



NAVEO
CONSULTANCY

Aftermarket Trends

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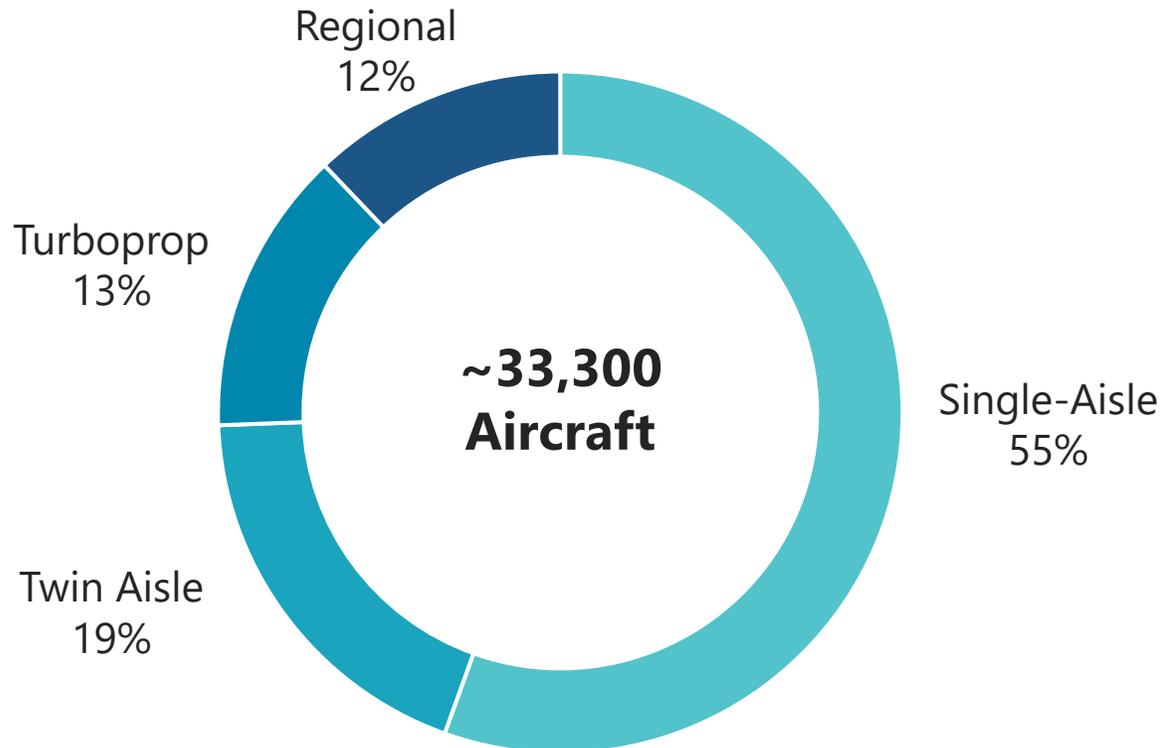
AFRA
14-16 JULY 2019

Agenda

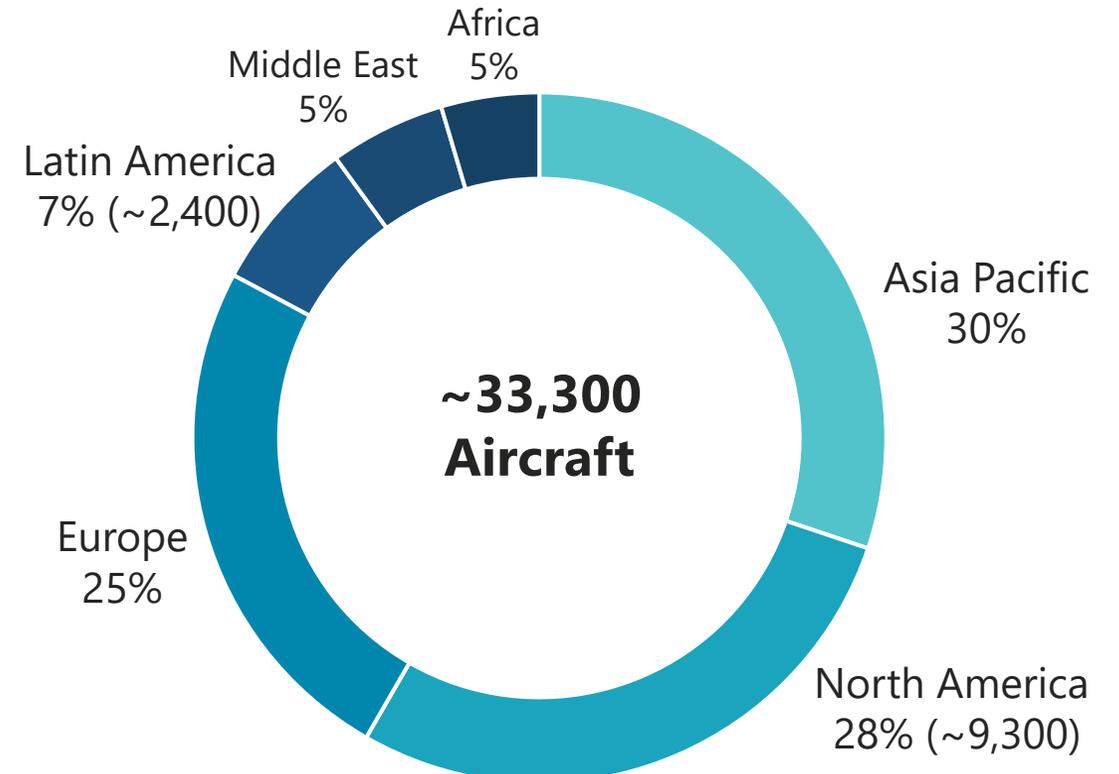
- **Fleet & MRO Forecast**
- **Industry Trends**

