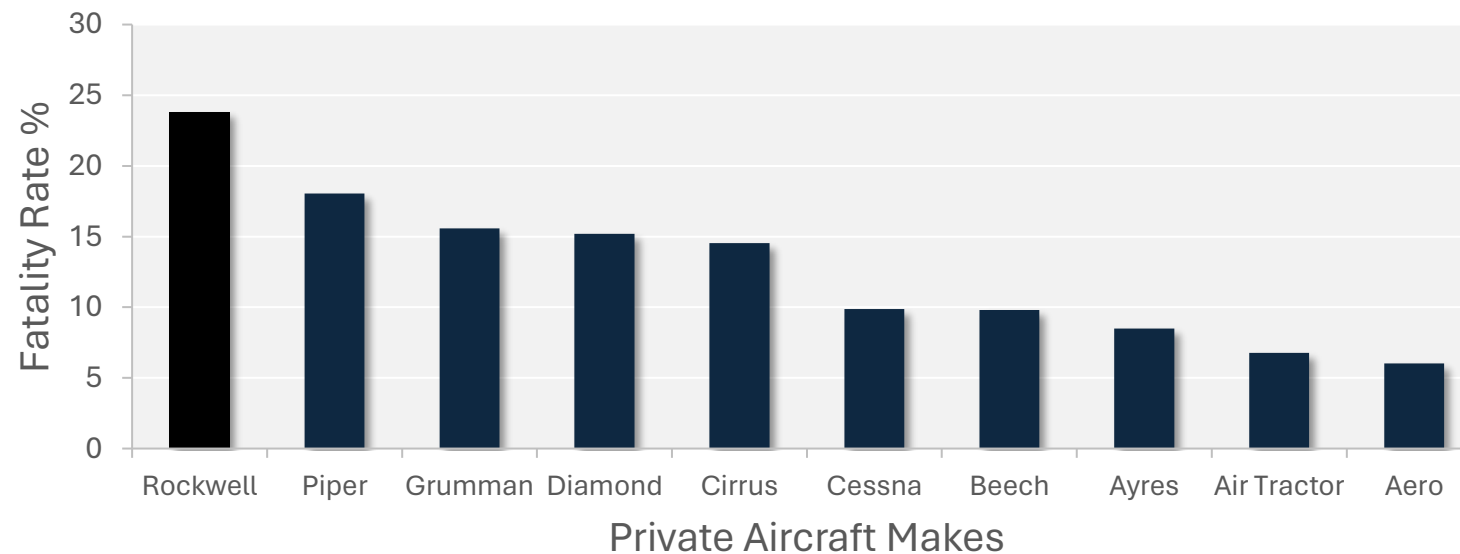
- Going Private seems like the safer strategic option
- This reduces fatality rate by **~27%**



