

OLIVER WYMAN CAVOK



# MRO AMERICAS 2019

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Senior Vice President

# OLIVER WYMAN CAVOK

Oliver Wyman's Aviation, Aerospace & Defense practice is the largest and most capable consulting team dedicated to the industry



## OUR EXPERIENCE

- 400+ professionals across Europe and North America
- Deep aviation knowledge and capabilities allow the practice to deliver data-driven solutions and provide strategic, operational, and organizational advice

## OUR CLIENTS

We have worked with more than  $\frac{3}{4}$  of the industry's Fortune 500 companies, including:

- All major US airlines
- Leading airlines, MROs, OEMs, and independent parts manufacturers in the Americas, Europe, and Asia
- Dominant aerospace and defense firms

## OUR APPROACH

**Data-driven:** Unbiased benchmarking and forecasting tools to establish problems and identify solutions

**Innovative:** Ideas that are forward-thinking

**Actionable:** Results-oriented recommendations

**Collaborative:** An emphasis on working with our clients, alongside executives, management, and support teams

This presentation incorporates Oliver Wyman's 2019–2029 Global Fleet & MRO Market Forecast and 2018 MRO Survey, both of which are available at [oliverwyman.com](http://oliverwyman.com)



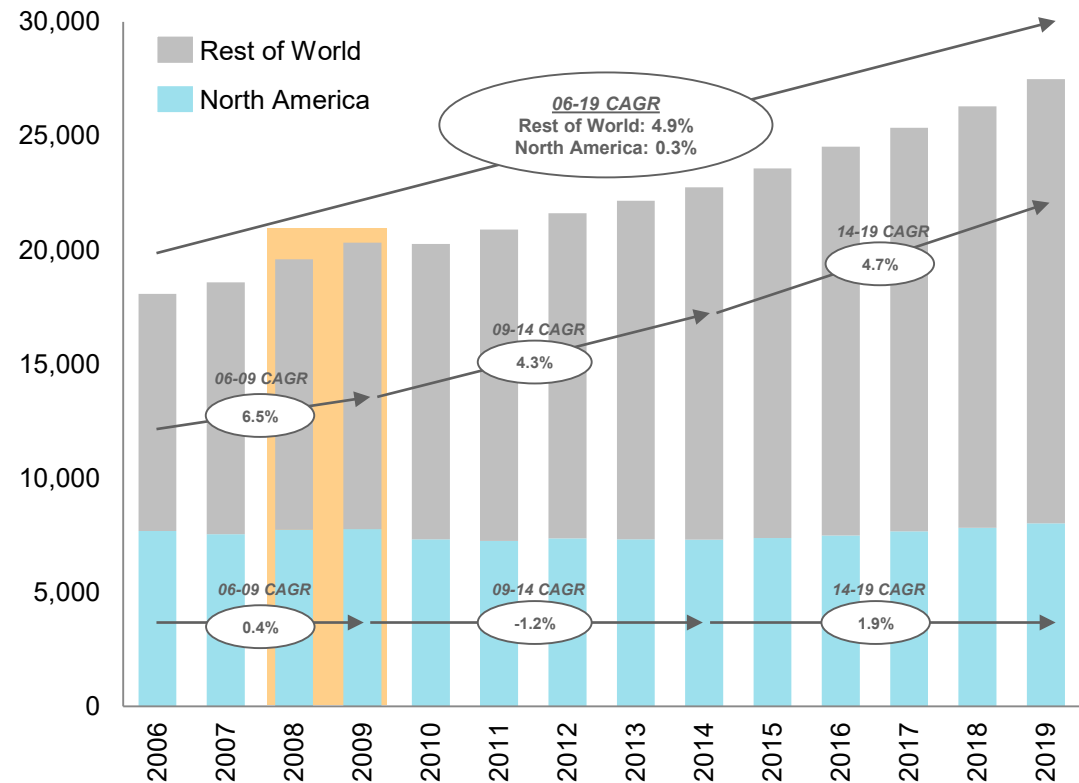
# 1 | State of the Industry

# The global economy and aviation industry has come a long way from the 2008 Great Recession

## A Look Back at the 2008 Financial Crisis



## Annual Fleet Size North America vs Rest of World Count of Aircraft

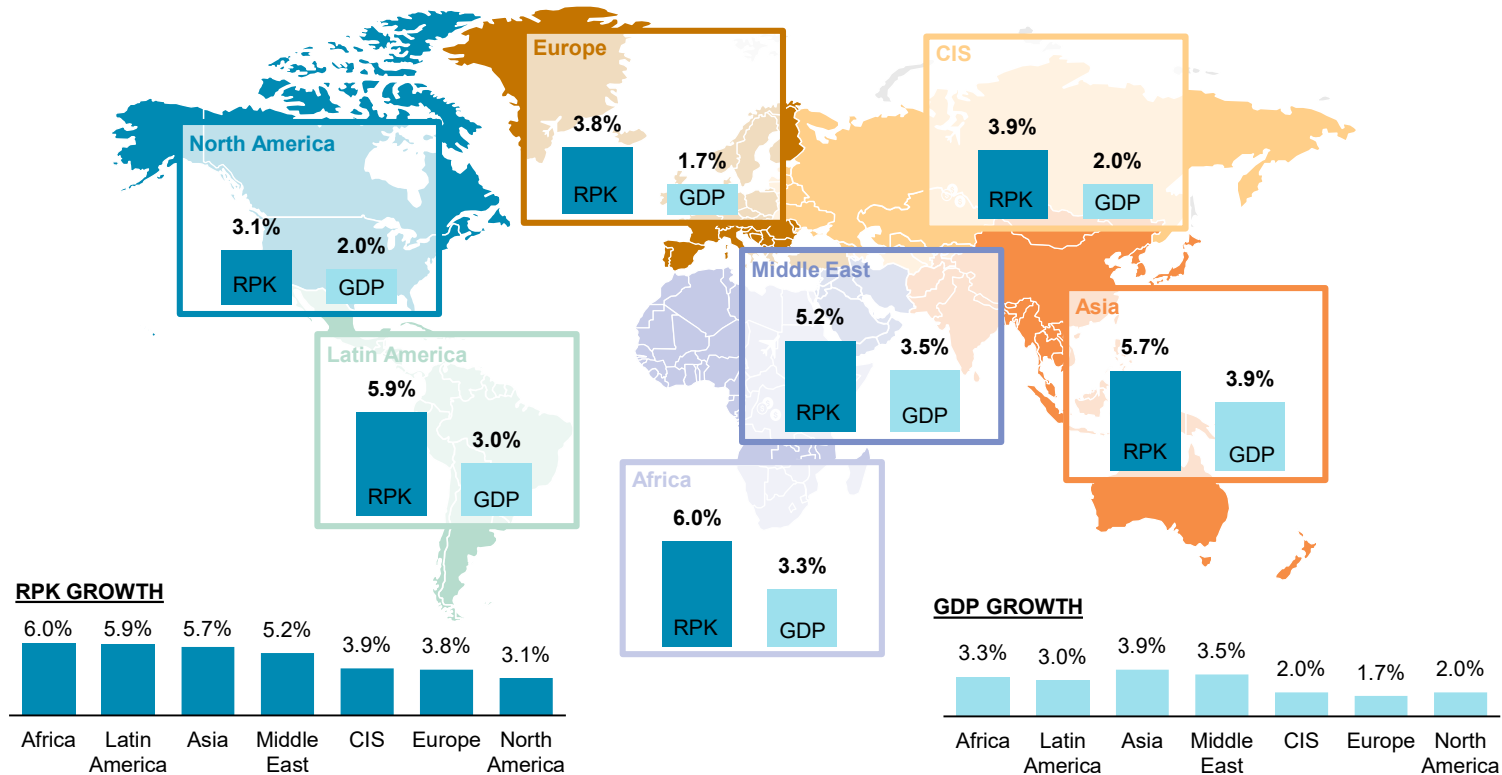


Global fleet growth has fueled increasing MRO...but 10 years later without a downturn, can this trend be sustained?