The 2019 air transport fleet is ~33,300 aircraft; North America comprises 28%

By Aircraft Size



By Operator Region

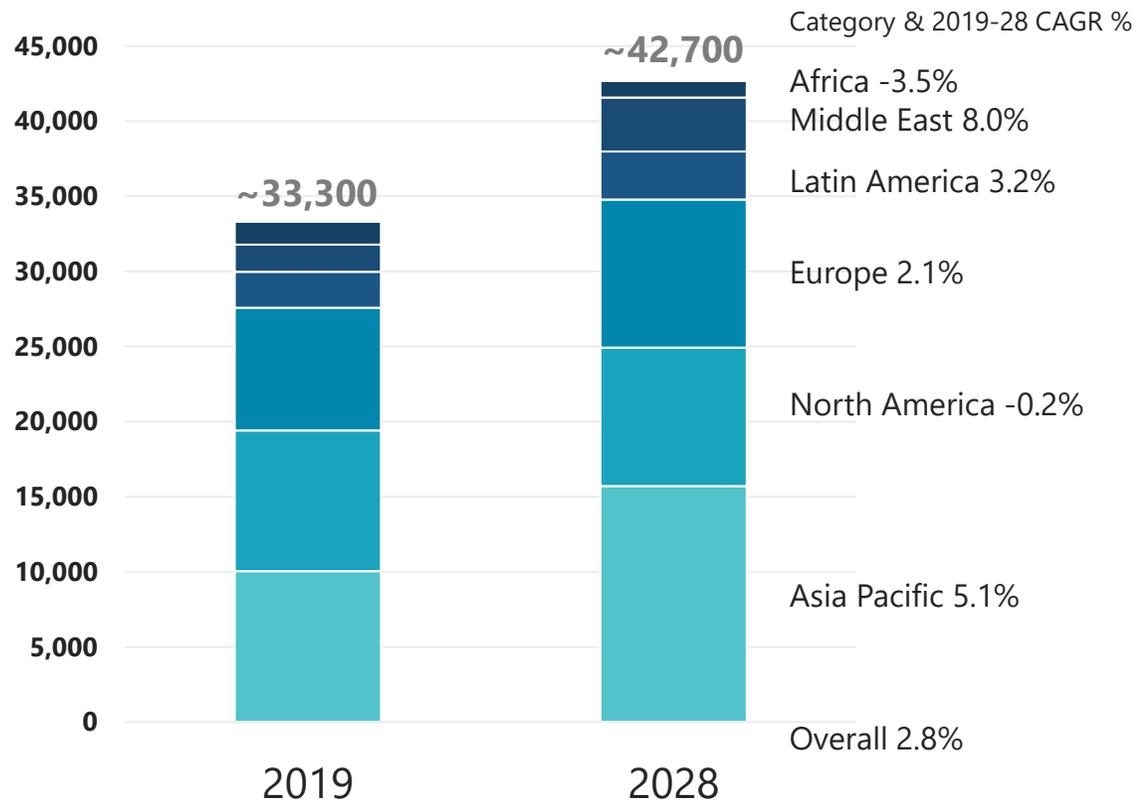


Source: AviationWeek Fleet&MRO Forecast 2019, NAVEO Analysis

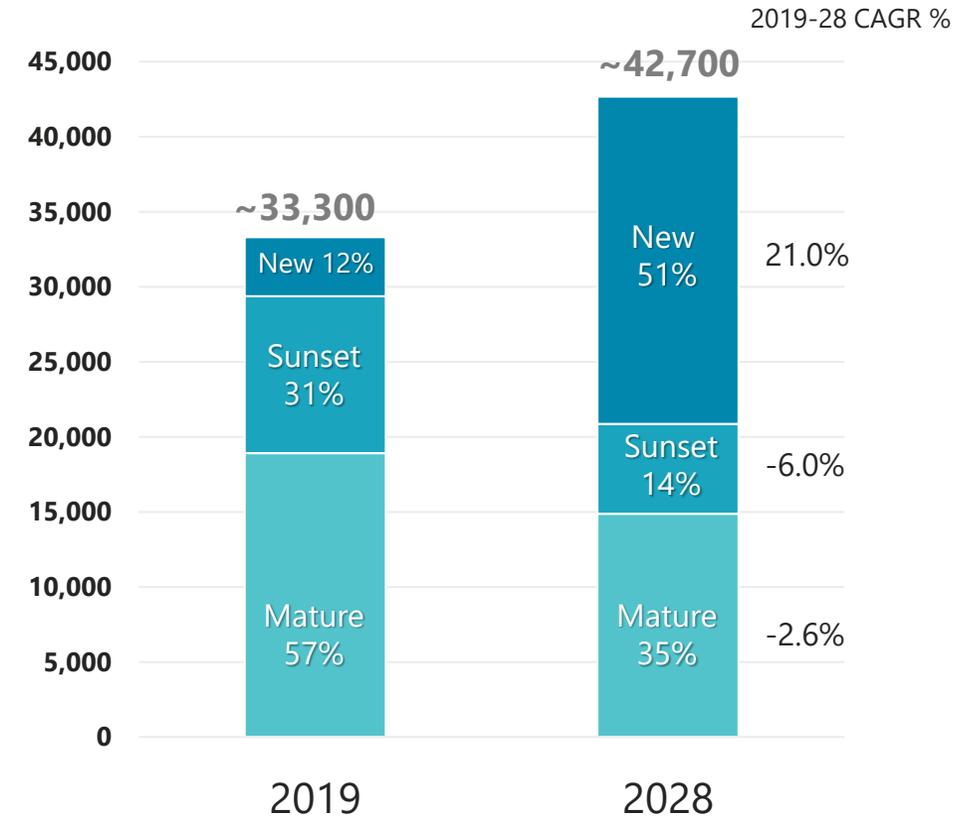


The fleet grows to ~42,700 by 2028 – a growth rate of 2.8%

In-Service Fleet Forecast By Operator Region



By Technological Maturity

