

MRO Industry Forecast & Trends

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IATA Maintenance Cost Conference
Geneva, Switzerland

October 5, 2022



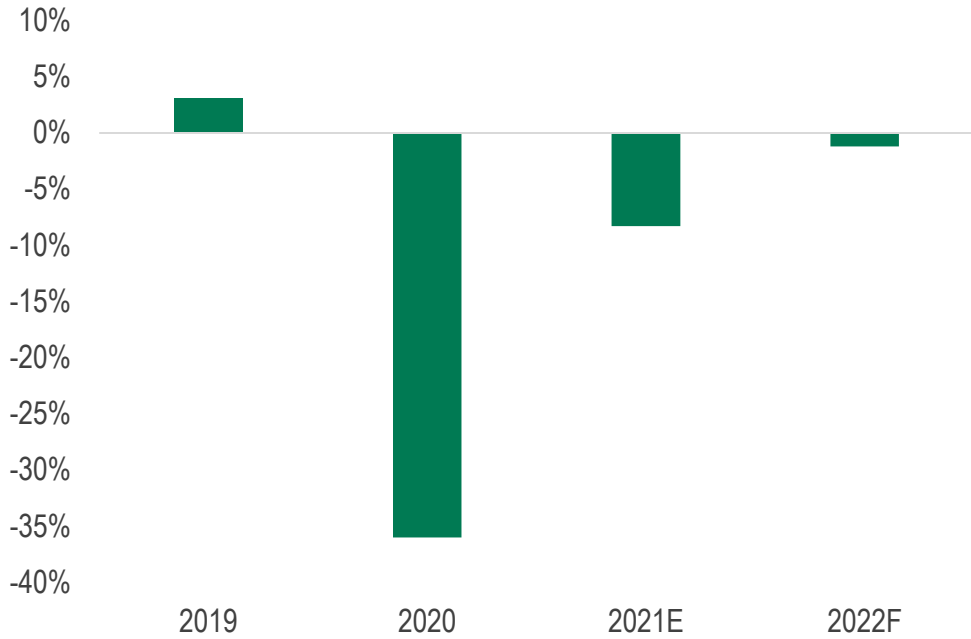
Today's Agenda

1. Aviation Industry Update
2. Global Fleet & MRO Demand Forecast
3. MRO Industry Trends

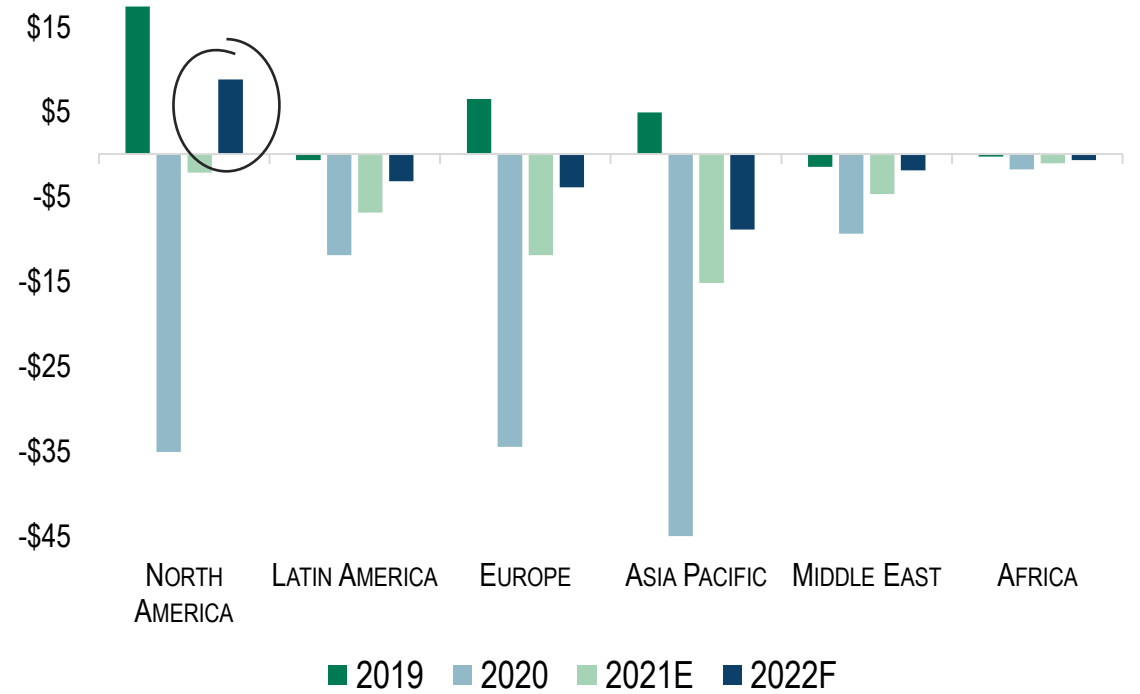
1. AVIATION INDUSTRY UPDATE

Airline losses continue to improve, led by North America...while other regions continue to struggle