# Global RPKs are forecast by Boeing to grow 4.7 percent annually over the next two decades, outpacing global GDP growth of 2.8 percent over the same period

## 2017-2037 Year RPK and GDP Growth Projections

Source: Boeing

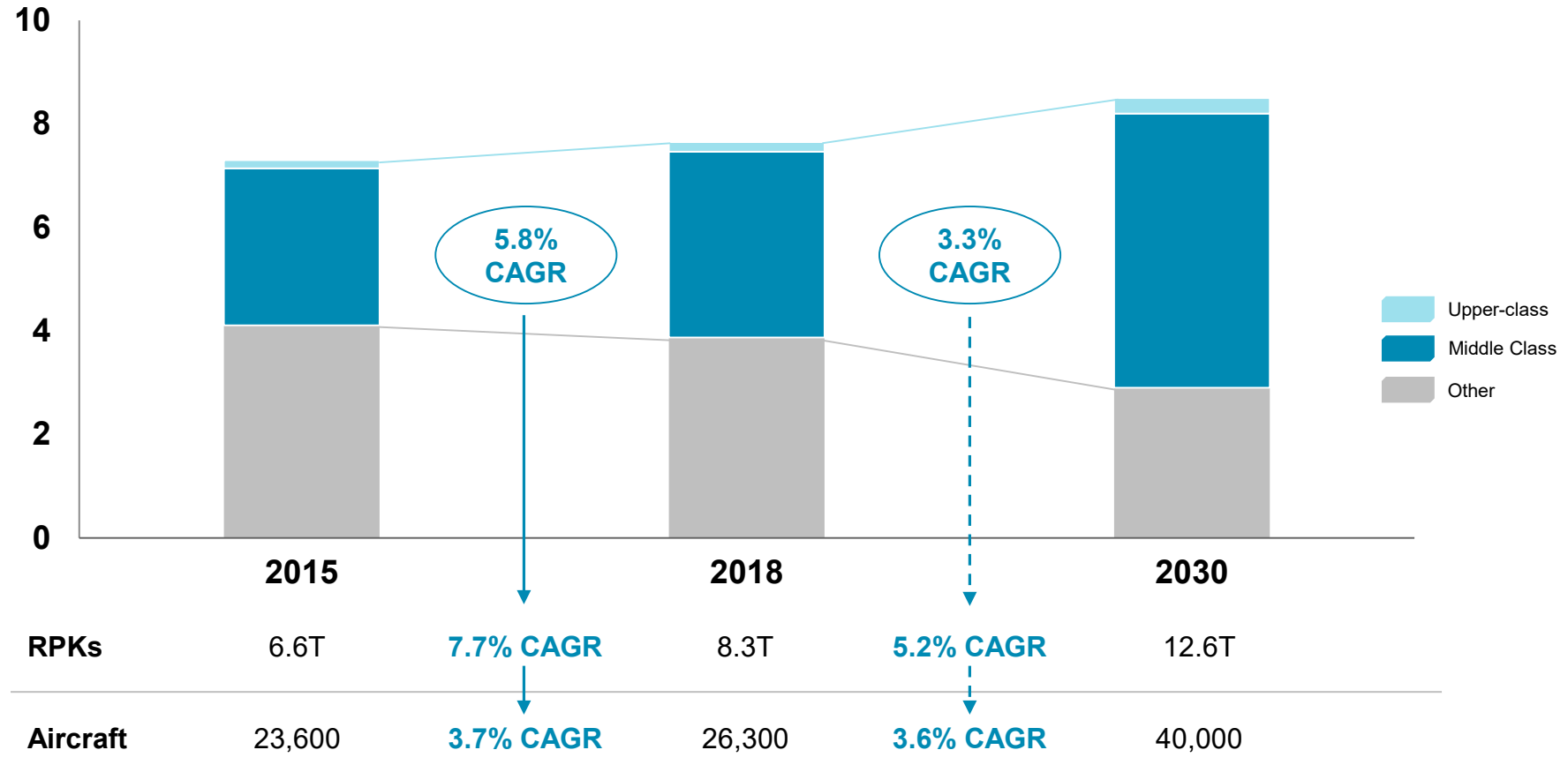


Notwithstanding modest GDP growth, as the middle class increases its share of GDP, total RPK's will accelerate quickly

# The global middle class is expected to add over 1.8 billion people over the next decade plus

## Global Middle and Upper Class Population Growth

Billions of people

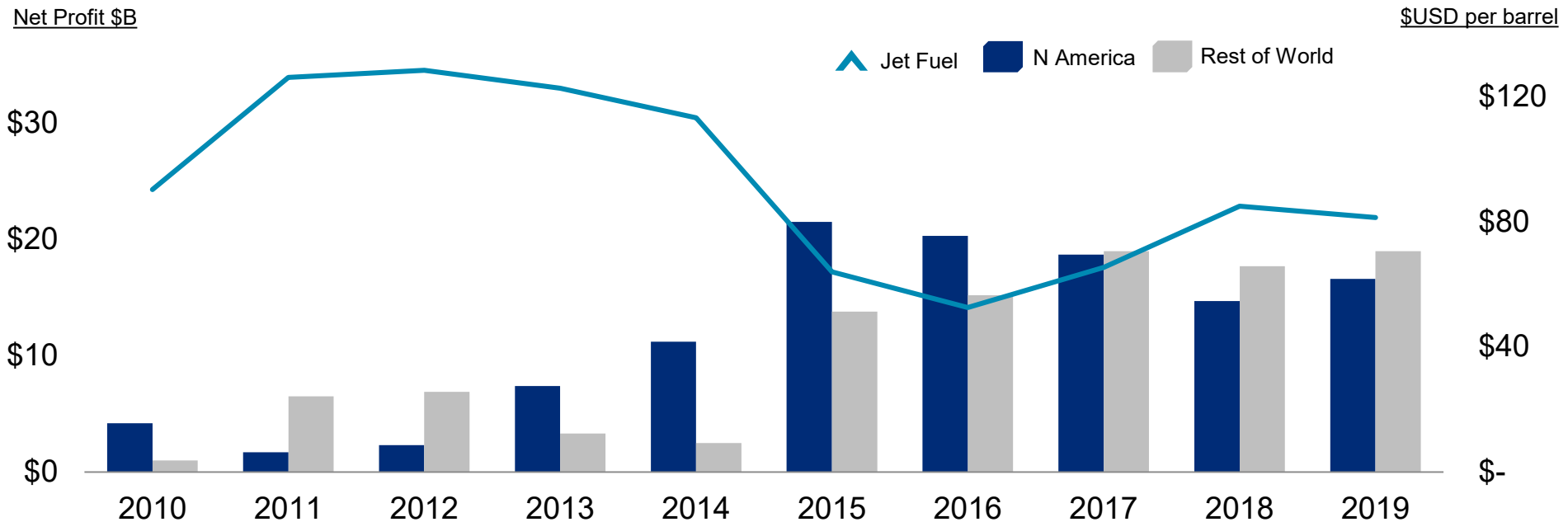


By 2030, 40,000 aircraft will be needed to provide 12.6T RPKs annually

# North American operators saw a larger drop in 2018 profits than the rest of the world as both fuel and labor costs increased

## Global Commercial Air Transport Industry Net Profit and Fuel Prices

By year

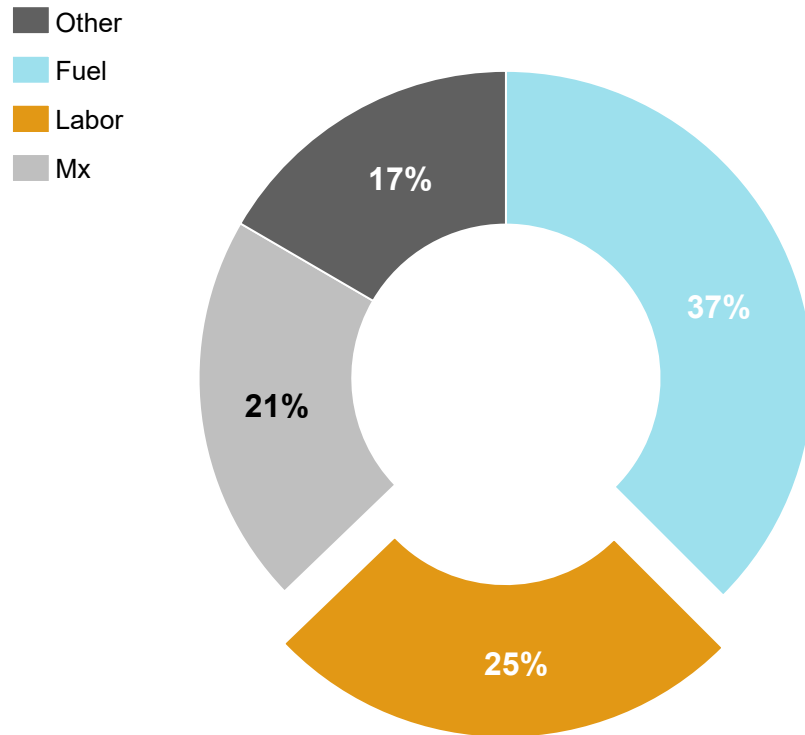


Representing of 35% of operating expenses, the global airline industry had an estimated \$180B in fuel costs during 2018. On a per barrel basis, fuel costs are expected to dip in 2019, providing a boost to margins



