

## Retirements, Part-Outs and Dismantling in Uncertain Times

October 6, 2022

Prepared For:

**IATA**

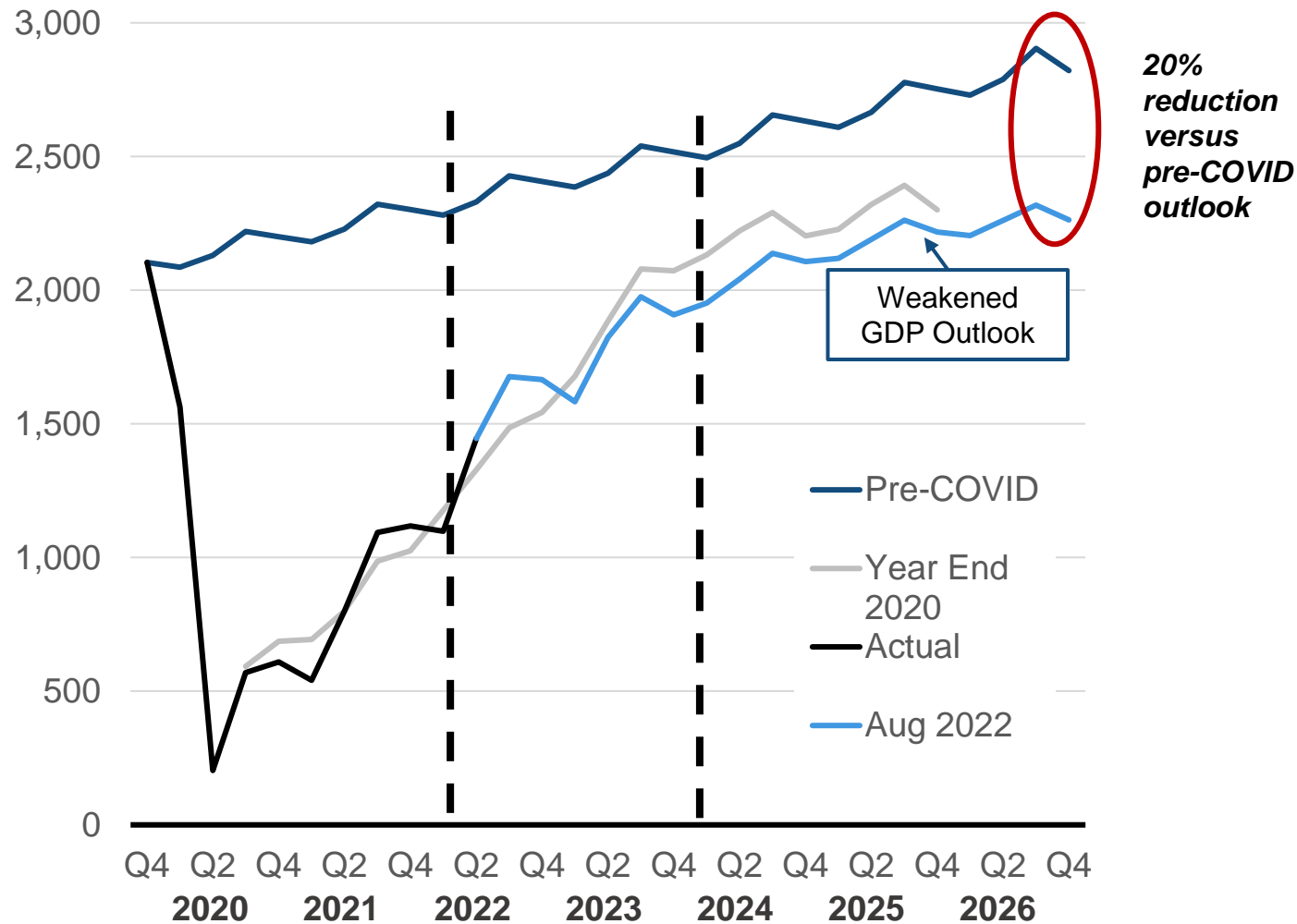
**18<sup>th</sup> MAINTENANCE COST CONFERENCE  
& MRO SMARTHUB USER FORUM**

**GENEVA, SWITZERLAND**



# AeroDynamic Advisory estimates travel to reach 2019 levels by 2024, but the longer-term outlook has weakened

Global Travel Demand Forecast (Billion RPK per Quarter)