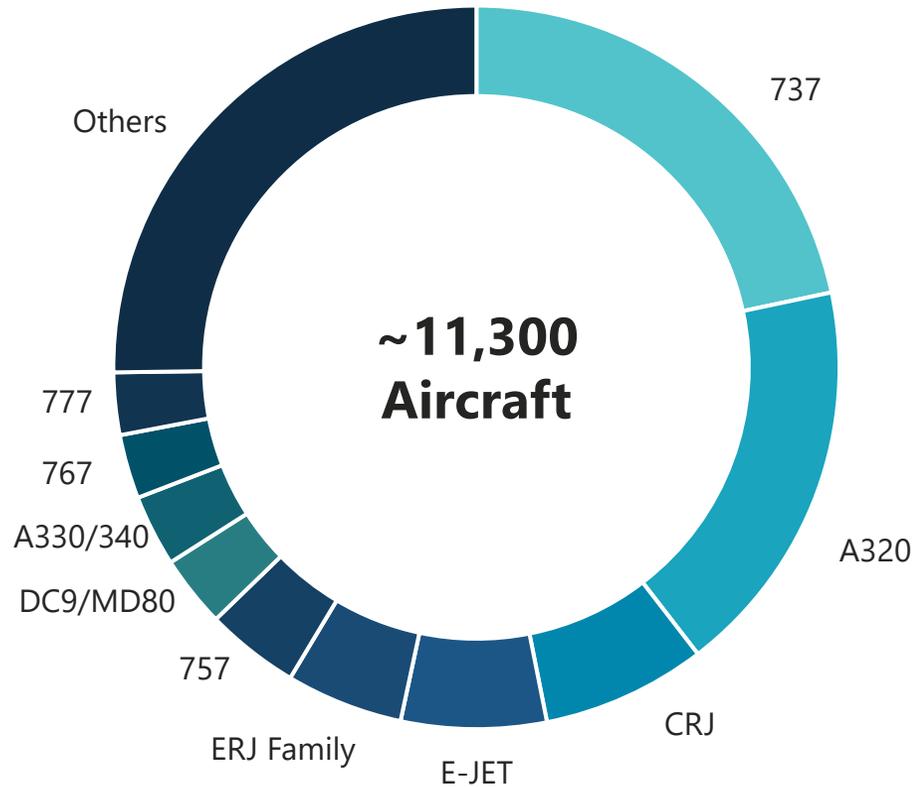


Source: AviationWeek Fleet&MRO Forecast 2019, NAVEO Analysis



~11,300 aircraft are forecasted to retire by 2028

Aircraft Retirement Forecast 2019-2028

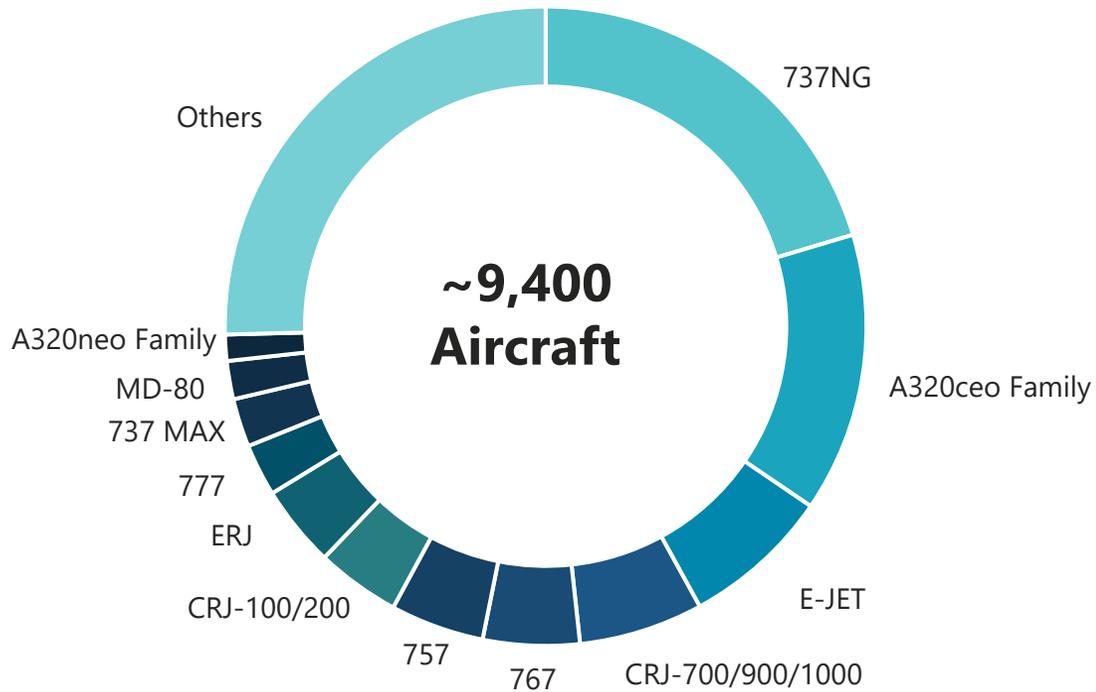


- ▲ Over the next few years we'll see increasing retirements of 1990s/2000s vintage aircraft including 777-300ERs (powered by GE90-115Bs)