# Most North American operators agreed to generous labor agreements since 2015, increasing employee costs by over 25 percent and driving labor to a quarter of total operating costs

**2018 Operating Costs by Type**  
US Operators

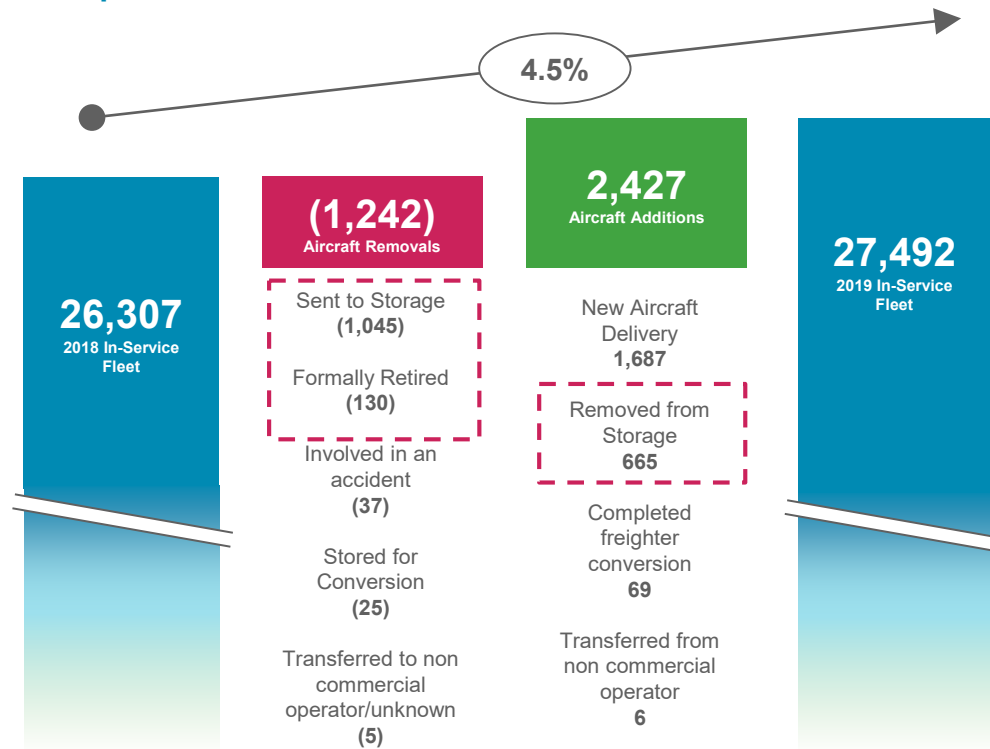


<u>Carrier</u>	<u>Union</u>	<u>Year</u>	<u>Expires</u>	<u>Annual Increase</u>
AA	Pilot	2015	2020	4.6%
AA	AMT	2013	Expired	
DL	Pilot	2016	2020	7.5%
AS	Pilot	2017	2020	9.3%
5X	Pilot	2016	2021	Initial 14.7%, 3% annually
FX	Pilot	2015	2021	Initial 10%, 3% annually
UA	Pilot	2016	2022	4.2%
UA	AMT	2016	2022	2% above top of industry every two yrs
B6	Pilot	2018	2022	4.6%
WN	AMT	2019 <sup>1</sup>	2024	Initial 20%, 3% annually

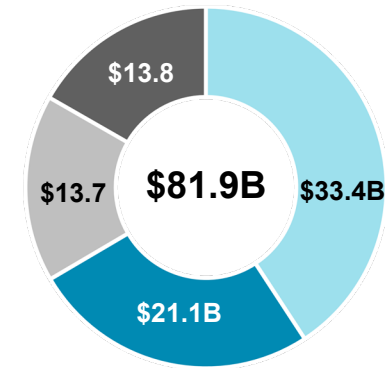
With fuel stable, but increasing labor costs, we can expect renewed pressure on the single greatest lever that airlines have for controlling costs, maintenance spend

# Over the past year, the global commercial in-service fleet grew 4.5 percent, driven by a slowdown in aircraft removals

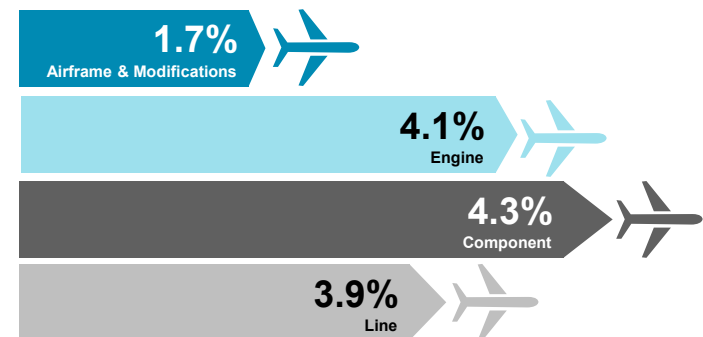
## Year Over Year Changes to the Global Commercial Air Transport Service Fleet



## 2019 Global Commercial Air Transport MRO Market Forecast



## 10 Year Forecast CAGR

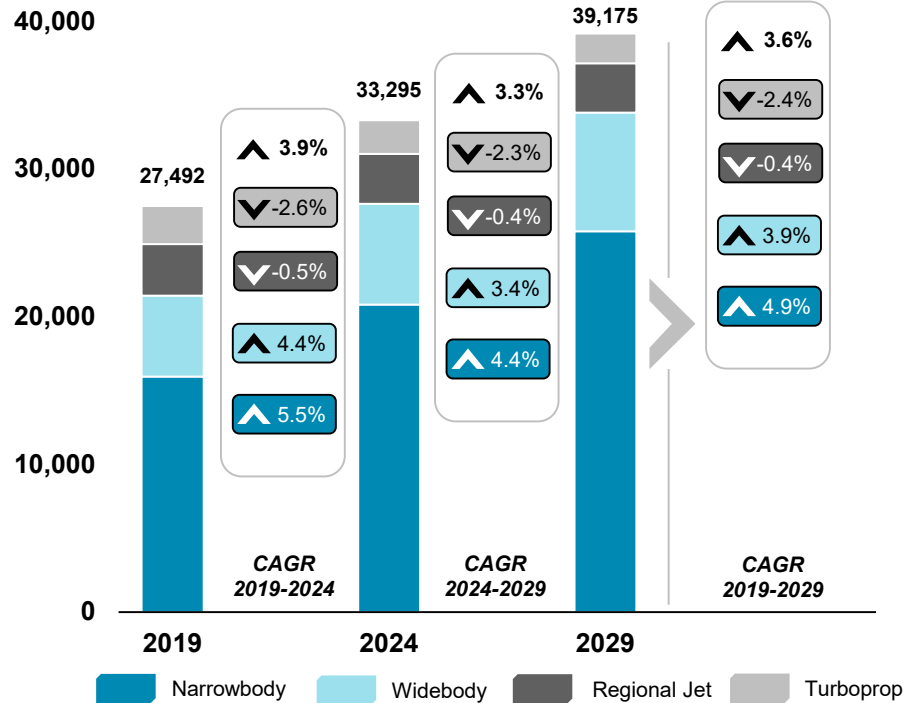


Translating the global fleet dynamics into MRO spend, the 2019 market is expected to be \$81.9B, as engine MRO continues to be the single largest expense category