# Level 2: Investigating Aircraft Makes

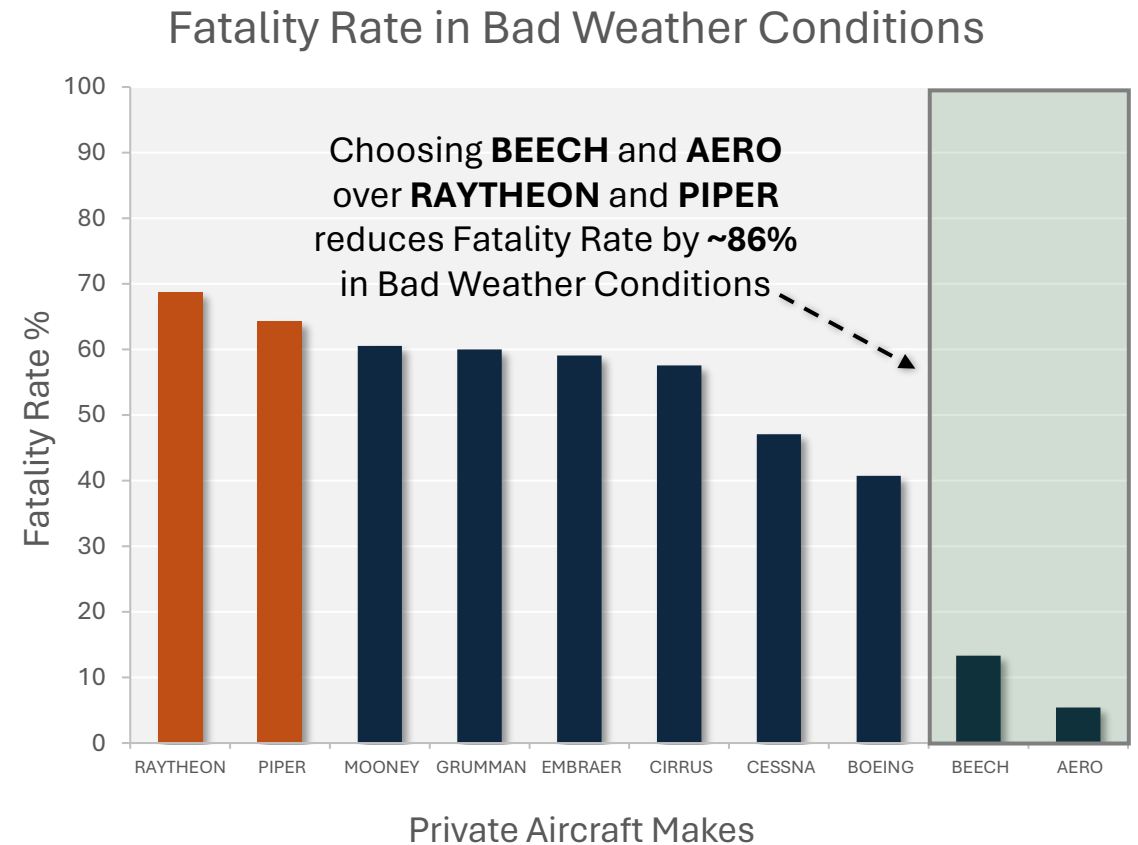
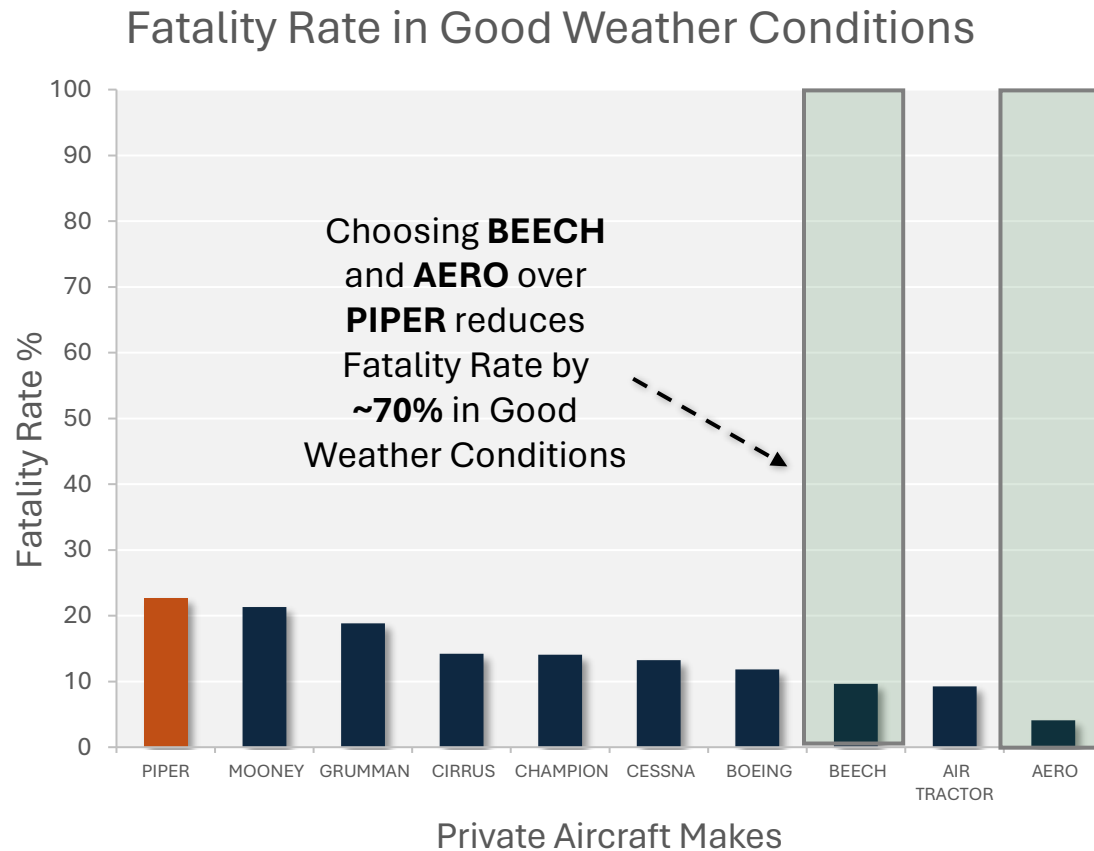
- At first glance, we want to avoid some Aircraft Makes
- To improve on our findings, we rerun the analysis by also considering **Weather Patterns**

There Are Some Noticeable Aircraft Makes to Avoid!