## Recovery drivers

- Loosening border restrictions in Asia Pacific
- Pent-up demand

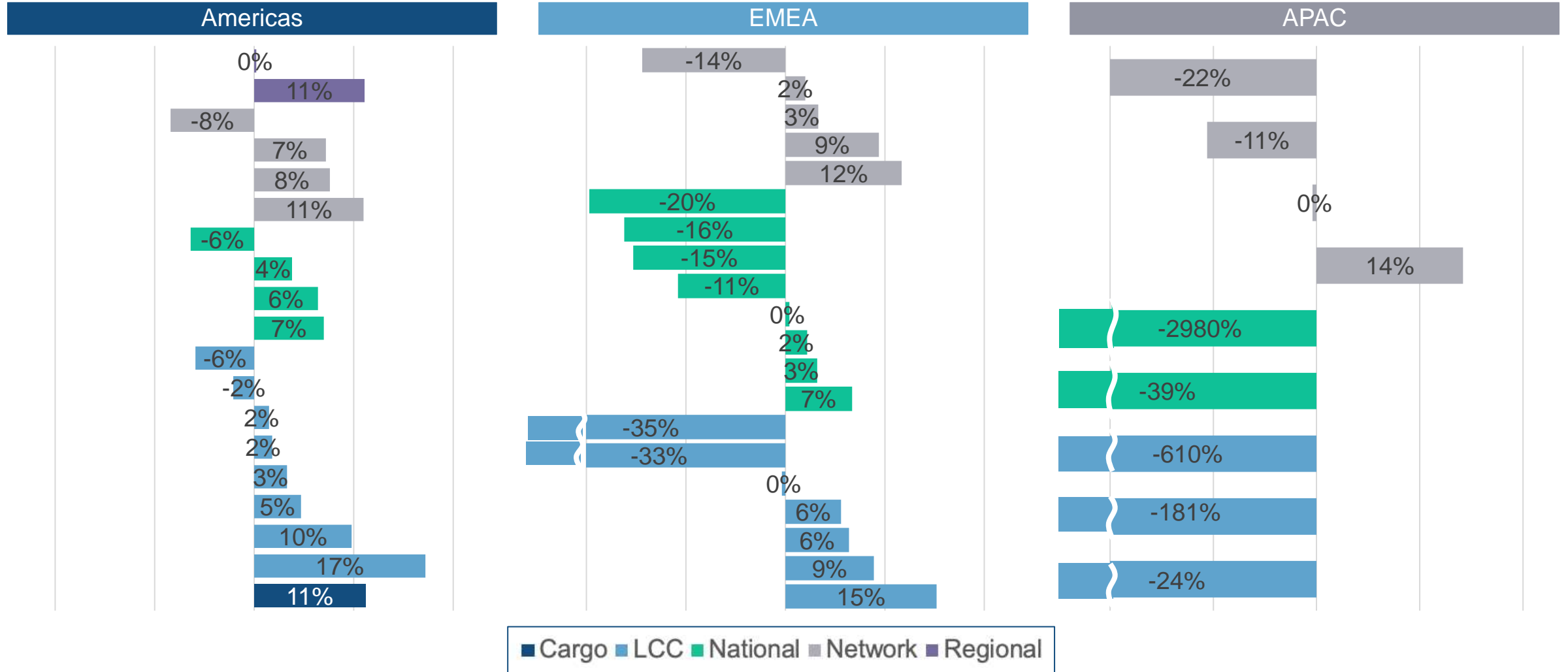
## Recovery Drags

- Russia/Ukraine War
- China Lockdowns
- Staffing Issues
- Macroeconomics

Downside risks greater than upside potential

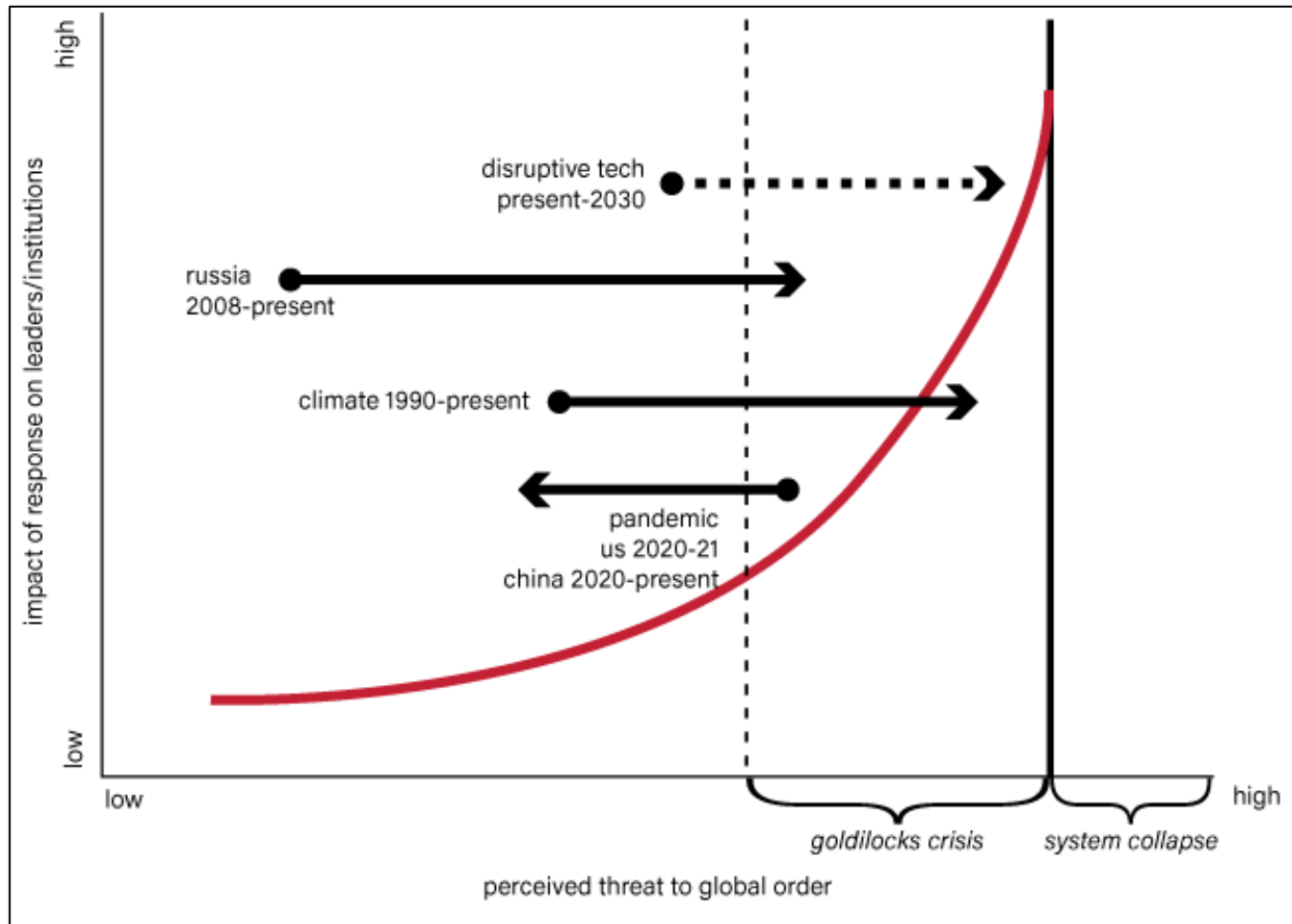
Although several airlines are now generating positive operating margins the industry is not well positioned for a downturn

2022 Q2 Airline Operating Margins



Beyond the current crisis, several dark clouds in the global outlook make for an uncertain macro environment over the coming decades