# The global fleet will grow by nearly 12,000 aircraft, pushing commercial aircraft MRO spend up to \$116B by 2029

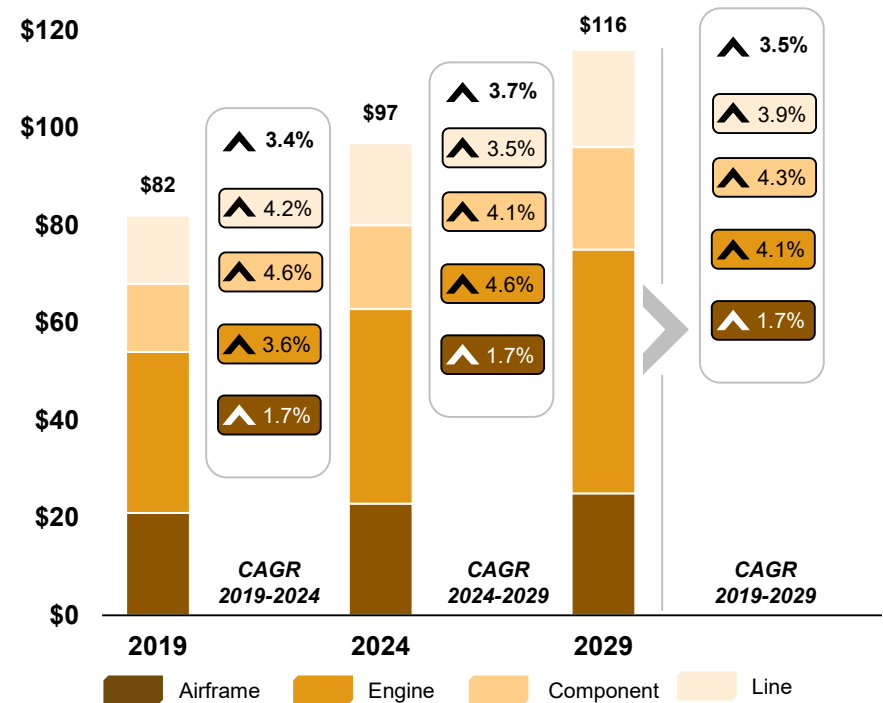
## Global Commercial Air Transport Fleet Forecast

By Aircraft Class/number of Aircraft



## Global Commercial Air Transport MRO Forecast

By MRO Segment/US\$ BN



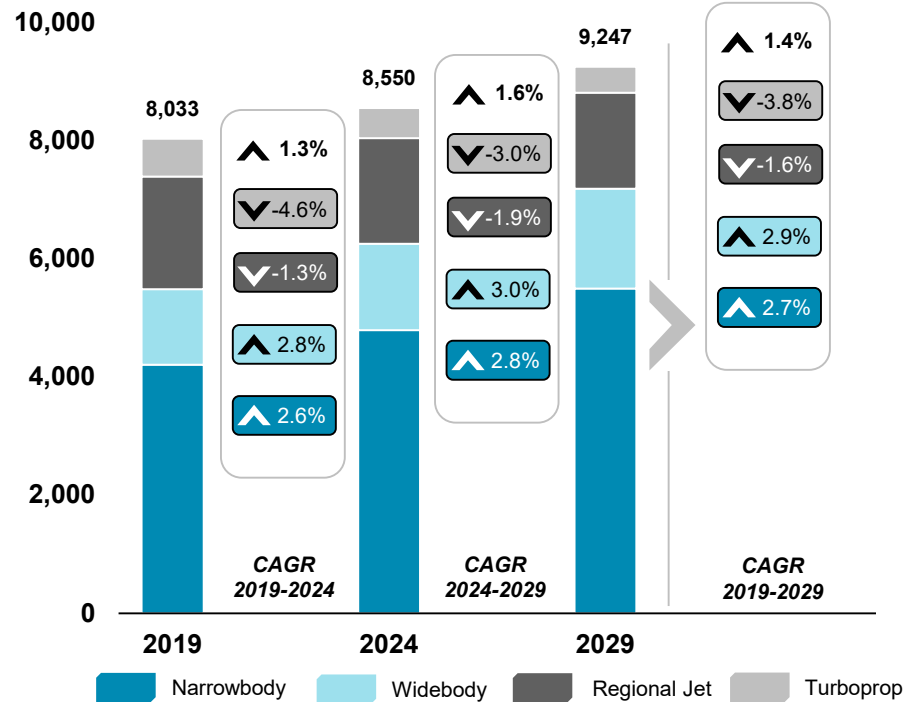
By 2029, Next Generation<sup>1</sup> aircraft will represent over half of total MRO spend, up from 13 percent today

Source: Oliver Wyman Global Commercial Air Transport Fleet Forecast; Scenario variables: Economic growth, passenger traffic, fuel prices and interest rates

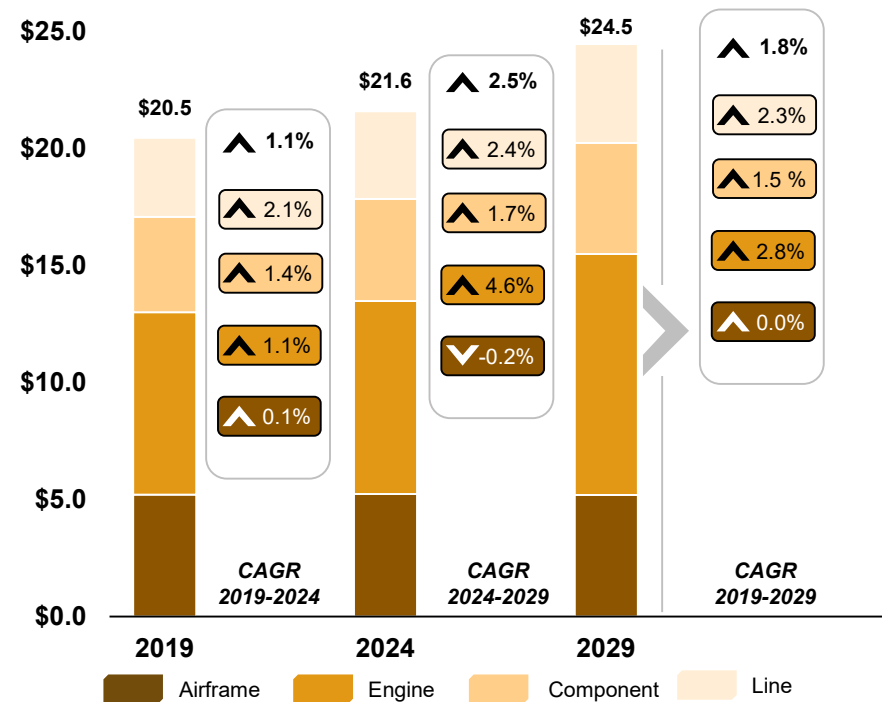
1. Certificated in 2010 or later

The North American fleet is forecasted to grow modestly at 1.4 percent annually over the next 10 years, a slight improvement from the average annual growth of 0.3 percent seen over the previous decade

**N. America Global Commercial Air Transport Fleet Forecast**  
By Aircraft Class/number of Aircraft



**N. America Global Commercial Air Transport MRO Forecast**  
By MRO Segment/US\$ BN

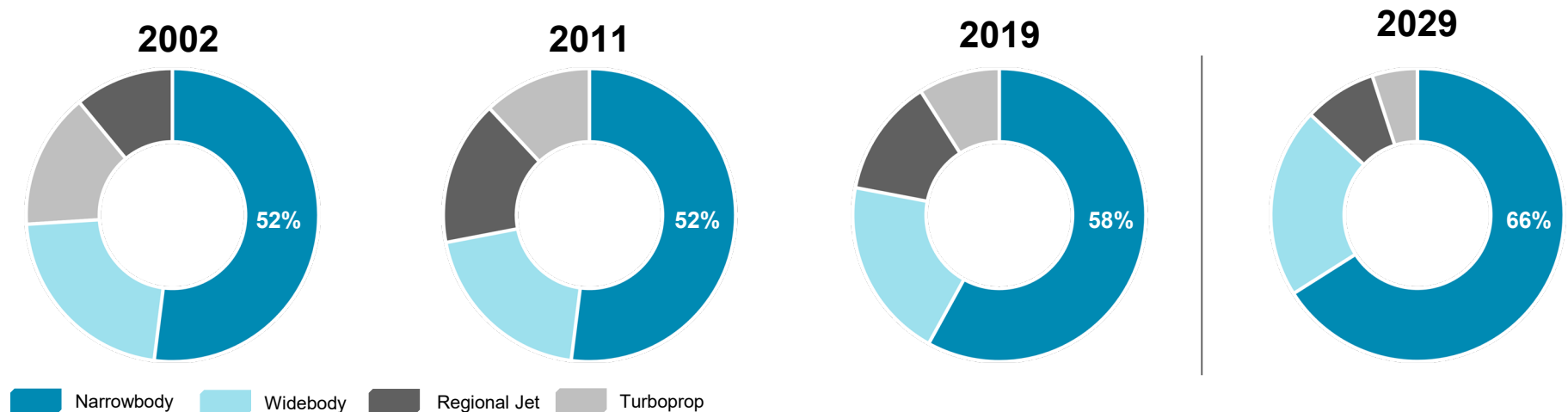


Almost 80% of North American deliveries in the next ten years will serve as replacement aircraft. A best or worst case scenario can swing MRO growth from a low of 0.1% to high of 2.7% CAGR