GLOBAL AIRLINE NET PROFIT MARGIN

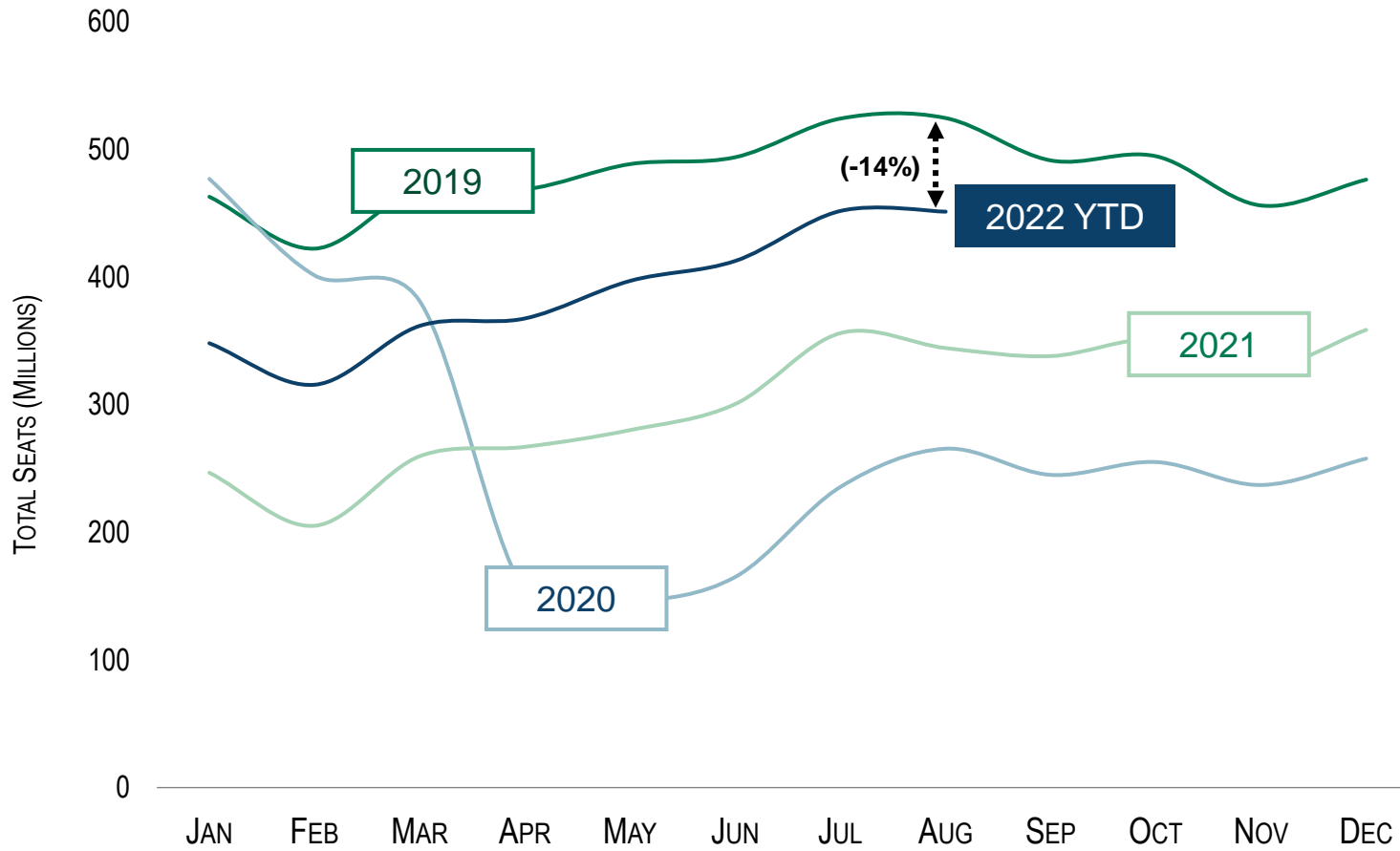


COMMERCIAL AIRLINE NET PROFIT BY REGION (BILLIONS)



Global passenger traffic continues to improve, but significant headwinds remain...

GLOBAL MONTHLY COMMERCIAL ACTIVITY (SEATS - MILLIONS)



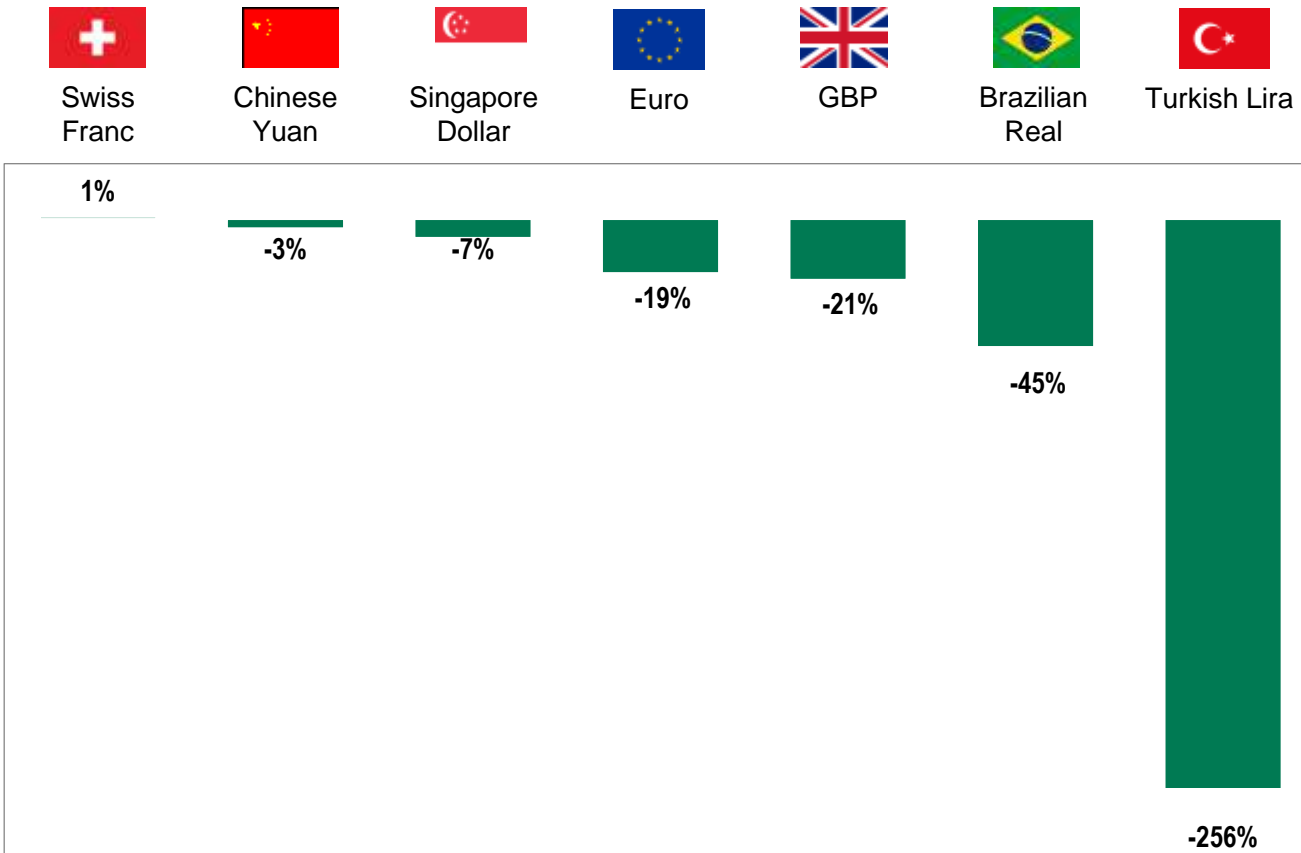
Alton Insight

Driven by post-pandemic challenges and geopolitics, significant headwinds remain for airlines, MROs, and OEMs

- Ukraine, China, Taiwan...
- Supply chain challenges
- Fuel costs
- Labor shortages
- Inflation
- Super strong \$US dollar
- Global recession???