### Eurasia Group Analysis of Risks and Threats to Global Order



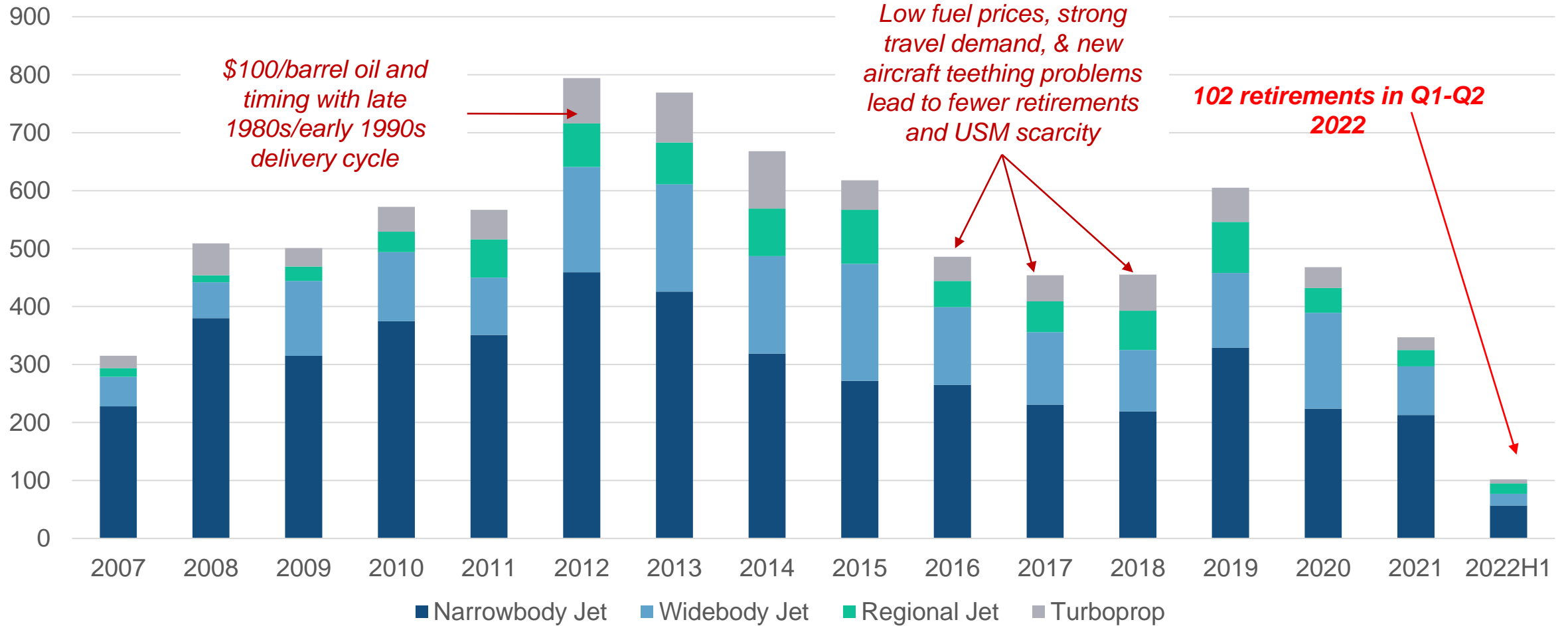
### Implications for Aerospace Ecosystem

- › Greater volatility and risk
- › Changing travel patterns
- › Air travel regionalization
- › Narrowbody focus

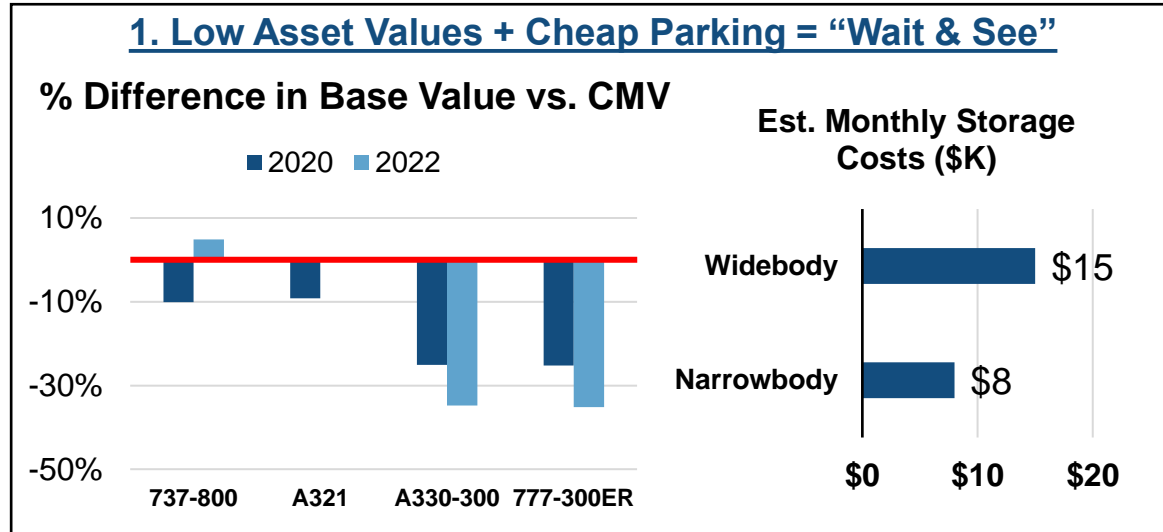
› Asset pricing volatility → opportunity for finding attractively priced assets

# Quarterly retirements remain at record-low levels; there have been 102 retirements in the first half of 2022

Quarterly Air Transport Retirements, Q1 2007 – Q2 2022 (as of August 22, 2022)



Retirements have lagged expectations due to low asset values, cheap parking, airline desire for fleet flexibility, low MRO demand, and low deliveries