# Next Generation<sup>1</sup> narrowbody aircraft will dominate deliveries over the next decade with their improved fuel efficiency and greater operational flexibility

## Three Decades of Narrowbody Growth

Share of global fleet, %



### Cost Advantages

- Fuel efficiency
  - Physics
- Cost of acquisition and financing
  - Large block commitments of aircraft
  - Large lessor inventory of NB jets

### Maintenance Advantages

- Program synergies with previous models
  - 737 Max and A320neo designed to incorporate maintenance programs with close similarities to previous generations
- Maintenance base locations and capabilities
  - Providers with previous NB capabilities to expand to newer generations
  - Wide range of available locations/regions to perform maintenance

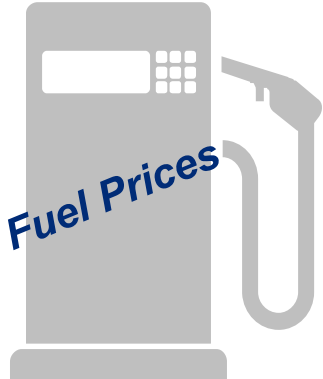
### Operations Advantages

- Gate availability
  - Most airport gates are built for wingspans between 75ft (RJJs) and 120ft (NBs) where WB wingspans reach 220 ft
- Route density
- Pilot familiarity
  - Previous models
- Shrink or stretch models
  - Seat ranges from 150-200+

1. Certificated in 2010 or later

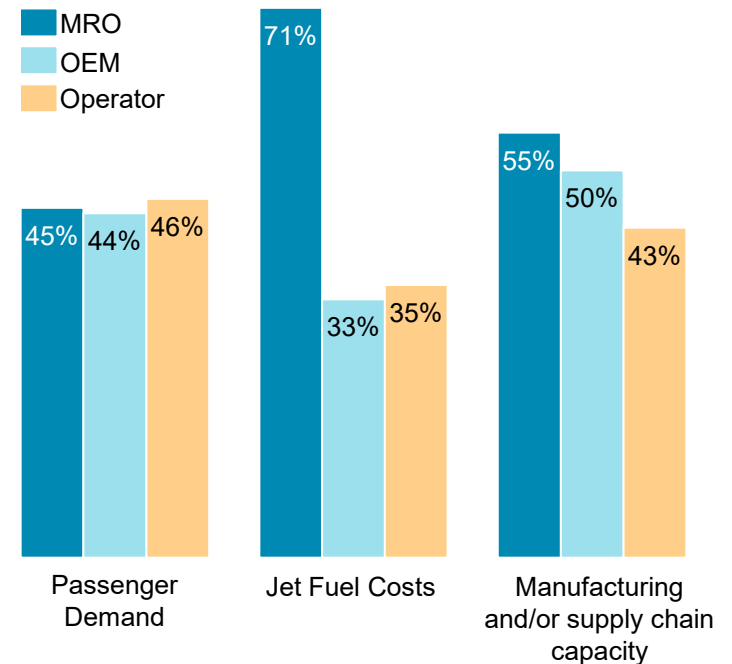
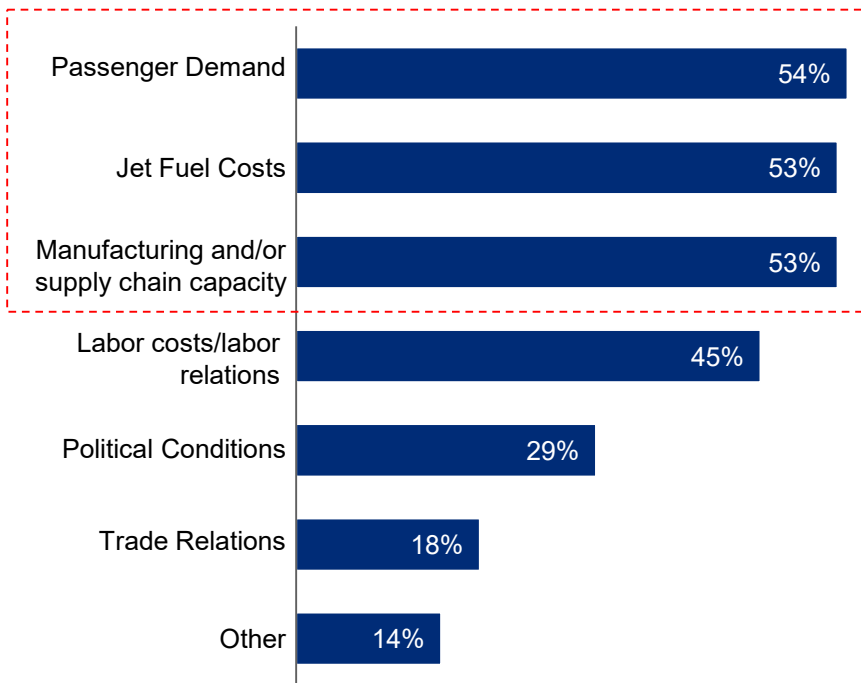
## 2 | Downturn on the Way?

In the short term, various global risks could impact the growth of the commercial fleet and MRO demand



# Passenger demand, fuel costs and supply chain capacity are the three factors that survey respondents feel are going to determine the direction of the MRO market moving forward

Over the next five years, which three factors are most likely to determine the direction of the MRO market?  
*% of participants who selected each response*

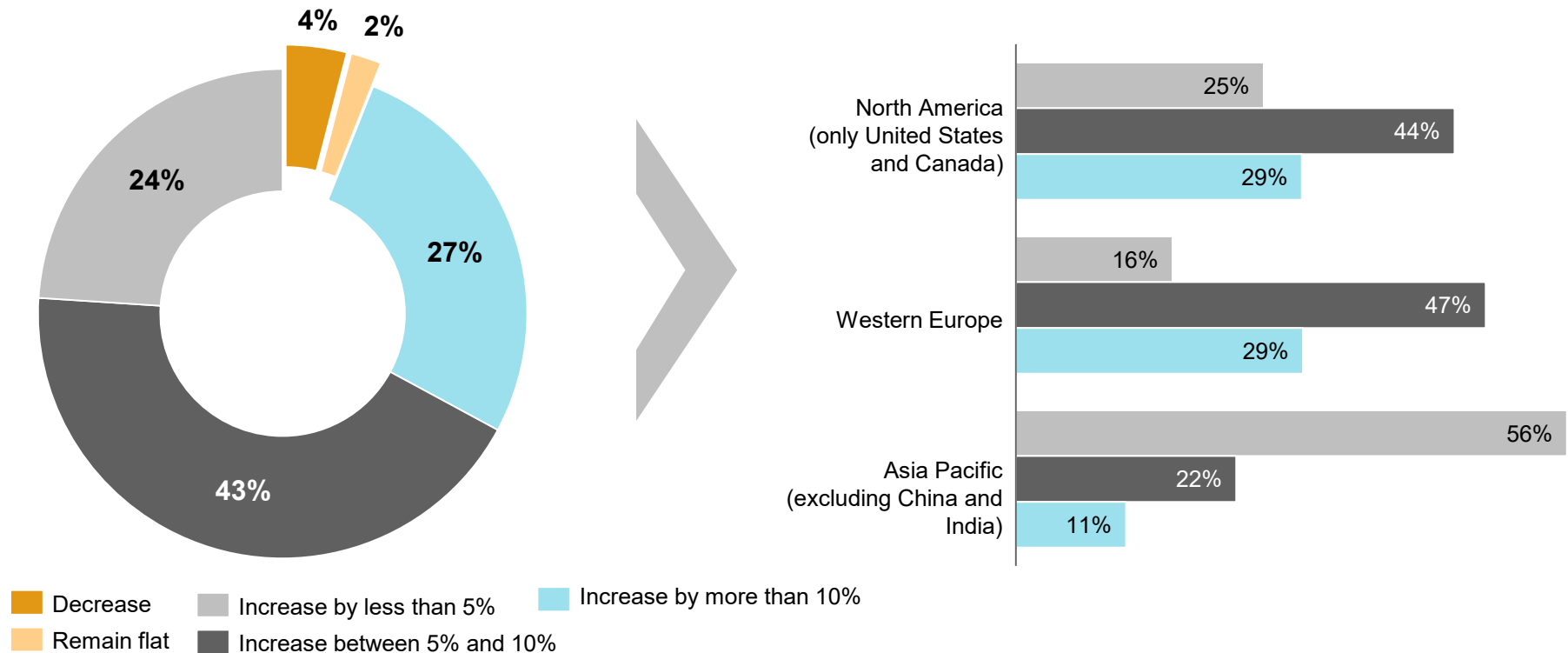


Slowing or declining passenger demand would be a concern equally for OEMs, operators and MROs