As a result of post-pandemic geopolitical, supply chain, and fiscal policy actions, the strength of the US dollar creates additional cost challenges for global aviation

\$USD VS MAJOR GLOBAL CURRENCIES % VALUE CHANGE (JAN '19 – SEPT '22)

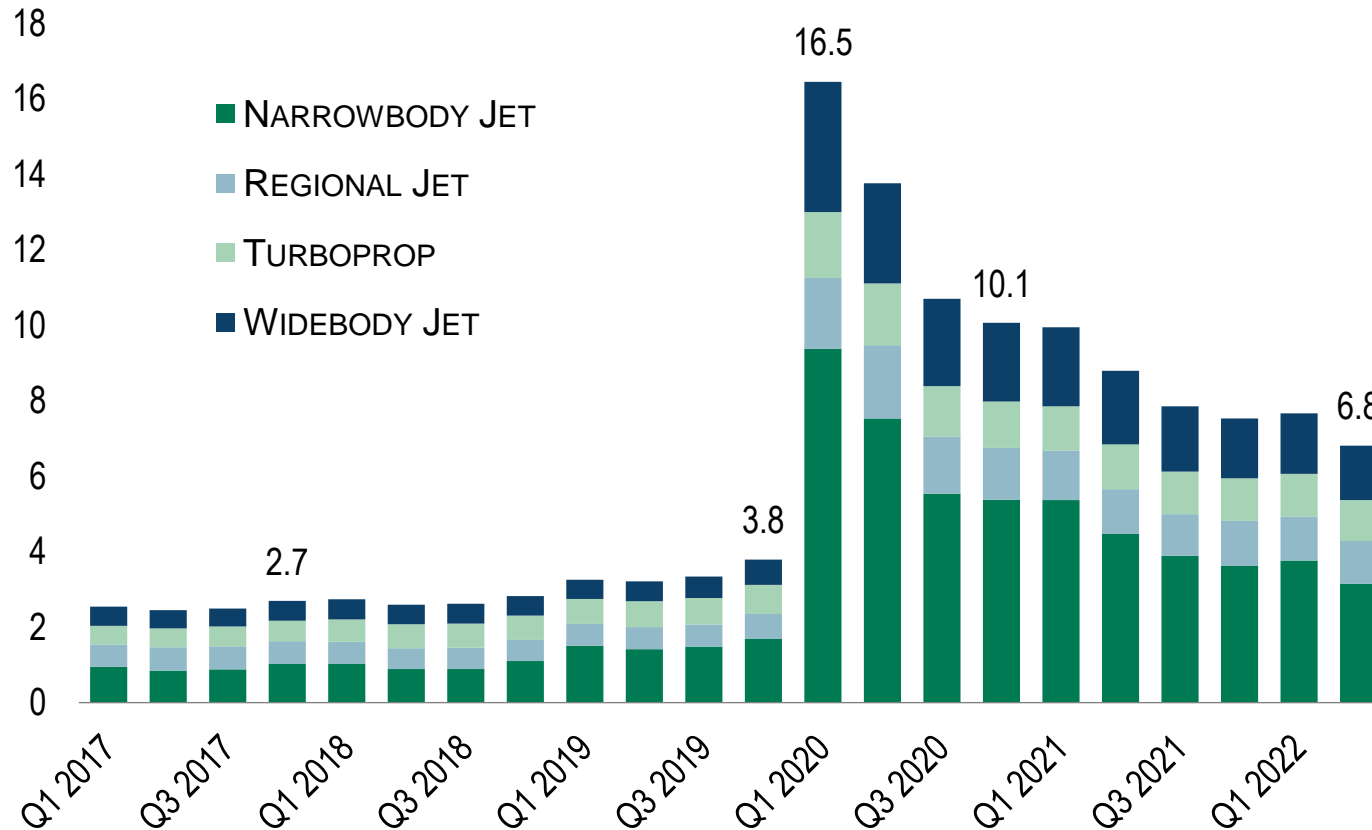


Alton Insight

- Jet fuel sold in \$USD = higher operating costs
- Engine & component cost per flight hour agreements sold in \$USD = higher maintenance costs
- Aircraft financing becomes more expensive (both interest rates and FOREX)
- Good news for Americans traveling aboard...

Current inactive aircraft fleet remains stubbornly high...roughly double the pre-pandemic count

PARKED & STORED AIRCRAFT (THOUSANDS)



Alton Insight

Airlines and Lessors continue to remain surprisingly optimistic, maintaining the option to bring aircraft back in service

- Uncertainty around pending recession, supply chain impact to narrowbody production ramp-up, Boeing 737MAX 7/10 regulatory certifications, etc.
- Demand for widebody aircraft / international travel remains soft
- Net net; fewer aircraft part-outs = limited USM availability

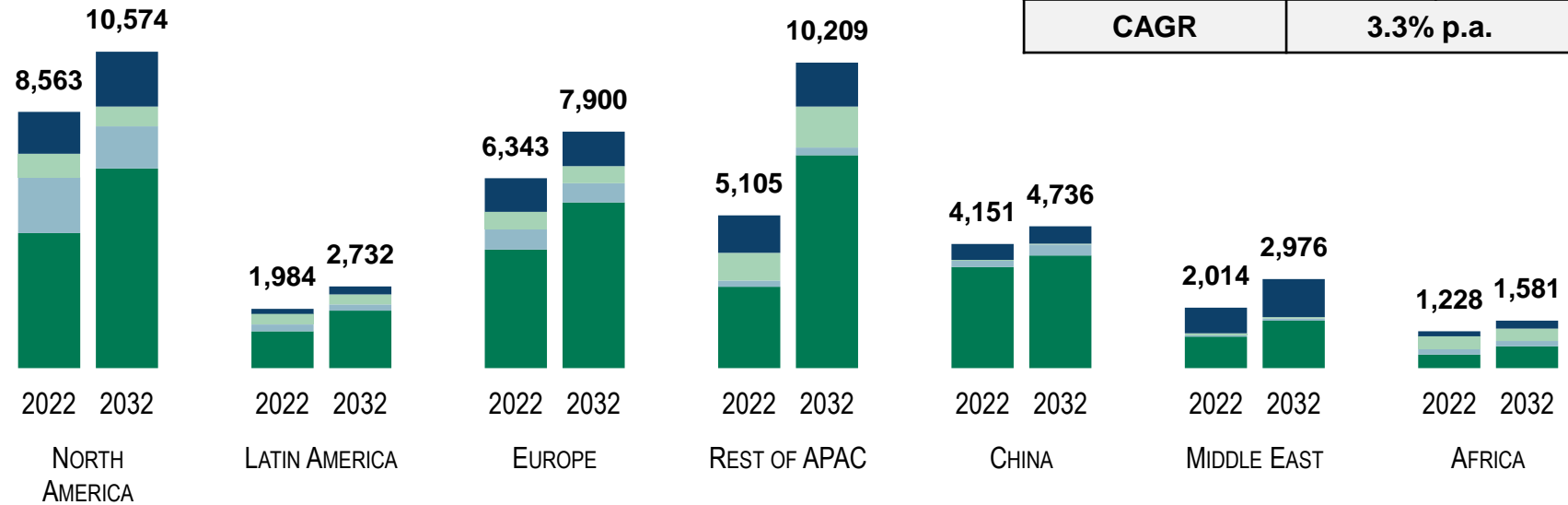
2. GLOBAL FLEET & MRO DEMAND FORECAST

Alton's global fleet forecast; widebody aircraft orders could use a vaccination booster...

GLOBAL COMMERCIAL AIRCRAFT FLEET FORECAST BY REGION

■ NARROWBODY JET ■ REGIONAL JET
■ TURBOPROP ■ WIDEBODY JET

	2022	2032
Fleet Size	29,387	40,708
CAGR	3.3% p.a.	