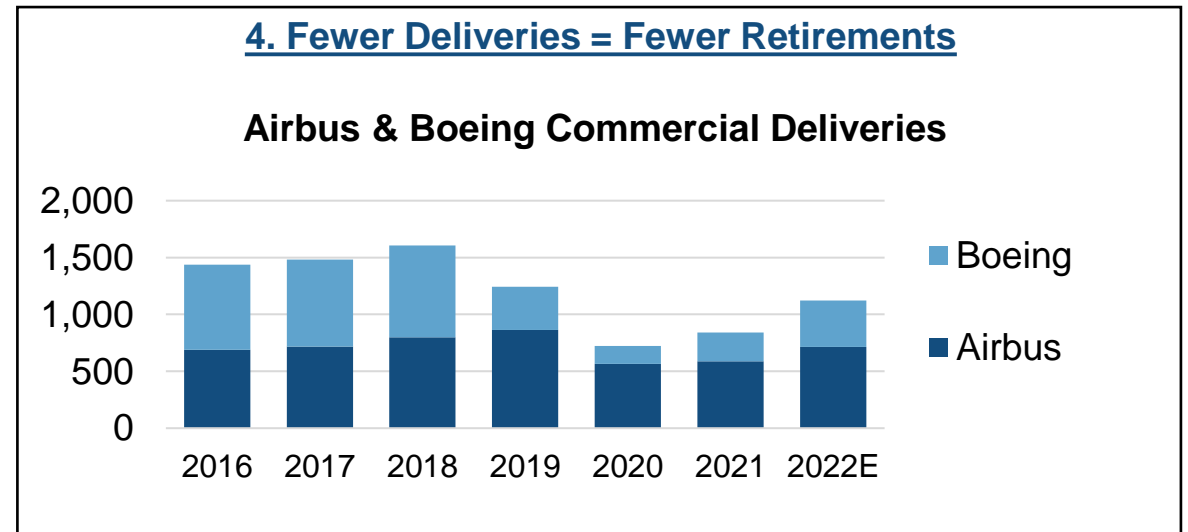
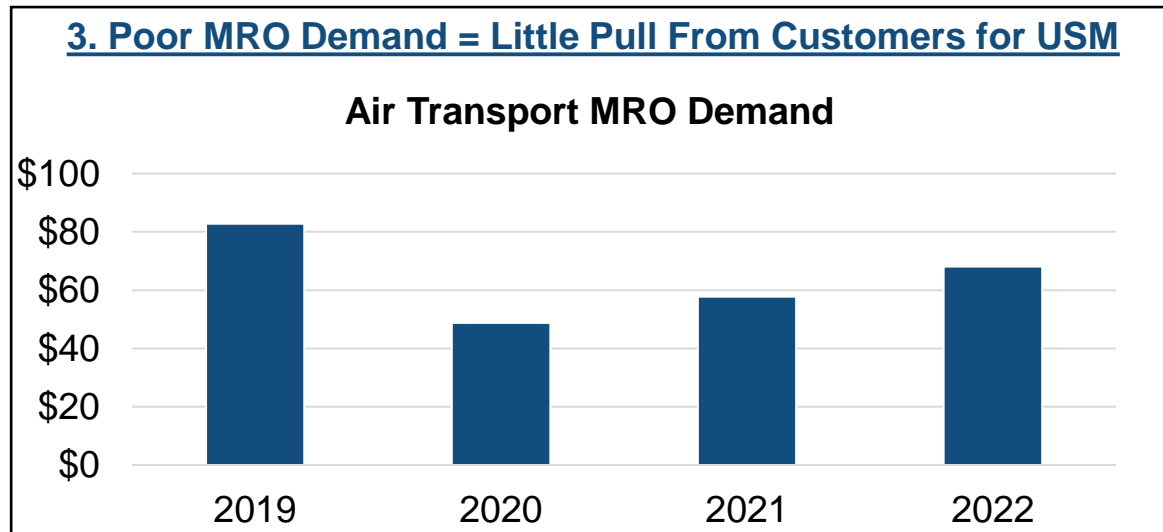


### 2. Volatile Demand = Airlines Want Fleet Flexibility

*"China's CAAC forecasts 77% pax decline during the 2022 May Day holiday"*

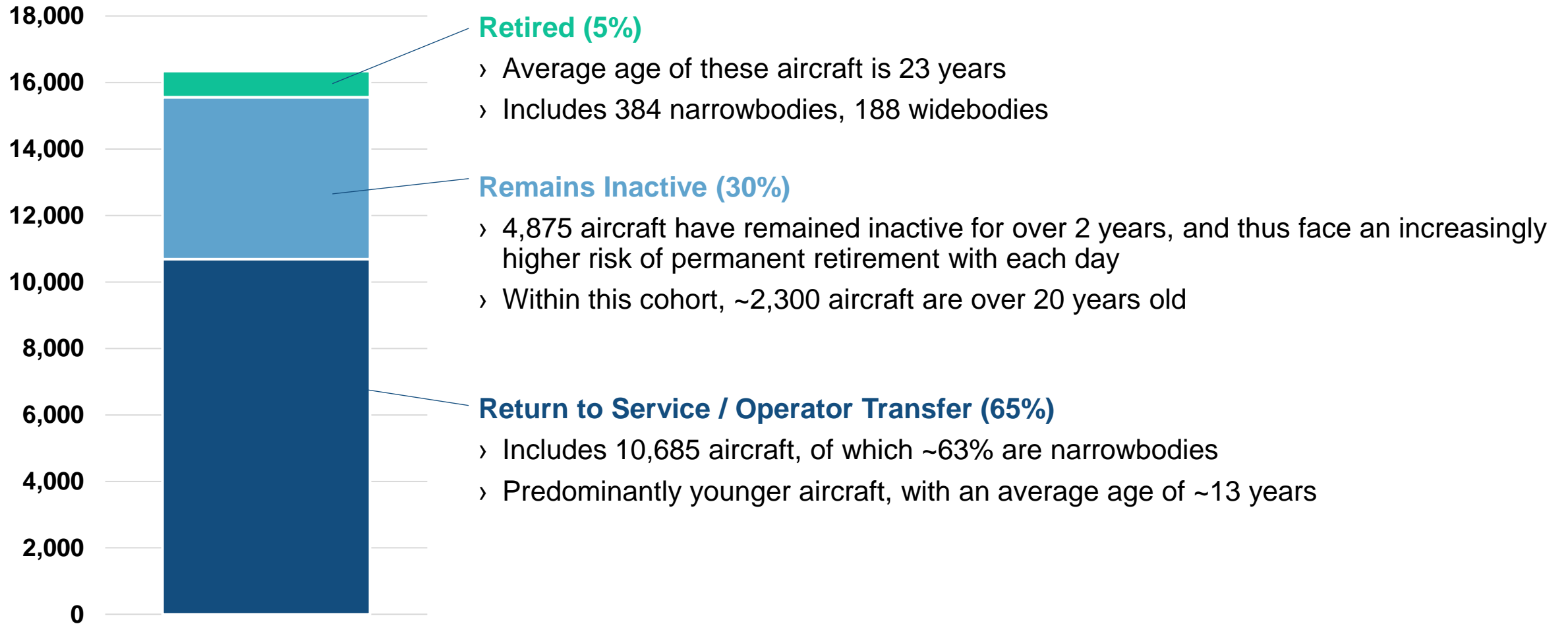
*"Global Air Travel Is Disrupted by Russian Invasion of Ukraine"*

*"IATA economist sees recession risk in 2023"*



Of the ~16,000 aircraft that were inactive at the height of the pandemic, ~65% have re-entered service and only ~5% have been retired; 4,875 aircraft have been parked for >2 years