# Level 2: We Recommend BEECH and AERO



Business Problem

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Analysis

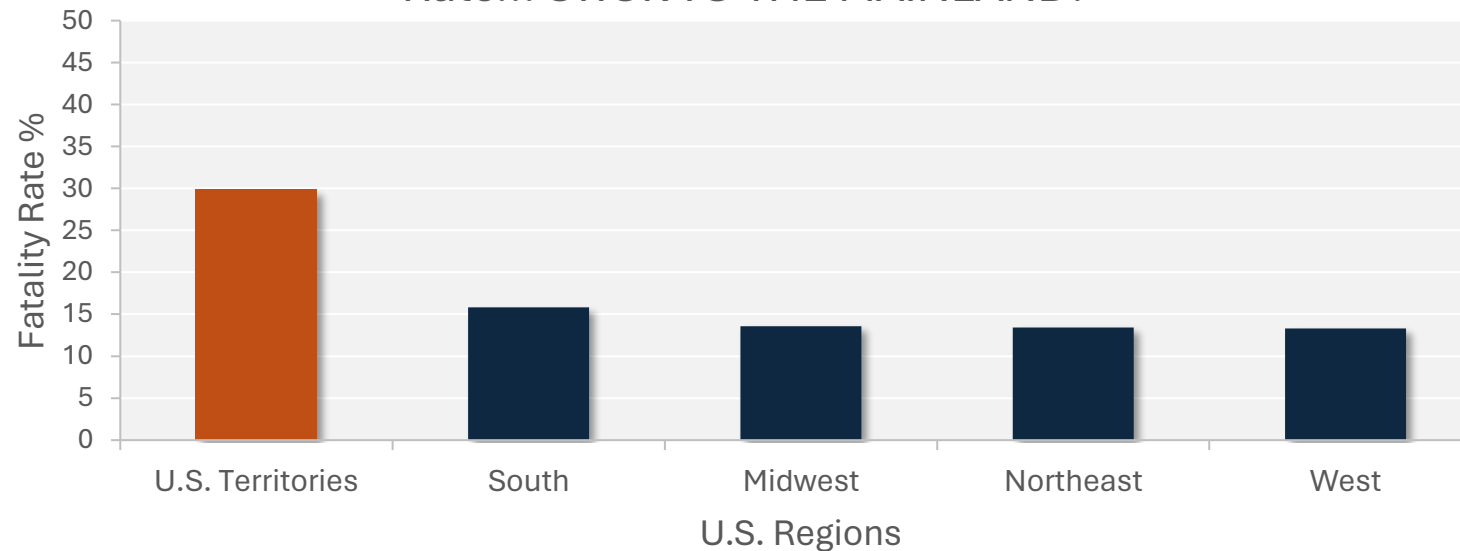
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# Level 3: Stick With the Heart of America... The Mainland

- Service U.S. Mainland
- Reduce the Fatality Rate by up to ~53%

Private Flights to U.S. Territories Have the Highest Fatality Rate... STICK TO THE MAINLAND!



A photograph of several private jets parked in a large hangar. The jets are white with dark accents and are arranged in a line, receding into the background. The hangar has a high ceiling with exposed beams and several spotlights. The floor is polished and reflects the lights. A dark blue horizontal band is overlaid across the middle of the image, containing the word "Recommendations" in white text.

# Recommendations



# To Prevent Negative ROI scenarios, We Recommend...

- Private Flights reduces risk of fatality by ~**27%**
- Investing in BEECH or AERO reduces risk of fatality by up to ~**86%**
- Servicing Just Mainland U.S. reduces risk of fatality by up to ~**53%**





# Future Steps



# What Needs to Be Done Next?

- Run Secondary Analysis Incorporating Successful Flights Data
- Financial Analysis of Aircraft Operations & Maintenance Costs
- Go More Granular with Model Types by Makes





A wide-angle photograph of a modern, high-end airplane cabin. The interior features plush brown leather seating, including a large sofa and individual armchairs. A large, white marble-topped table with gold-colored legs is positioned in the foreground. The cabin has large, oval-shaped windows along the side, and the ceiling is equipped with recessed lighting. A small television screen is visible in the background. The overall atmosphere is one of luxury and comfort.

# Questions?