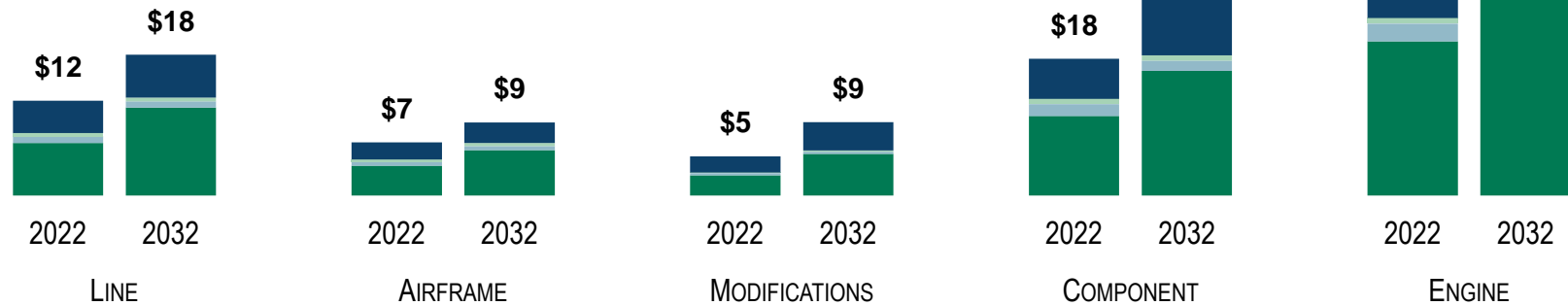
2022-2032 Net Fleet Growth	+2,000	+750	+1,560	+5,100	+590	+960	+350
Annual Growth Rate	2.1%	3.3%	2.2%	7.2%	1.3%	4.0%	2.6%

Alton's global commercial MRO demand forecast; while the modifications segment is the fastest growing, engine MRO continues to consume an ever-increasing share of total spend

GLOBAL COMMERCIAL MRO DEMAND FORECAST BY SEGMENT (\$USD BILLIONS)

	2022	2032
MRO Spend	\$78.5	\$121.2
CAGR	4.4% p.a.	

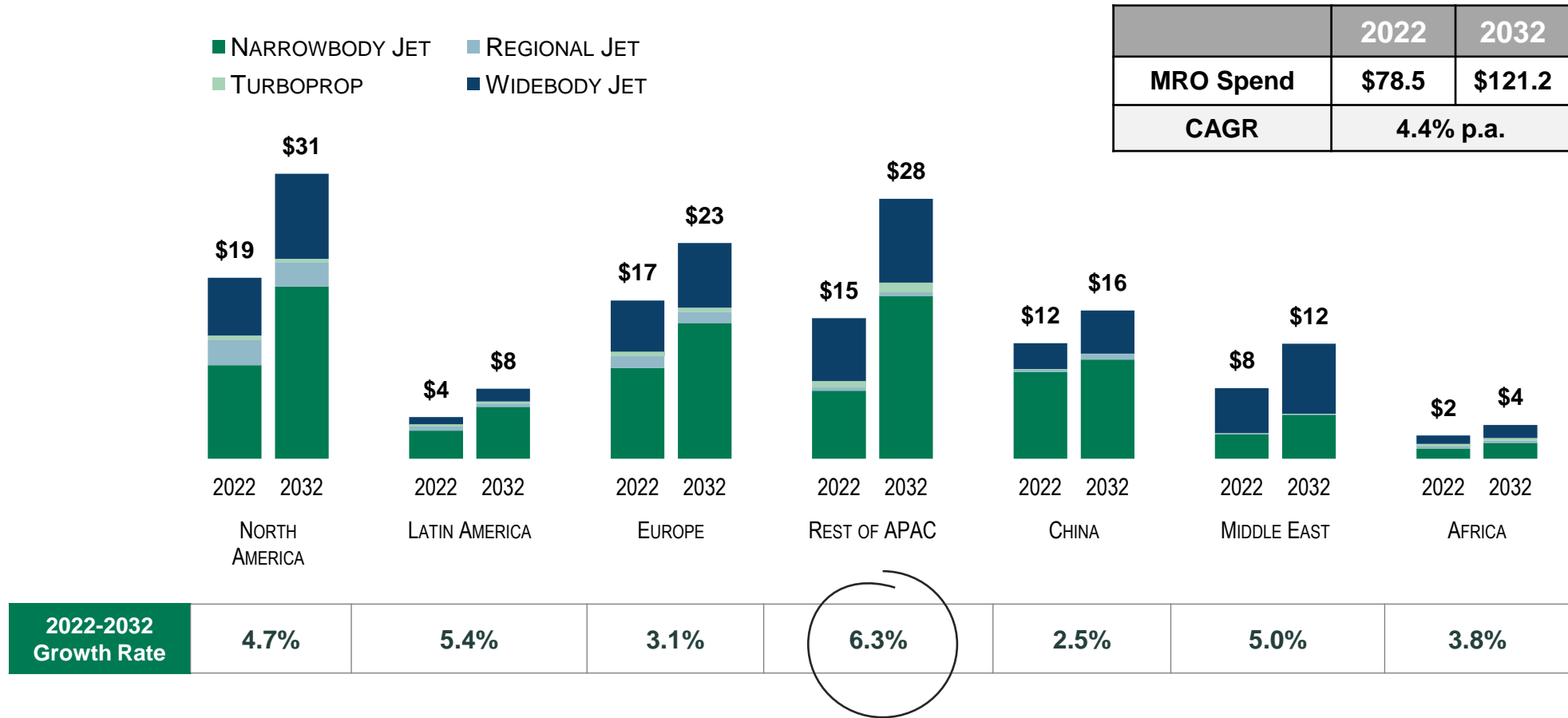
- NARROWBODY JET
- REGIONAL JET
- TURBOPROP
- WIDEBODY JET



2022-2032 Growth Rate	4.1%	3.2%	6.5%	3.8%	4.8%
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Alton's global commercial MRO demand forecast; MRO spend in APAC will almost double over the next decade

GLOBAL COMMERCIAL MRO DEMAND FORECAST BY REGION (\$USD BILLIONS)