Despite potential risks, more than 90 percent of survey respondents believe the aftermarket will grow over the next five years, and 70 percent expect growth to exceed five percent

Over the next five years, in the regions you operate, do you expect to see demand (spend) for MRO services to  
*Distribution of total responses*

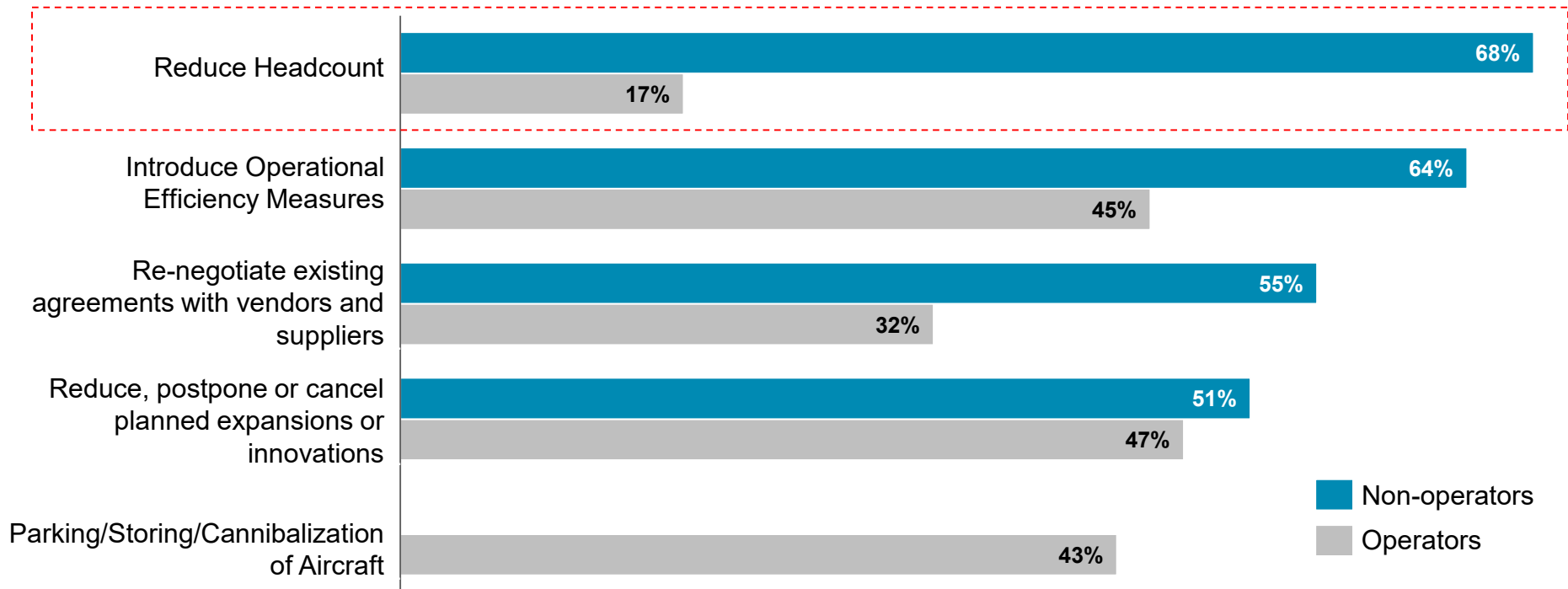


Business confidence is not always a leading indicator of future growth, however...

# Out of 13 possible options, responses to a downturn were consolidated amongst five options, with differing reactions for operators and non-operators

Please select the top three levers you will likely use in the event of an economic downturn

*Distribution of total responses*

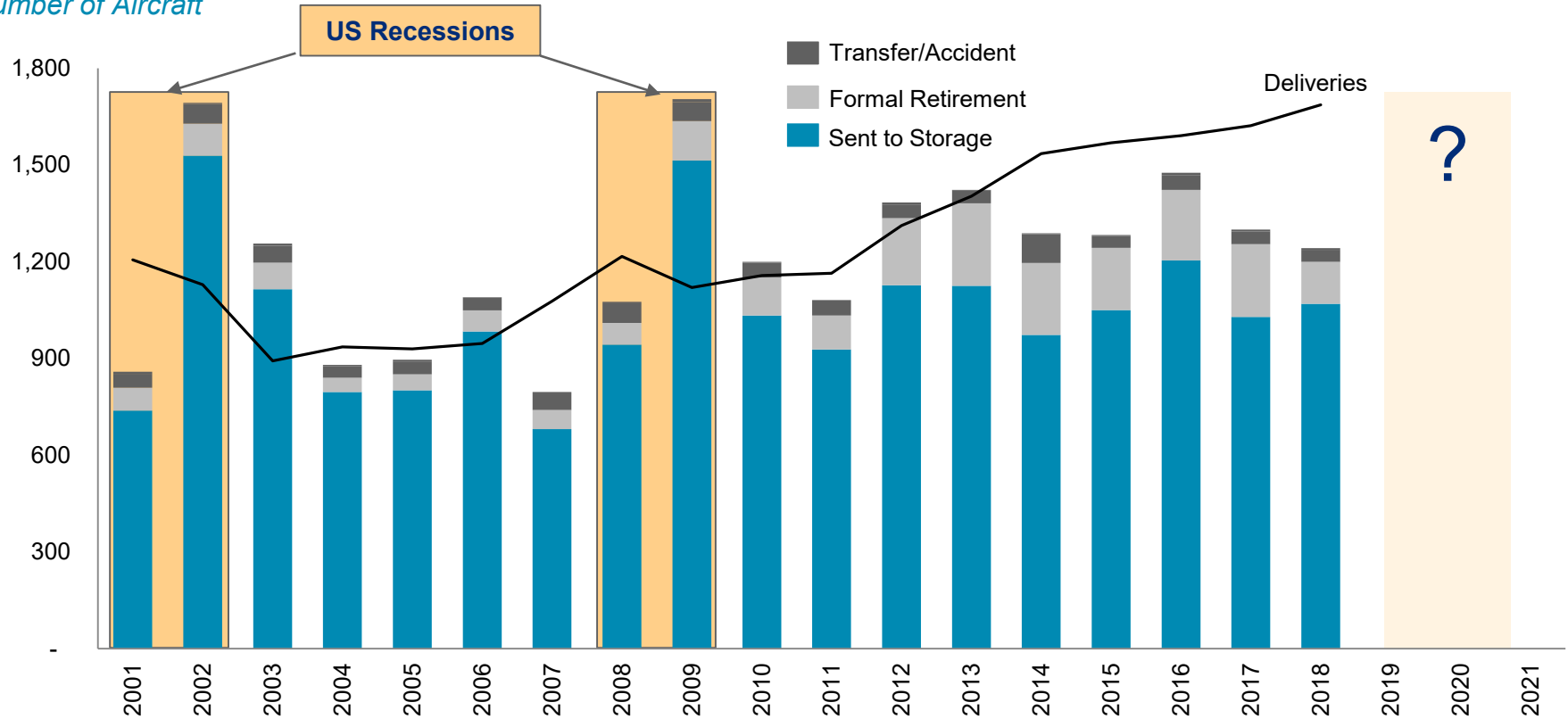


While non-operators would plan to reduce headcount, aircraft operators would largely maintain staffing levels, choosing to improve efficiency and temporarily decrease capacity through postponements and storing aircraft

# Operator responses align with historical actions during downturns; as the amount of aircraft sent to storage saw large spikes in 2002 and 2009