- ▲ Airlines are increasingly incorporating USM into their purchasing strategies
- ▲ Self-cannibalization will increase as airlines retire aircraft and USM/green time engines to reduce MRO costs
- ▲ Demand for USM for key aircraft/engines remains strong but current supply is tight and competition for assets fierce

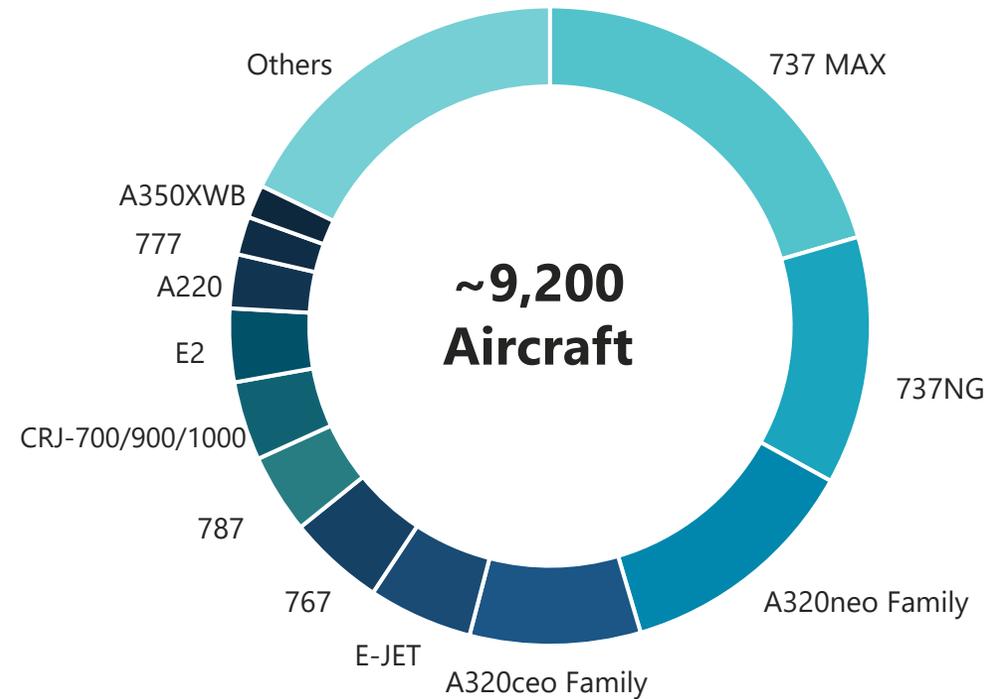
Source: AviationWeek Fleet&MRO Forecast 2019, NAVEO Analysis