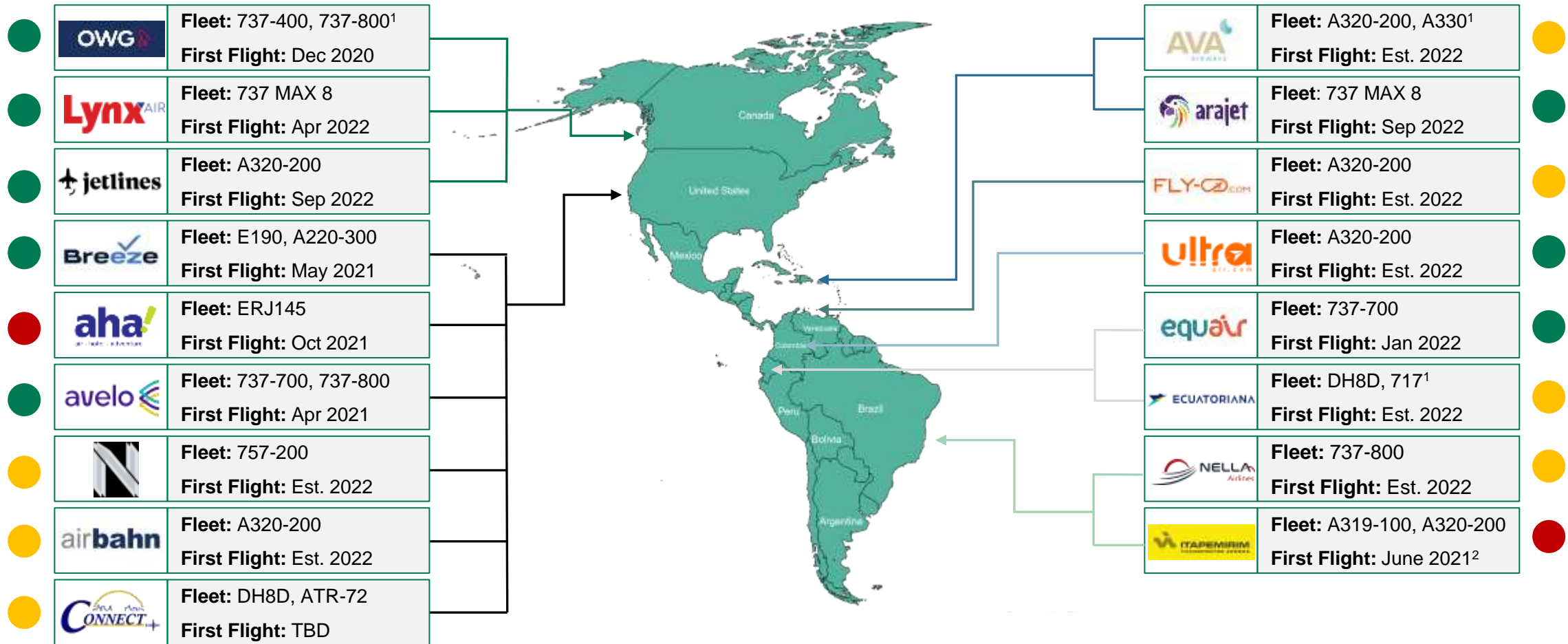


3. MRO INDUSTRY TRENDS



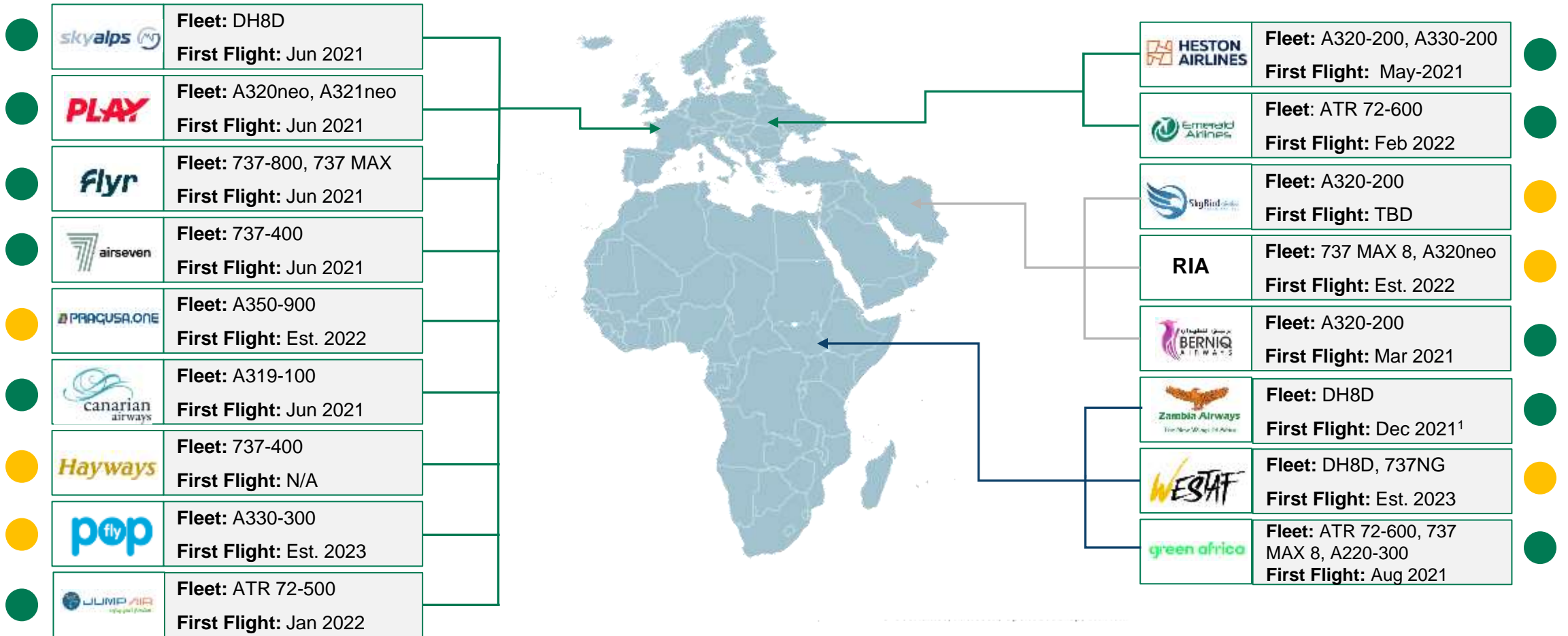
“Never let a global pandemic go to waste”; airline start-ups present exciting new growth opportunities for MRO suppliers...(1 of 2)