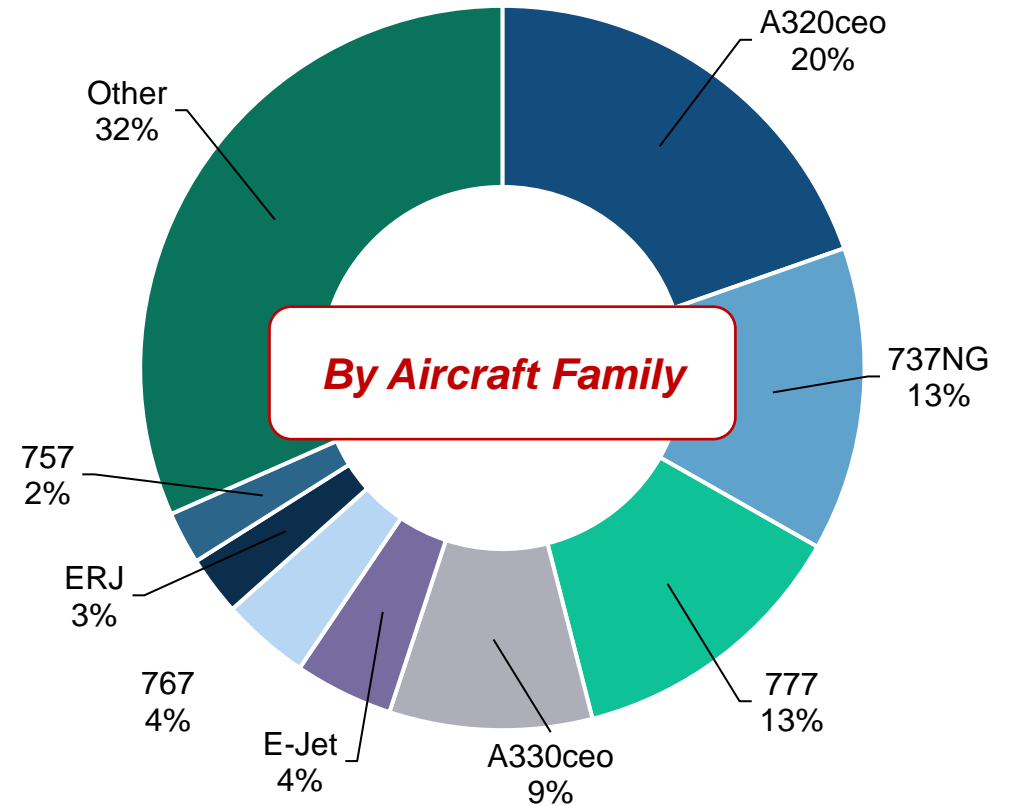
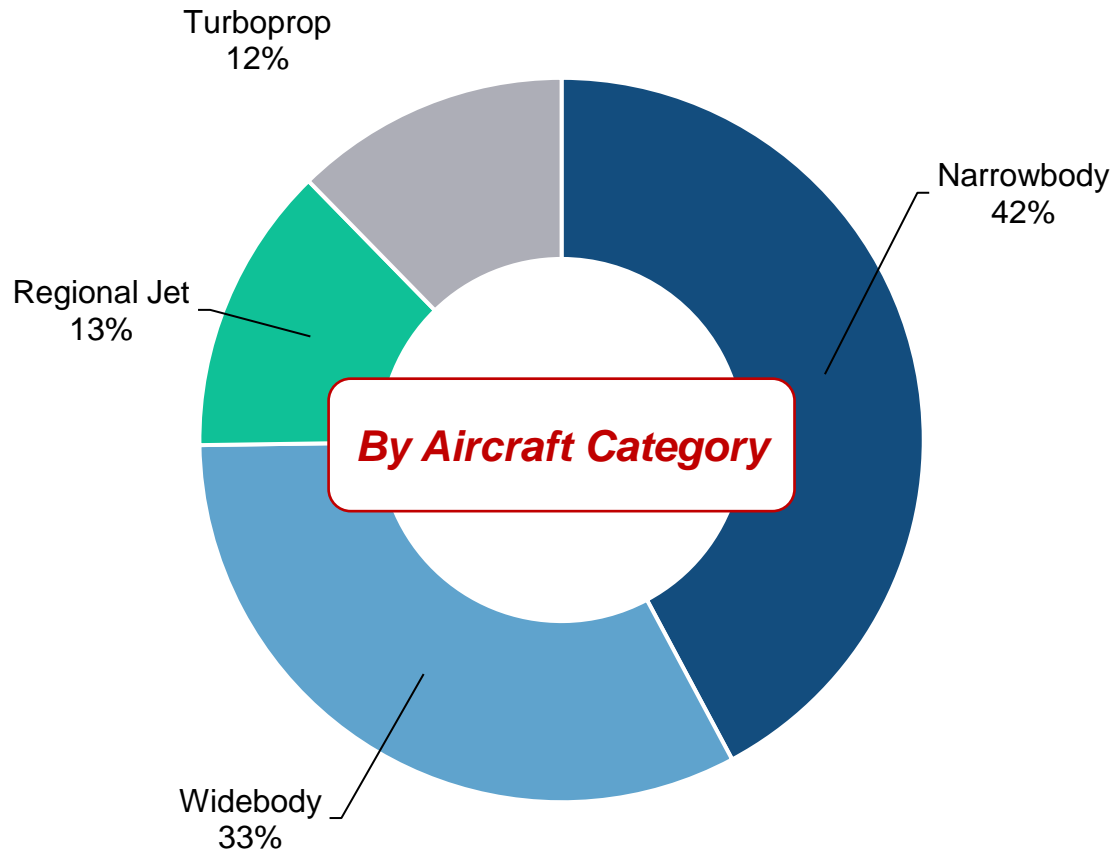
Est. Outcome of Q1 2020 Inactive Fleet - As of September 21, 2022





Despite the current trough, a wave of 5,000 aircraft are expected to be removed from service. The A320ceo, 737NG, 777 and A330 are projected to account for about half of all retirements through 2025