The North America in-service fleet remains a similar size in 2028

2019 North America Fleet



2028 North America Fleet

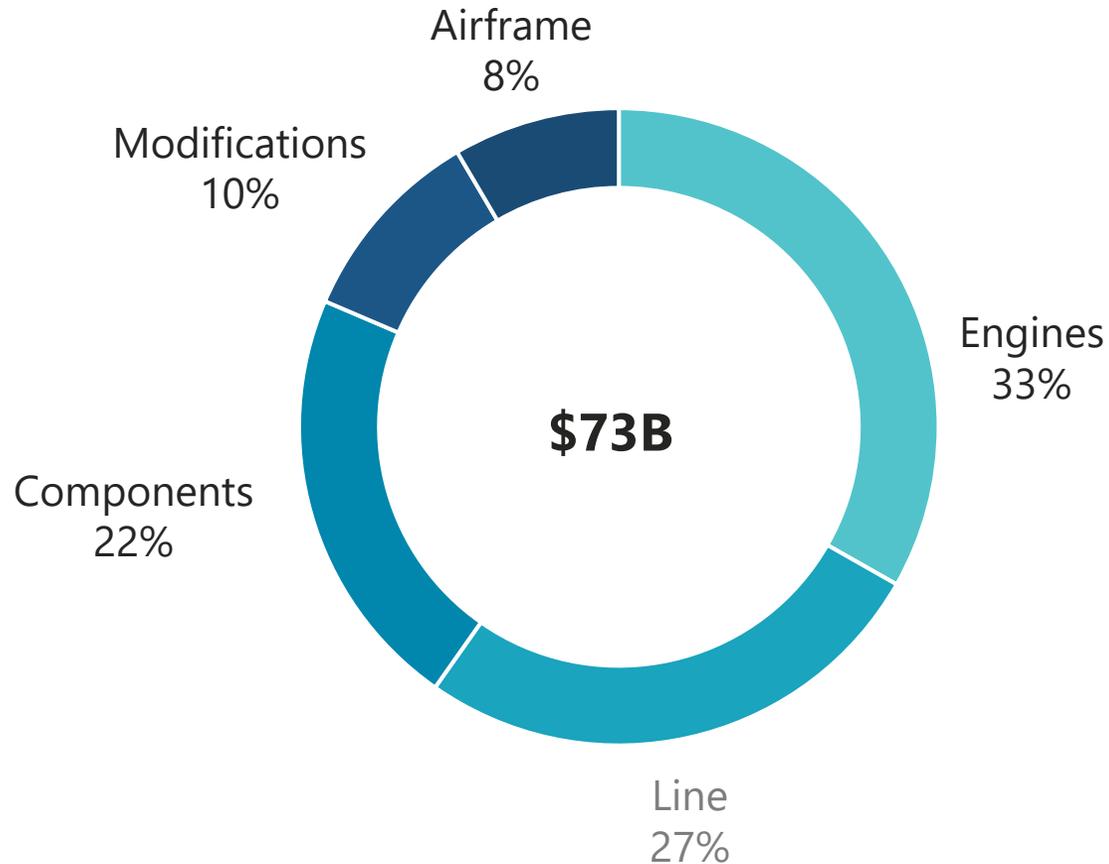


Source: AviationWeek Fleet&MRO Forecast 2019, NAVEO Analysis

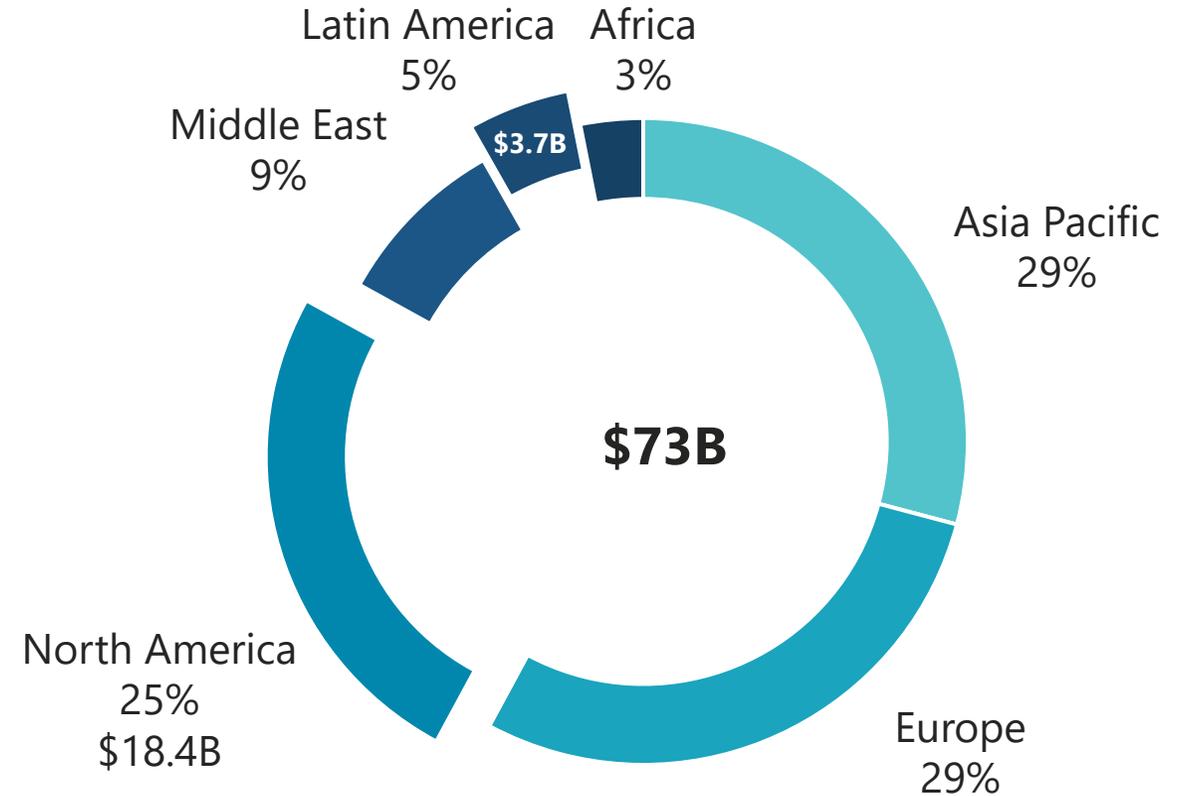


The MRO Market demand is ~\$73B; North America represents ~25%

By MRO Category



By Operator Region

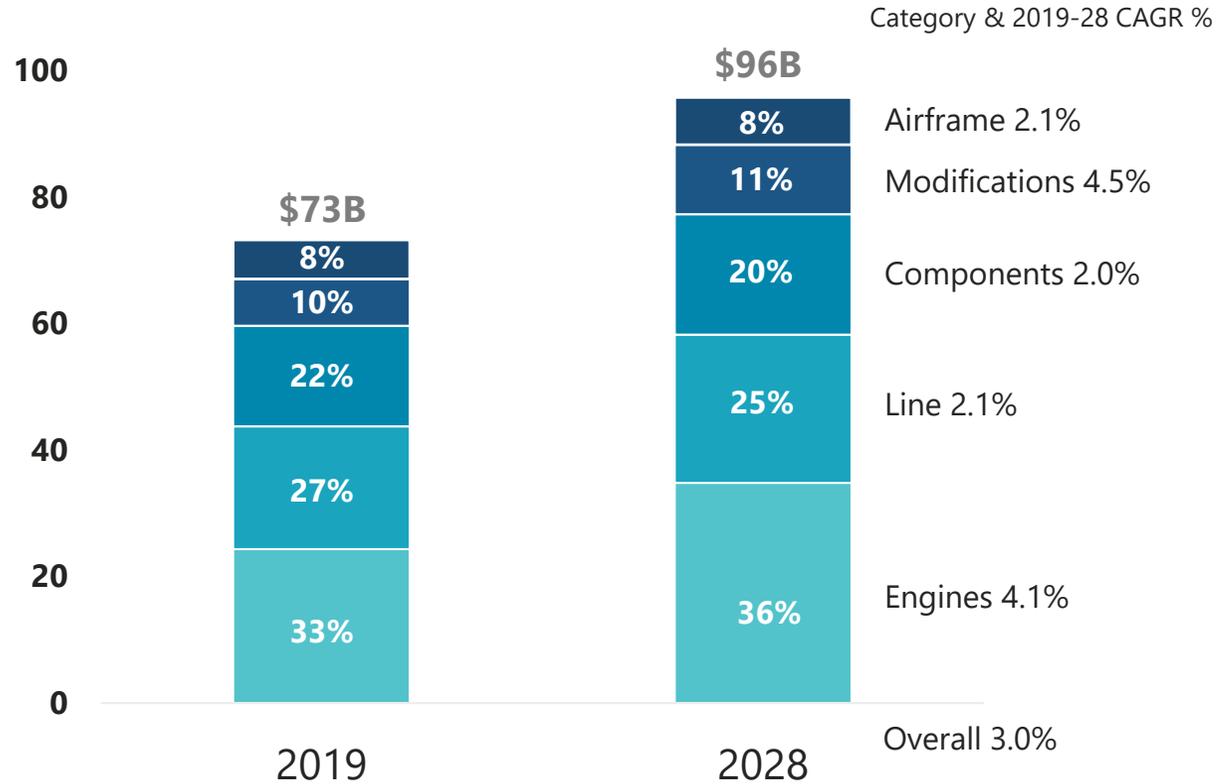


Source: AviationWeek Fleet&MRO Forecast 2019

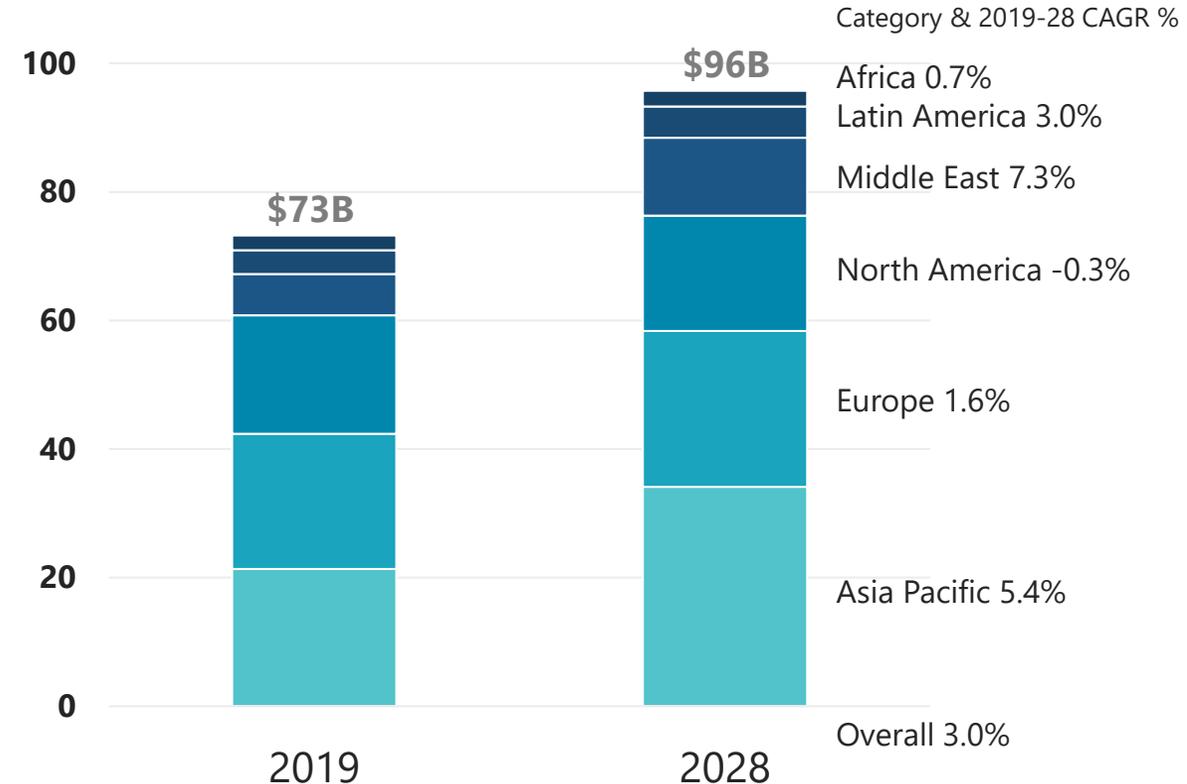


The MRO Market demand is ~\$73B growing to \$96B by 2028

By MRO Category



By Operator Region

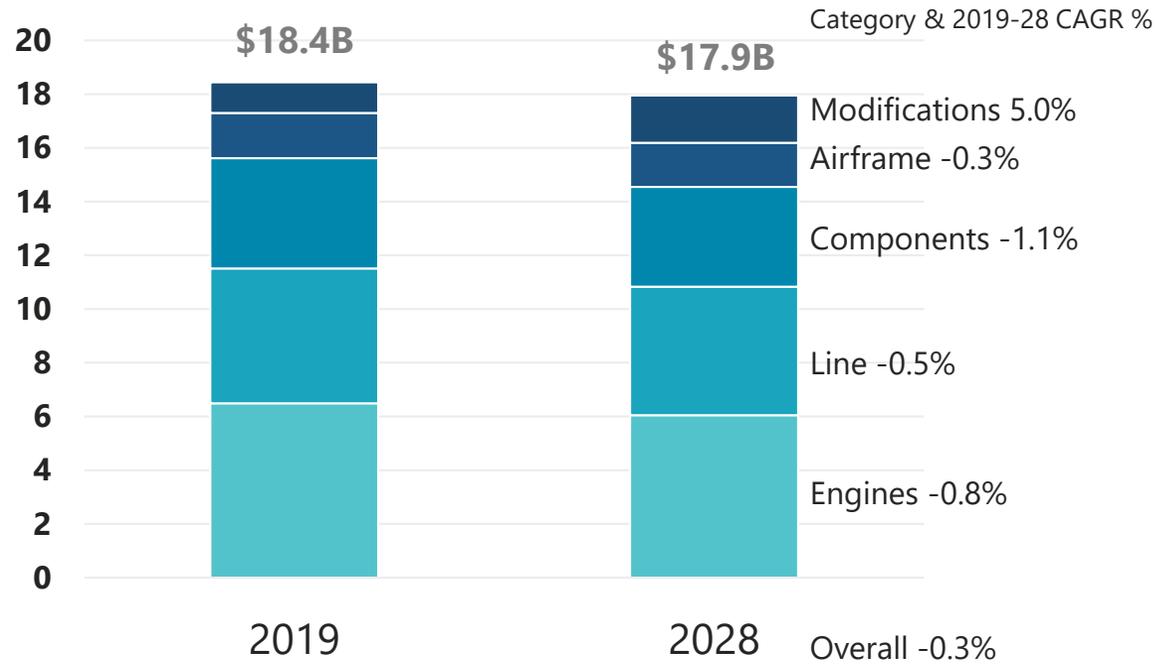


Source: AviationWeek Fleet&MRO Forecast 2019 Constant \$

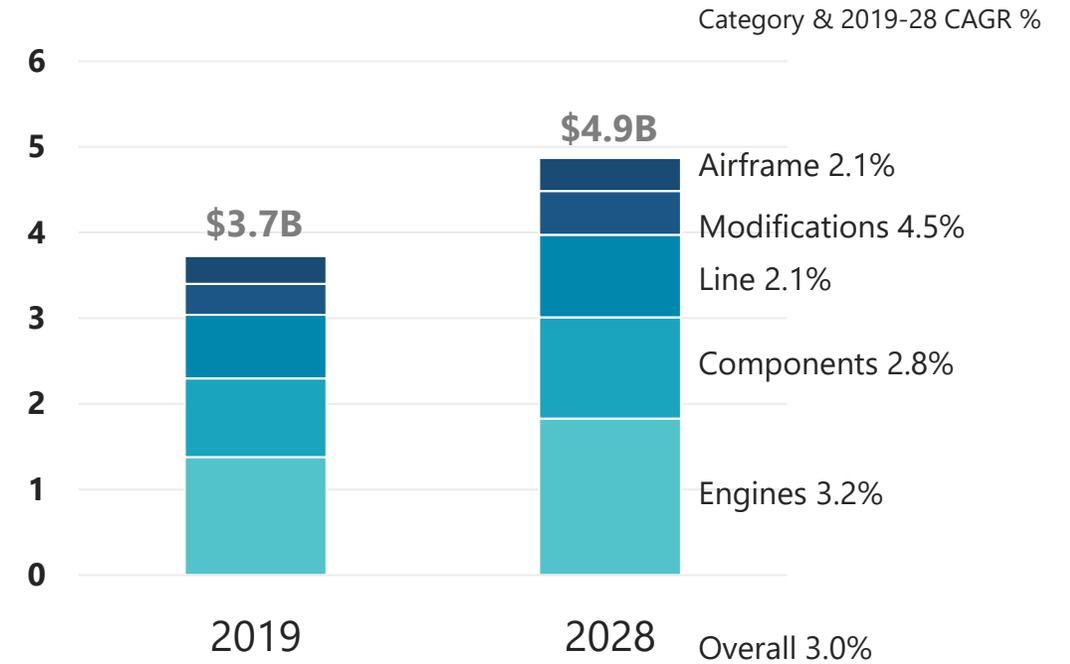


North American MRO demand is virtually flat; Latin America grows at 3%