● In operation
 ● Announced, but not in operation
 ● Halted/ceased operations

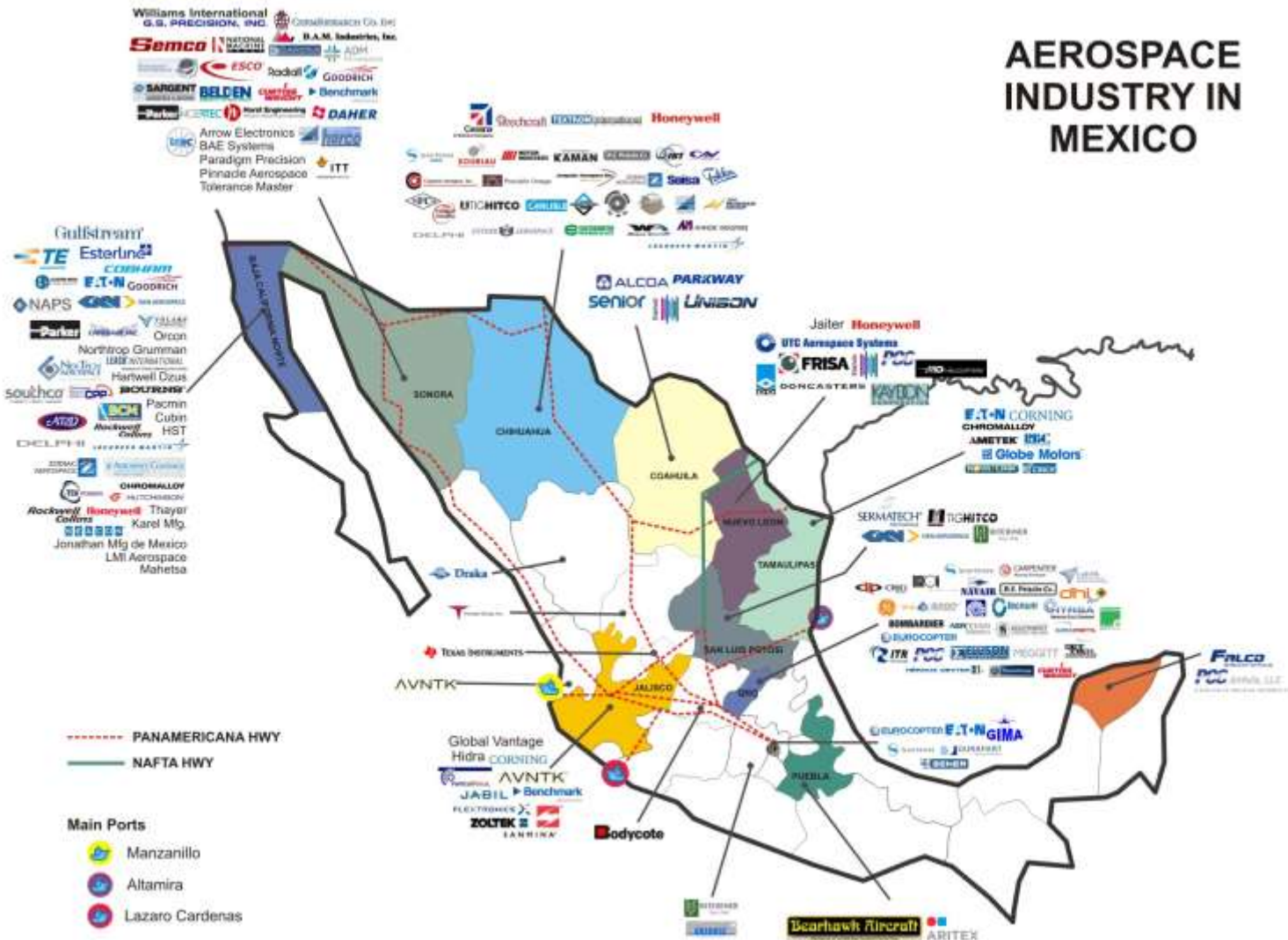


“Never let a global pandemic go to waste”; airline start-ups present exciting new growth opportunities for MRO suppliers...(2 of 2)

● In operation
 ● Announced, but not in operation
 ● Halted/ceased operations



Global supply chain challenges; a positive trend for Latin America & Eastern Europe...



Alton Insight

- OEM facilities temporarily shuttered during the pandemic creating shortage of parts
- +
- Shortage of labor & raw materials slowing the post-pandemic ramp up
- +
- Increased trade wars and tariffs driven by growing anti-globalism, nationalism, in addition to other geopolitical issues

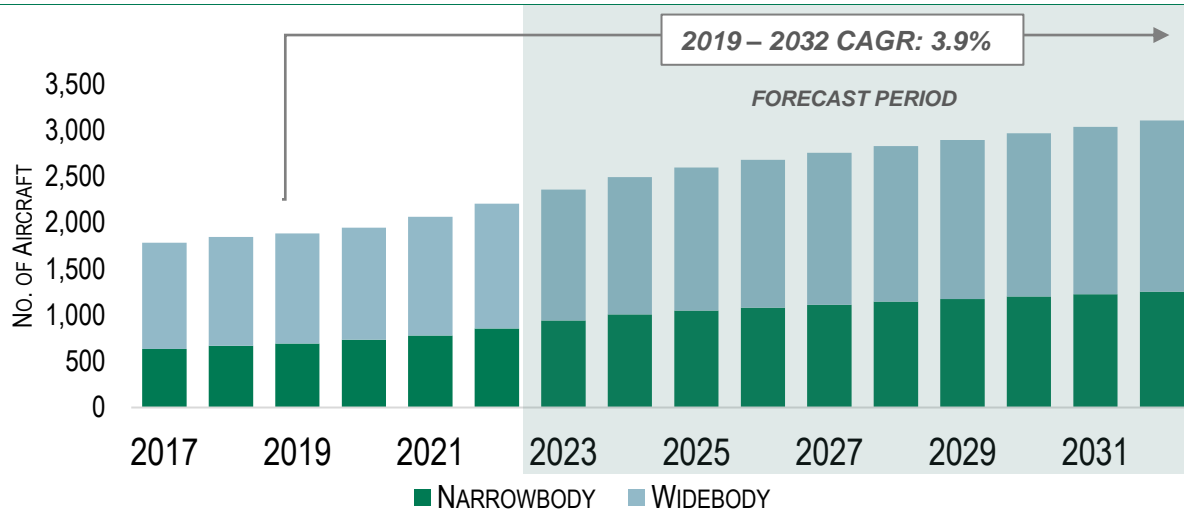
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Aviation and aerospace company boardrooms seeking new strategies to minimize supply chain risk will result in Globalization 2.0;

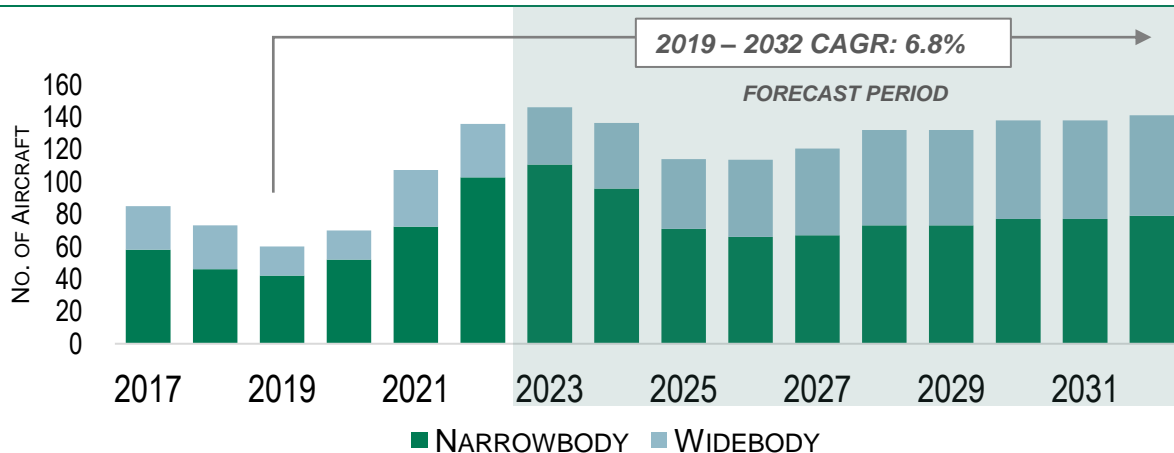
“More Dual Sourcing & Near-Shoring”

A rising tide lifts all ~~boats~~ cargo aircraft...