## Annual Fleet Removals from Service and New Deliveries

Number of Aircraft

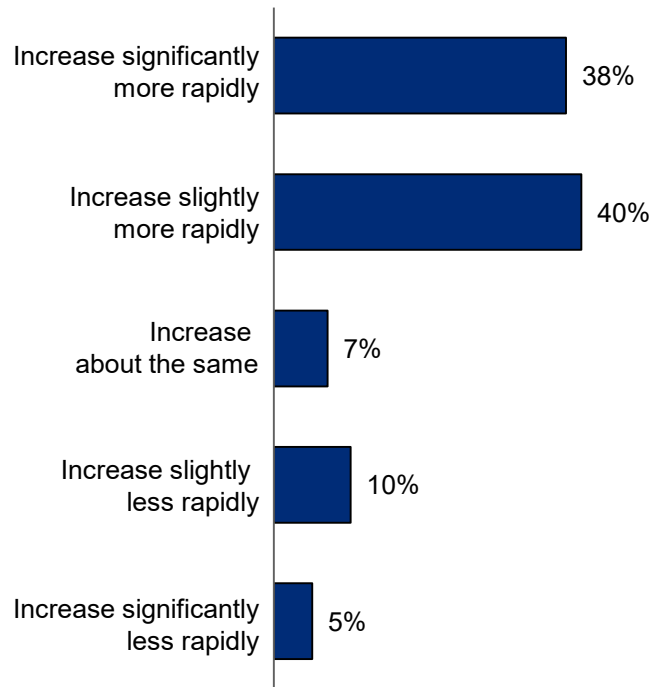


With an average age of 18 years, aircraft sent to storage would not incur scheduled maintenance events, negatively impact MRO demand in the short term

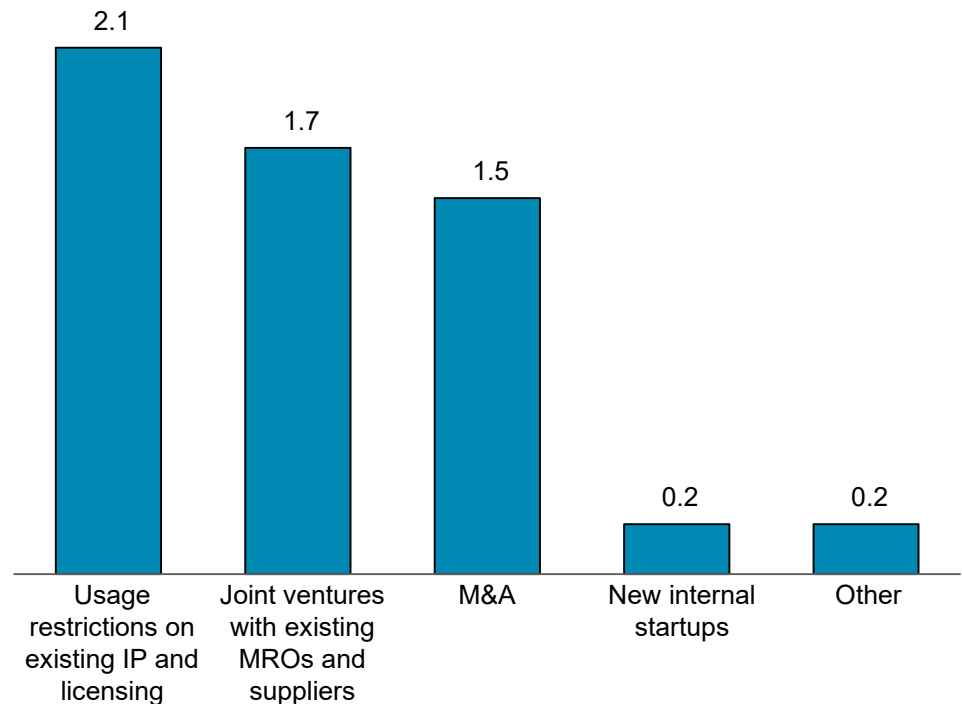
## 3 | An OEM Centric Aftermarket

In the 2018 survey, there was an expectation that OEM's would see an increase in aftermarket share, primarily through usage restrictions on existing IP, joint ventures and M&A

Compared to the market growth, OEMs' share of the aftermarket over the next 3 years will...



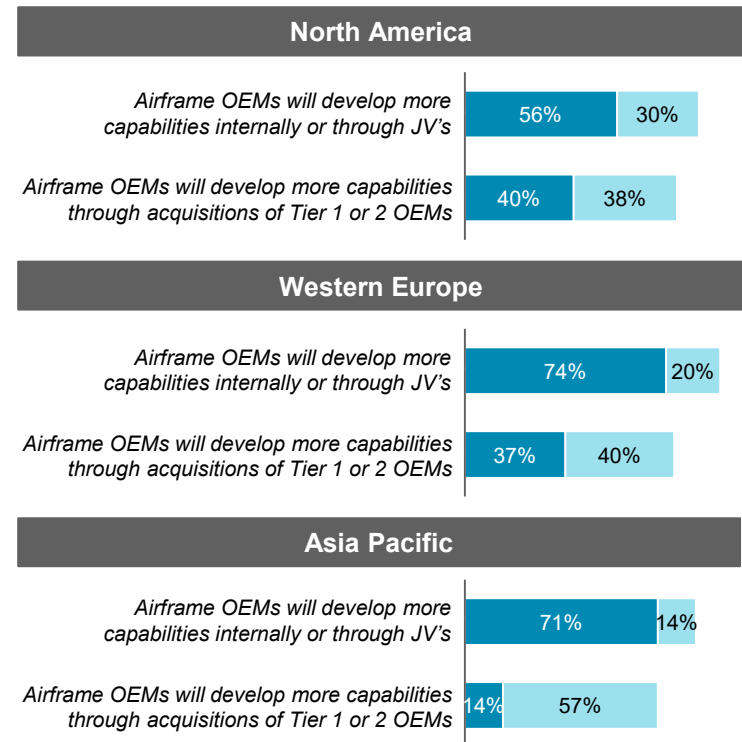
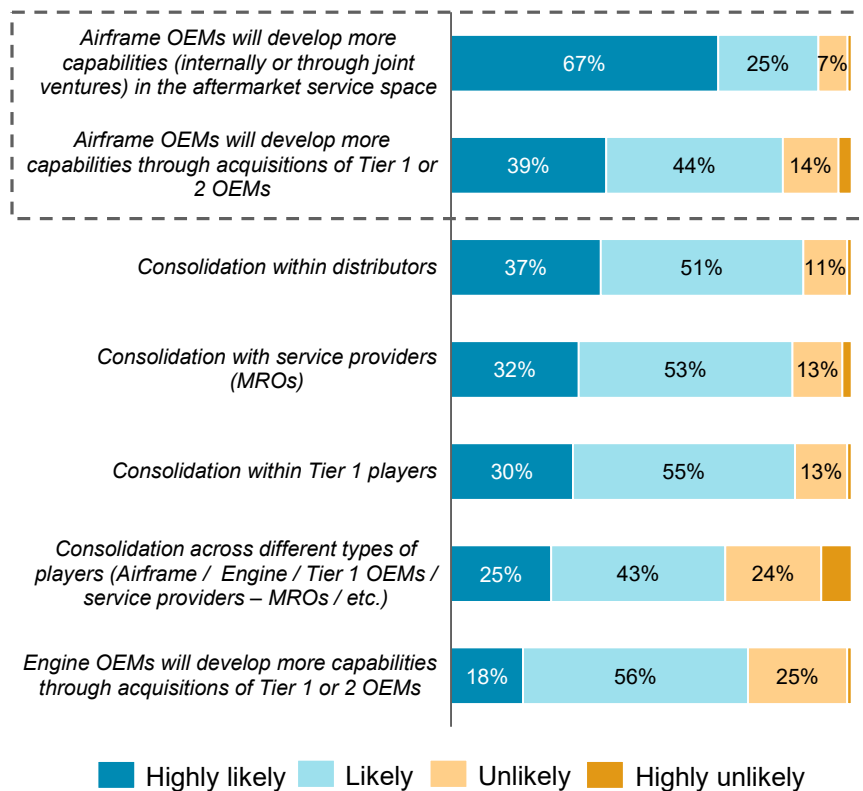
How will OEM grow their presence in the aftermarket?  
*Weighted average of rankings (scale of 1-3)*