North America Operator MRO Demand



Latin America Operator MRO Demand

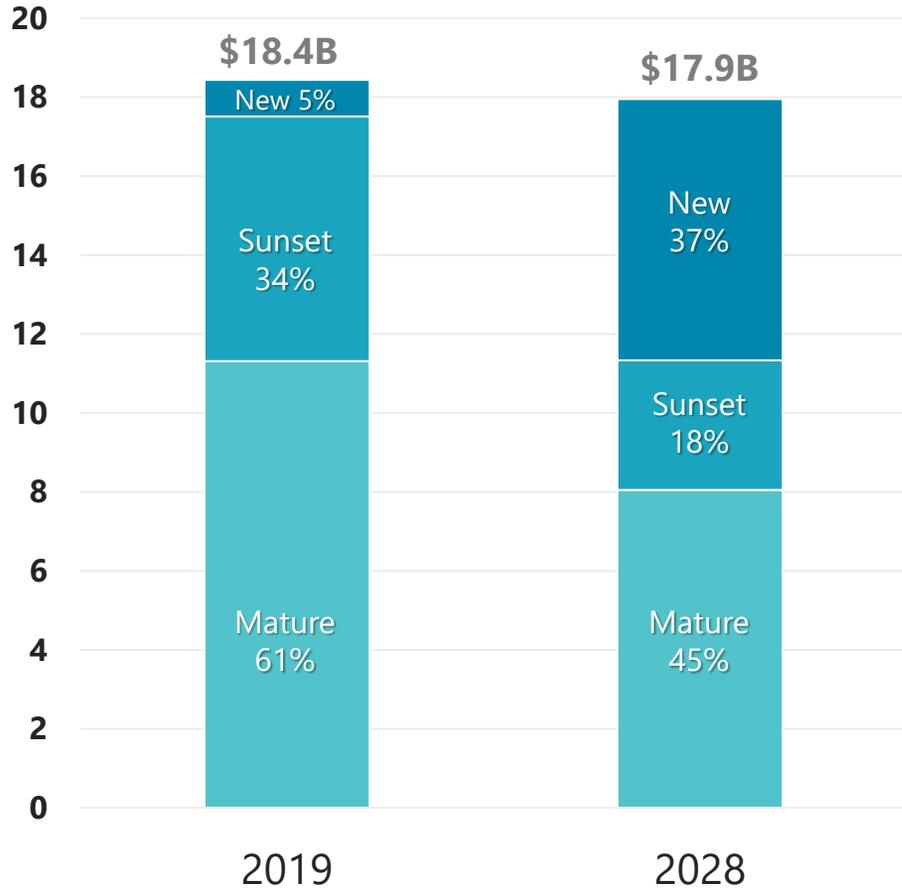


Source: AviationWeek Fleet&MRO Forecast 2019 Constant \$



North America MRO demand mix by aircraft changes older aircraft retire

North America Operator MRO Demand by Aircraft Maturity



North America Operator MRO Demand by Aircraft Model



Source: AviationWeek Fleet&MRO Forecast 2019, NAVEO Analysis, Constant \$



Agenda

- Fleet & MRO Forecast
- **Industry Trends**

Merger & acquisitions continue to restructure the aerospace supply chain

Examples of Aerospace M&A Activity in 2018 & 2019



Rockwell Collins
UTC Aerospace Systems
Collins Aerospace

Airbus & Bombardier CSeries



Airbus acquires majority 50.01% stake



Esterline