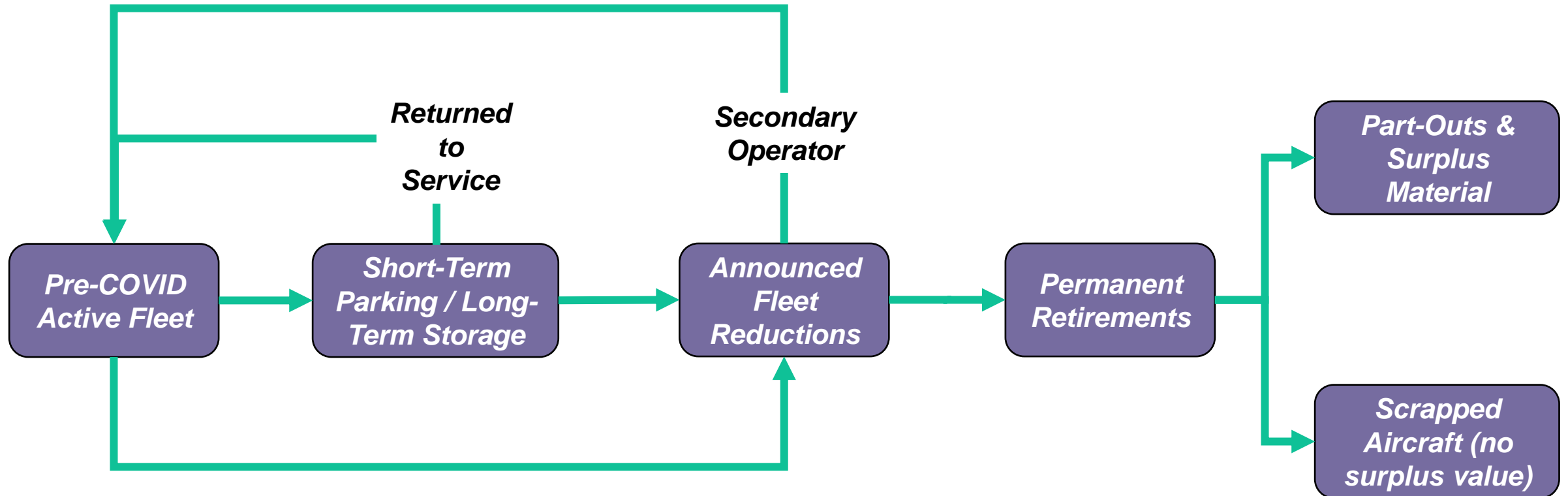
2020-2025 Air Transport Removal From Service  
Total = 5,275 Aircraft





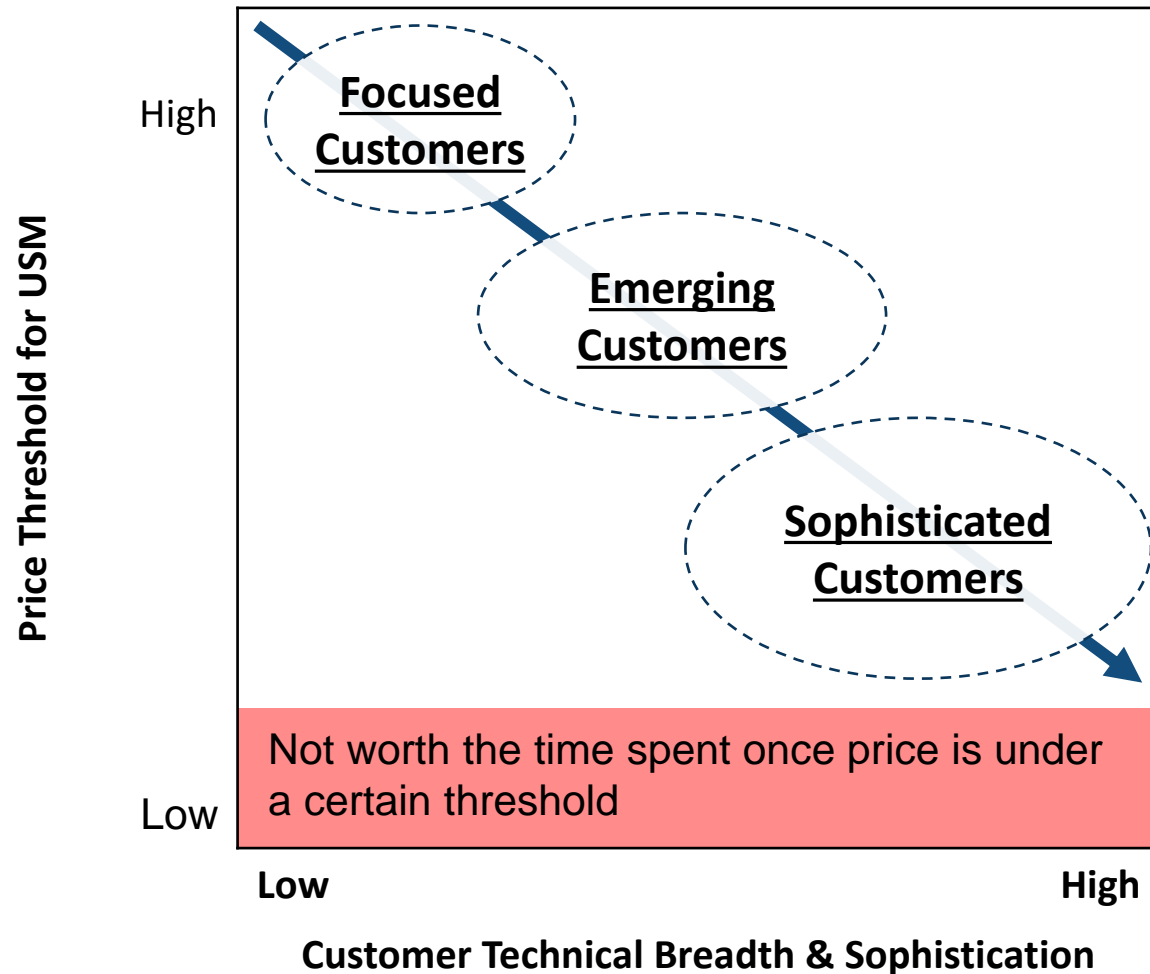
Once there is favorable MRO demand, retired aircraft will increasingly be parted out, generating more surplus material into the market

### Aircraft Status Flow Chart



Airlines' approaches to buying USM vary considerably; the most sophisticated have broad engineering teams and high preference for alternative MRO solutions