GLOBAL FREIGHTER FLEET FORECAST (2017 – 2032E)



GLOBAL PASSENGER TO FREIGHTER (P2F) CONVERSIONS (2017 – 2032E)



Source: Alton analysis, CAPA

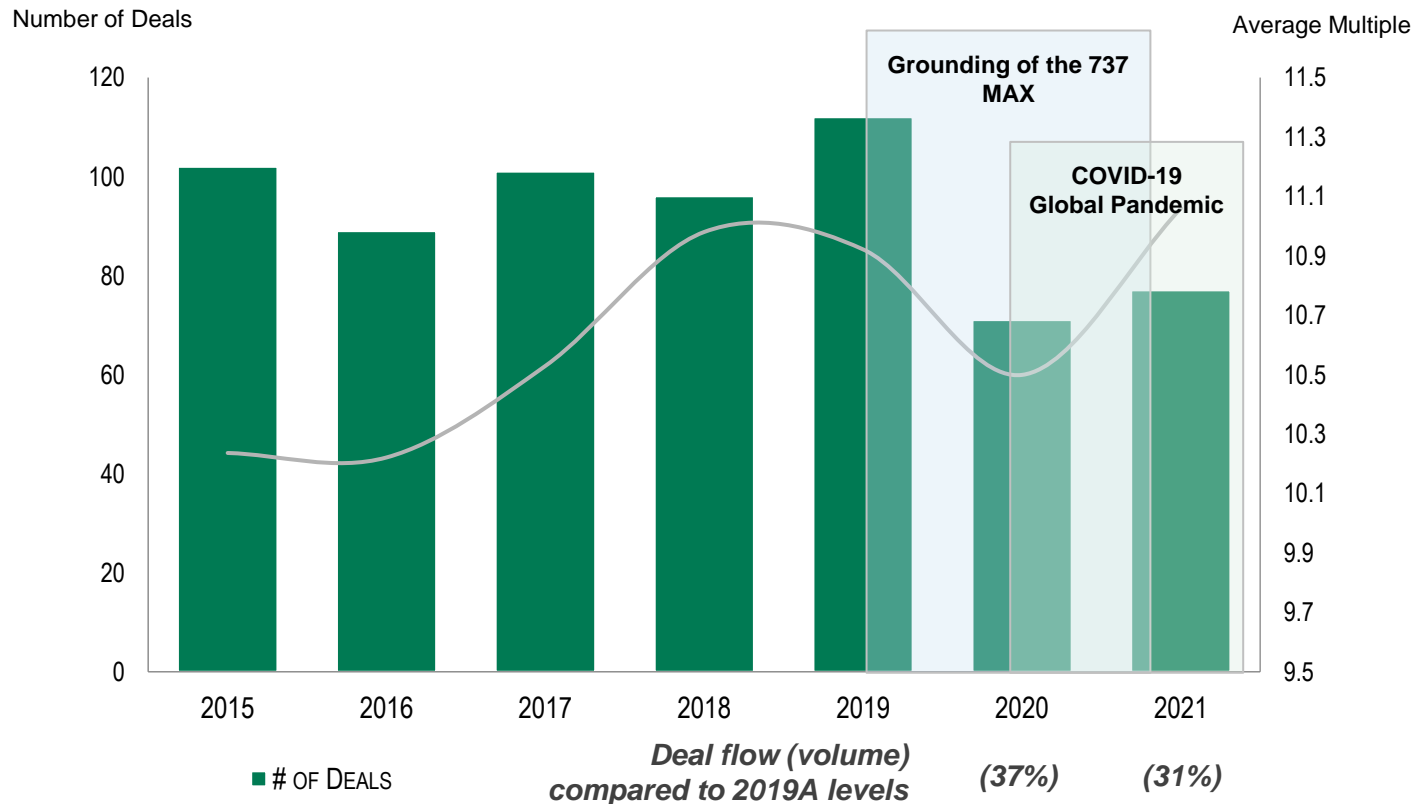
Alton Insight

- E-Commerce was growing rapidly prior to the pandemic; post-pandemic it has been turbocharged (~6.4T by 2024)
- +
- Commercial airlines worldwide were successful in off-setting losses leveraging “preighter” aircraft
- +
- After decades of disappointing orders, sales of OEM new freighter aircraft are making a come strong back
- +
- Demand for P2F conversions are at historic highs
- +
- Amazon’s fleet expansion continues, and not only for widebody aircraft (Boeing 767s), but for narrowbody aircraft too (see Sun Country)
- +
- Engine and airframe MROs benefitting from additional MRO demand from very old, maintenance intensive aircraft experiencing a delayed retirement
- =

“Increased M&A activity in the air cargo sector and the associated supply chain”

With a track record for solid M&A activity, the Aerospace & MRO sector remains well-positioned for further investment and market consolidation