TRANS DIGM
GROUP INC.



United Technologies | **Raytheon**
MERGING TO CREATE RAYTHEON TECHNOLOGIES
(closing 2020)



StandardAero
THE CARLYLE GROUP



MITSUBISHI
HEAVY INDUSTRIES
Bombardier CRJ
(closing 2020)



BOEING
KLX & **EMBRAER**



L3HARRIS
L3HARRIS™

Who's next? 



Melrose Buy Improve Sell
GKN



JET PARTS
ENGINEERING, LLC
Vance Street | Capital LLC



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There are several MRO trends to watch



Big Data: Aircraft Health Monitoring & Predictive Maintenance



OE supply chain constraints & part shortages



How to differentiate MRO service offerings



OEM continued focus on the aftermarket



MRO Capacity Crunch



Retirement wave and USM / engine green time availability



In-Service aircraft & engine issues



MRO Expansion & Insourcing



Labor shortages

There are at least four key high-level trends impacting Aviation

Technological Innovation

- New advanced materials
- Digitalization / Big Data
- UAVs
- Electric Propulsion
- Artificial Intelligence
- Cybersecurity
- Automation

Geopolitics

- Economic power shift West to East
- Protectionism & Nationalism
- Regional trading blocks
- Investment requirements



Climate Change

- Impact on aviation growth
- Visibility of Aviation
- Protestors and motivated activists
- Mitigation costs

Social Change

- Urbanization
- Connectiveness
- Ageing workforce skill requirements
- Attitudes to air travel
- Technology acceptance



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Thank you!

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