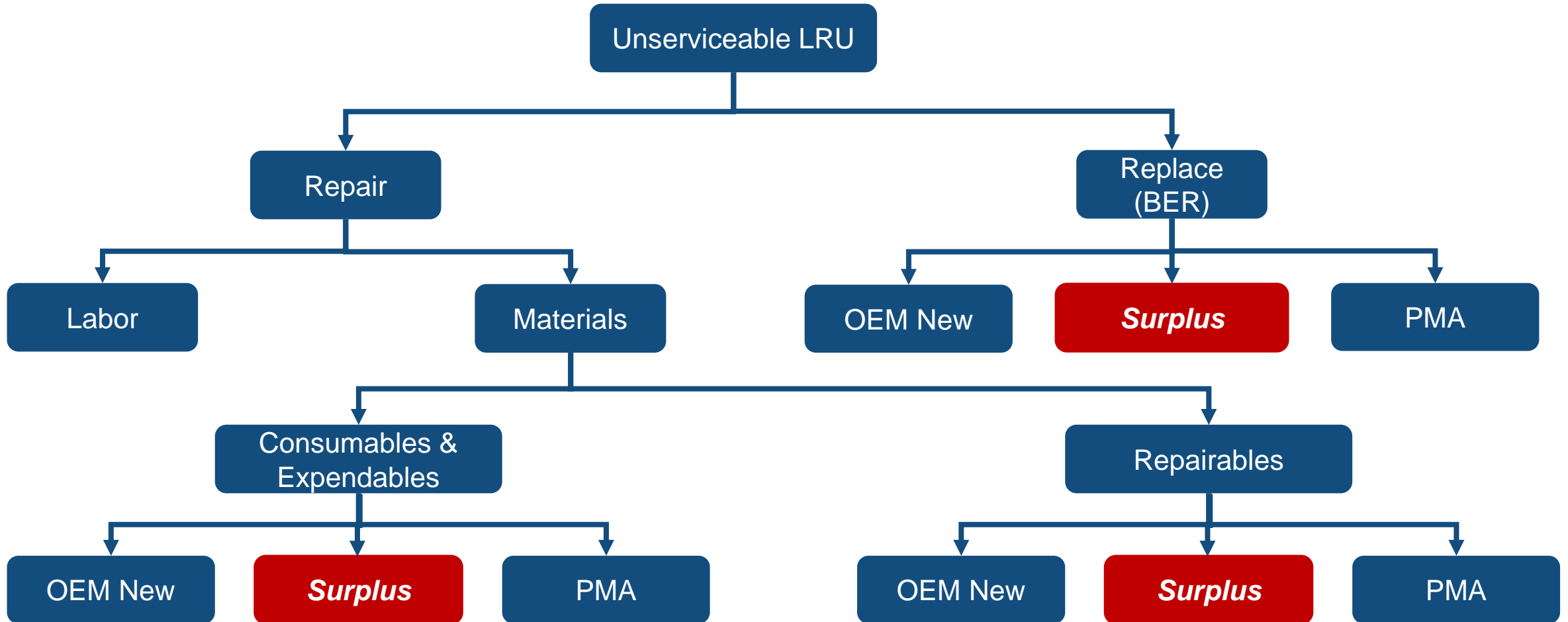
Comparison of USM Customer Segments



Factors & Traits	Focused	Emerging	Sophisticated
Breadth & Focus of Engineering Team	Limited	Moderate	Broad
Preference for Alternative MRO Solutions	Low	Medium, but increasing	High
Example Operators			

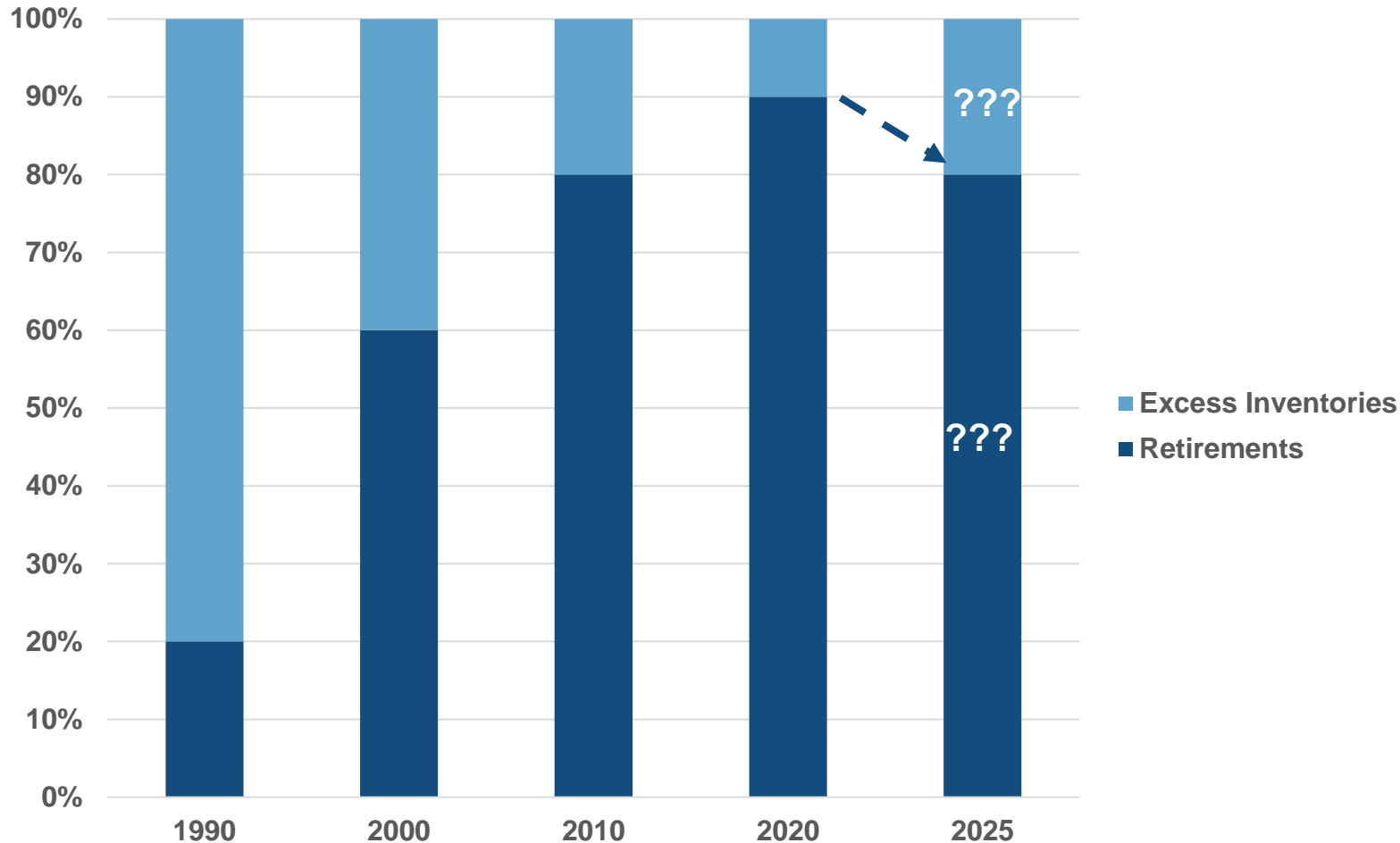
Surplus / USM can touch all three material types throughout the repair vs. replace decision-making process