RELEVANT AEROSPACE & MRO M&A TRANSACTION HISTORY

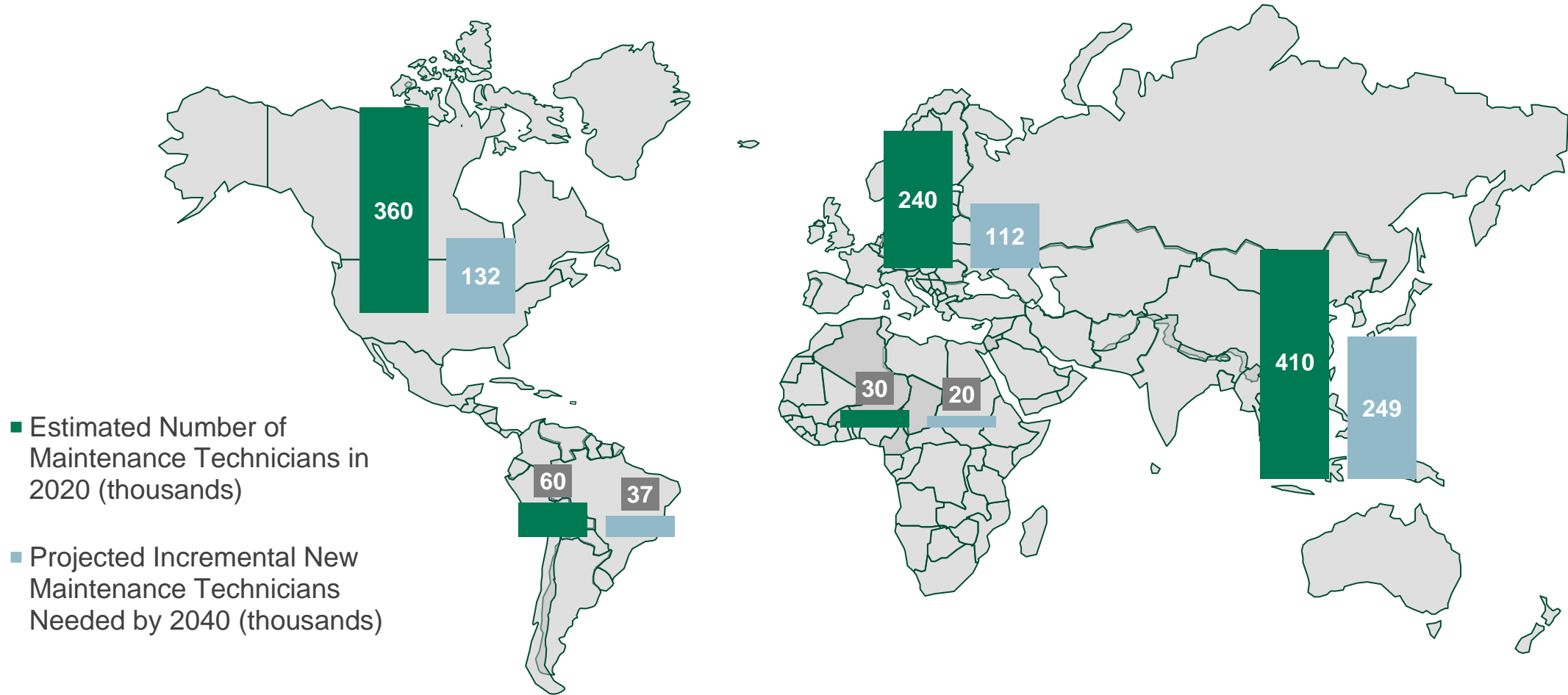


Alton Insight

As the new normal, post-pandemic reality settles in, M&A transaction volumes should revert to the mean...

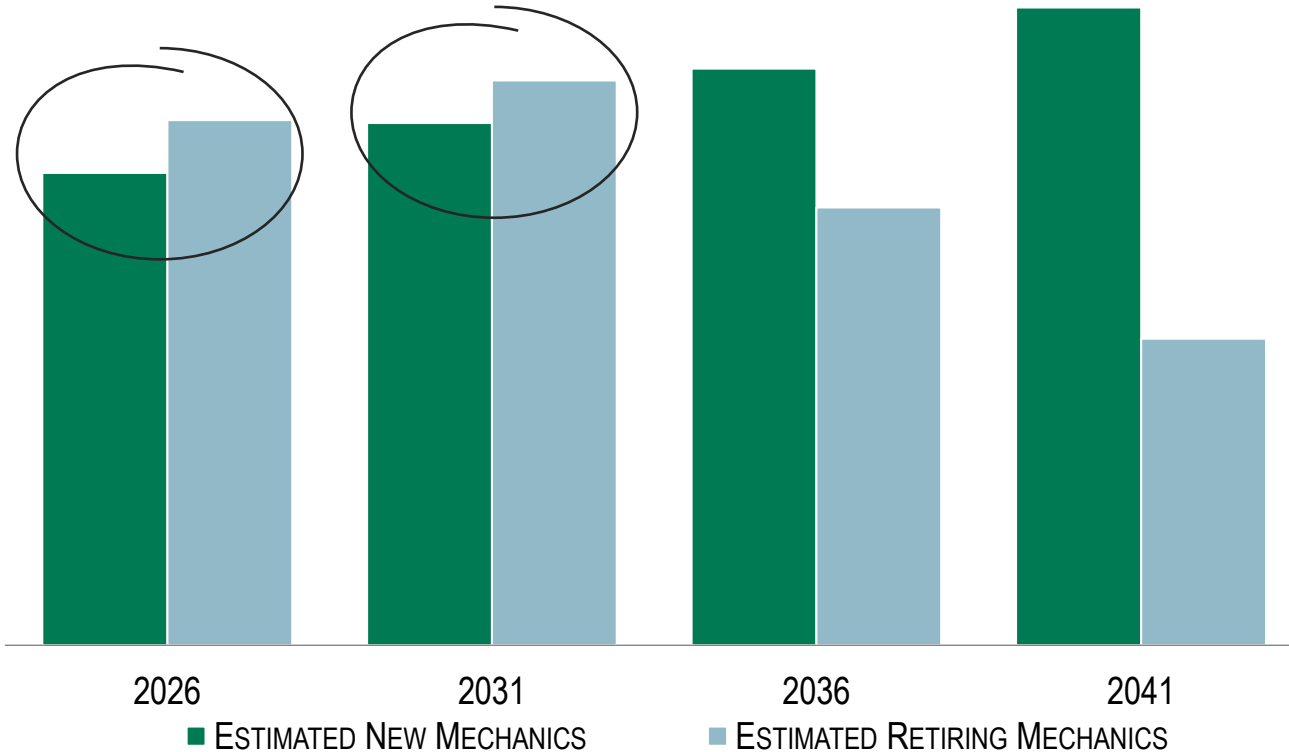
- PE firms that reached their traditional 5 to 7-year hold period during the pandemic are now looking to sell
- 2022 off to strong start
- Strong industry stakeholder interest and anticipation with regards to the pending Lufthansa Technic transaction

Over the next two decades, global demand for new technicians will increase by approx. 50%



In the US, Technician retirement rates are estimated to outpace new hires over the next decade...

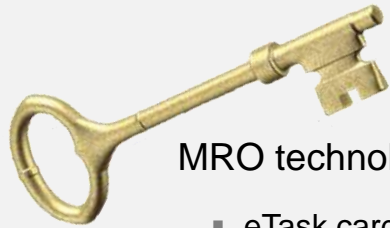
ESTIMATED INFLOW & OUTFLOW OF A&P MECHANICS IN THE USA



51
The average age of an aircraft mechanic in the US as of 2019

“For every 4 aviation maintenance technicians leaving the industry, only 3 are coming in to fill their positions” – Former Chairman, NBAA Maintenance Committee

There is no silver bullet to resolving the industry labor shortage...



Key to the Solution?

MRO technology-driven productivity:

- eTask cards & 5G mobile tablets
- Adoption of sensors and robotic inspections
- E-signatures & digital records
- Electronic aircraft log books / tech logs
- RFID & tooling / inventory integration
- Dynamic manpower planning & scheduling
- Real-time production control / critical path mgt
- Training leveraging virtual & augmented reality

Alton Insight

- The “great resignation (or reflection)” of 2021
- +
- Most airlines, OEMs, and MROs offered generous early retirement packages (with very successful take-rates)
- +
- The unintended consequences were the single largest loss of institutional knowledge our industry has ever experienced (*and is a root cause for many airline operational issues and MRO TAT delays*)
- +
- In order to retain existing employees and attract new recruits, salaries and benefits will inevitably rise
- +
- Very limited hangar and engine shop capacity driven by labor shortages and the supply chain challenges

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“MRO cost inflation (material & labor)”

ALTON

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