Repair vs. Replace Decision Tree



The share of surplus material generated from part-outs could decrease due to excess inventories from airline bankruptcies & failures, as well as excess inventories at OEMs and MROs

### Estimated Breakdown of Surplus Material Sources, 1990-2025




### Implications

- › **More surplus material generated from excess inventories**
- › **More surplus consumables & expendables**

Besides the anticipated wave of retirements, two other key trends include the growing global acceptance of surplus parts and component OEM encroachment into the space


### Growing Global Acceptance of USM

#### Asia Pacific & China



- › Cost savings becoming more widely recognized
- › New part-out facilities opening in China for mainland Chinese customers

#### Middle East



- › Financial pressures on Middle East “Big Three” carriers
- › Emirates experimenting with USM and greentime with first A380s removals
- › IATA standards helped increase the acceptance of USM

### Growing Component OEM Participation in USM







Service Solution	Pooling	FH R&D	Fixed Price R&D	Training	Technical Support	Performance Guarantees	Bespoke Work Scopes	Use of Used Material	Extensive Repair Development
proTECT	✓	✓	✓	✓	✓	✓			
reNEW	✓	✓	✓		✓	✓	✓	✓	✓

- › Seeking to to form more competitive value propositions
- › Some formed trading platforms for their own products and other OEM products - Honeywell Aerospace Trading and Collins / Intertrade
- › Other take targeted approach, trading for their own products to feed into their spare parts and repair solutions (examples Moog, Eaton Aerospace, and Liebherr)

# Airlines' options around USM depends on their general MRO approach and ability to invest

## Sample Options for Maximizing Airline Use of USM

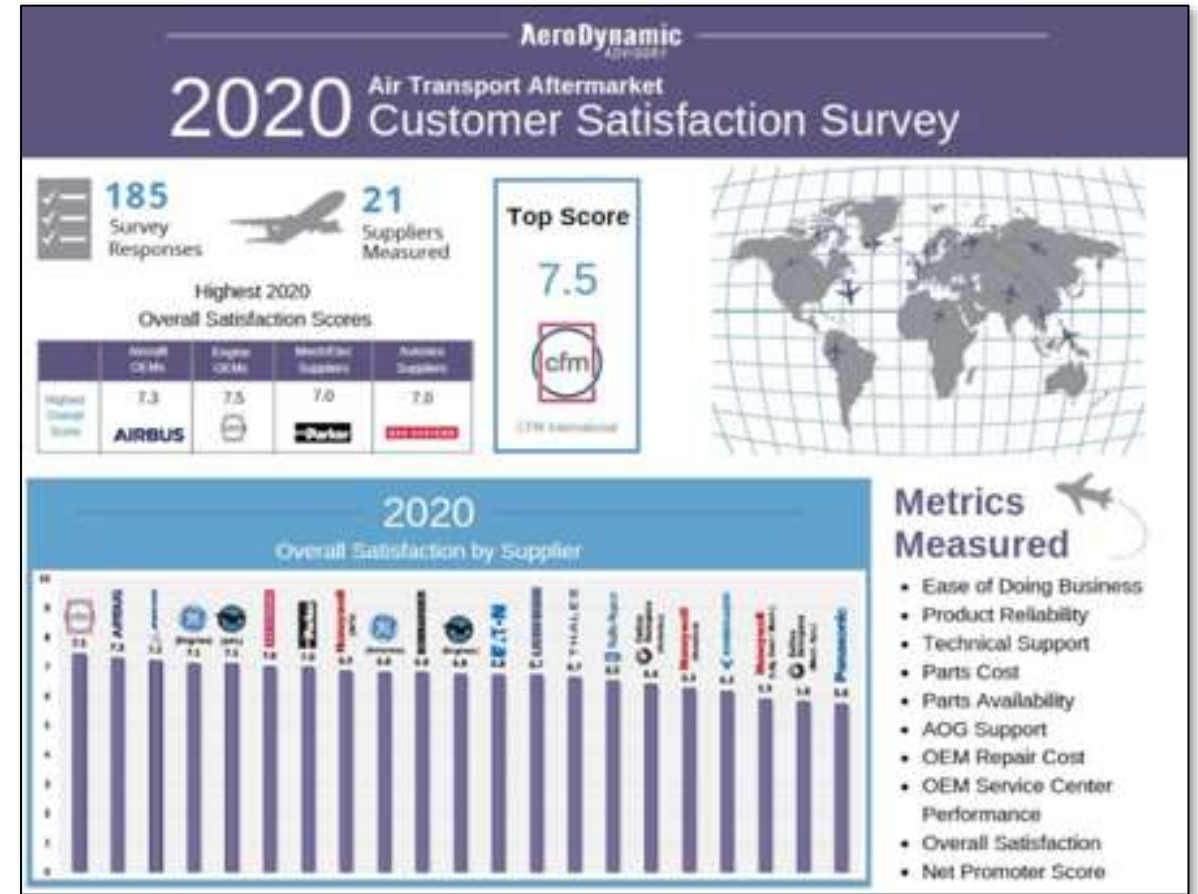
Airline's ability to invest	High	<p><b>Proactive purchasing</b></p> <ul style="list-style-type: none"> <li>• Opportunistic deals</li> <li>• LRUs, piece parts, consumables</li> </ul>	<p><b>Expand supply chain influence</b></p> <ul style="list-style-type: none"> <li>• Increase relationship &amp; understanding of MRO supply chain</li> <li>• Help ensure competitive supply to key MRO partners</li> </ul>
	Low	<p><b>In-fleet cannibalization</b></p>	<p><b>Selective channels</b></p> <ul style="list-style-type: none"> <li>• Pooling / pbh with integrators</li> <li>• Large brokers</li> <li>• Work scoping</li> </ul>
		In-house	Outsourced
		Airline MRO Approach	

## Considerations & Trade-Offs

- › Airline business model
- › Access to talent
- › Fleet age
- › Fleet ownership / lease terms

Until 2020 AeroDynamic Advisory conducted and published industry-wide measurements of airline satisfaction with the top 40 OEMs – are airlines ready to invest their time in this again?

AeroDynamic Advisory Air Transport Aftermarket Customer Satisfaction Survey



Purpose: To drive improved customer service by making OEM performance transparent to the market





## *AeroDynamic*

2019 Winner of Choice  
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Title Award

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