It's far too early to tell if the recent CFM/IATA agreement will materially modify OEM aftermarket strategies or competitive actions

# Respondents continue to believe that OEMs will continue to grow in the aftermarket space

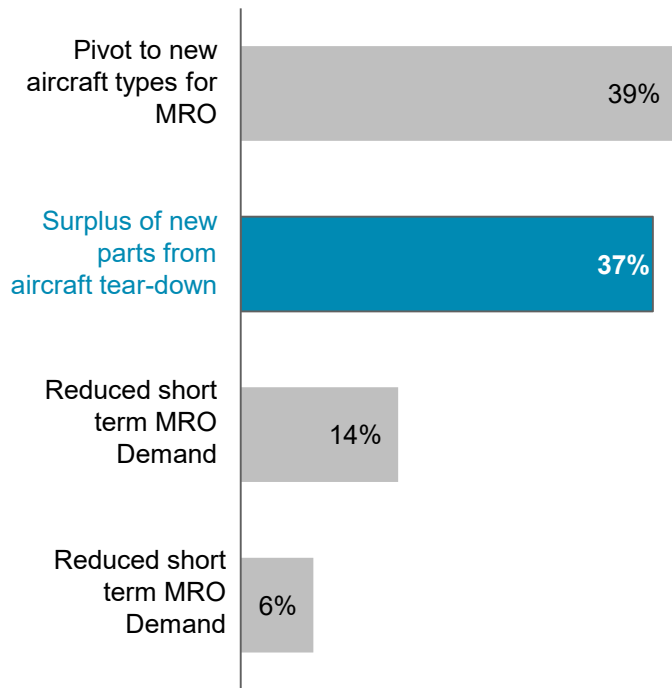
**Q: Over the next couple of years, what is the likelihood of the following events happening in aftermarket services?**  
Distribution of total responses



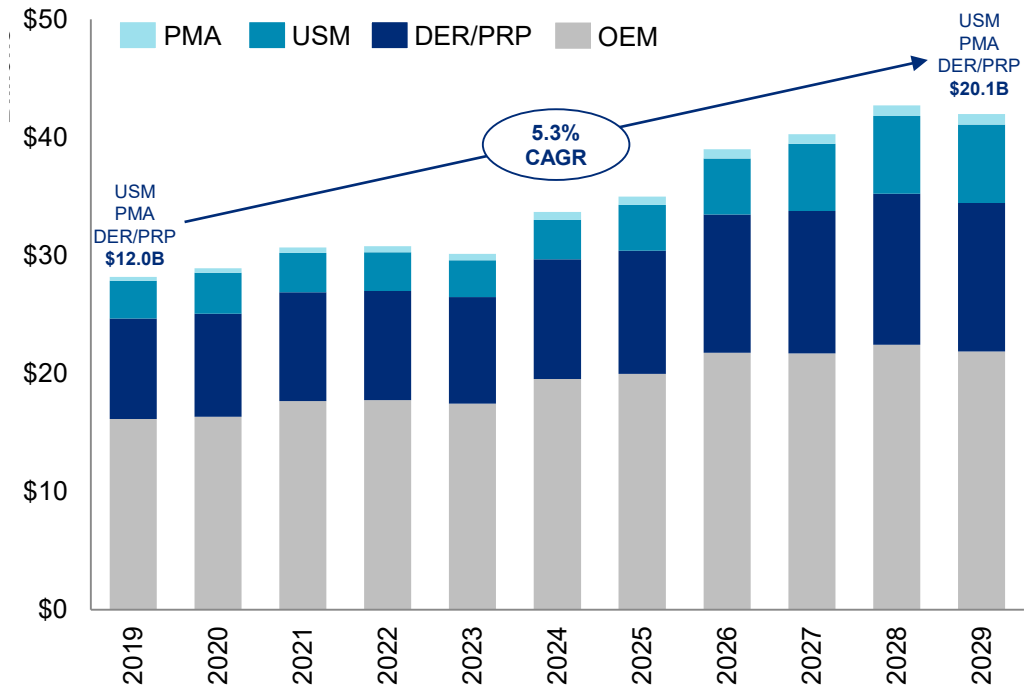
**95 percent of respondents believe that Airframe OEMs will develop more capabilities either internally, through joint ventures or acquisitions of Tier 1/2 OEMs**

# Growing demand for USM offerings is changing the spare parts aftermarket and helping improve penetration rates

As older vintages in North America and Western Europe are retired over the next five years, what will be the most important result of this for the aftermarket?



Total Engine Materials Demand by Source



Operators are not waiting for the market to meet their materials needs, as cost advantages for PMA parts are driving increased demand in the segment. By 2029, USM, PMA and DER/PRP will represent close to 50 percent of all engine materials

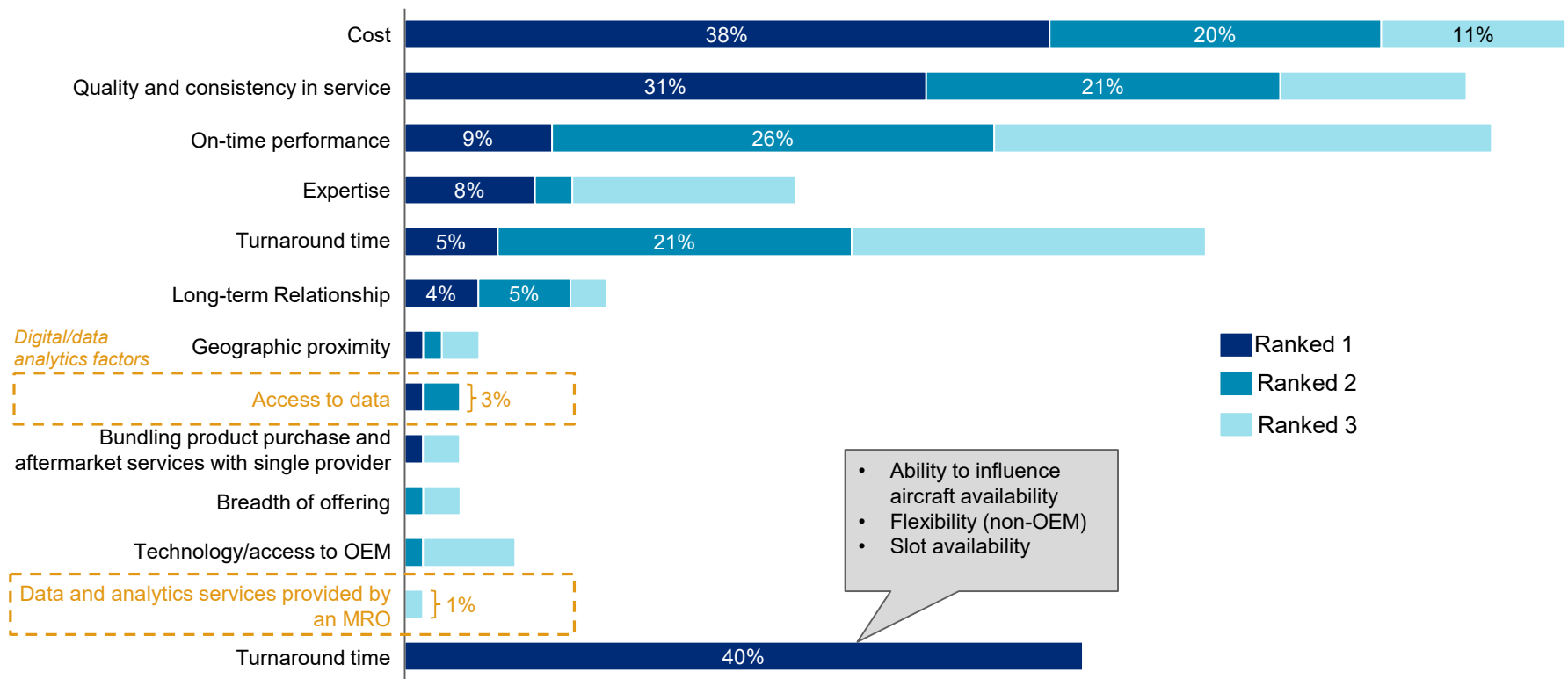
## 3 | A Digital Evolution



For survey respondents, cost ranked as the most important factor when choosing an MRO provider, with almost 90 percent of respondents ranking it in their top 5

**What are the most important factors when an operator is choosing an MRO service provider?**

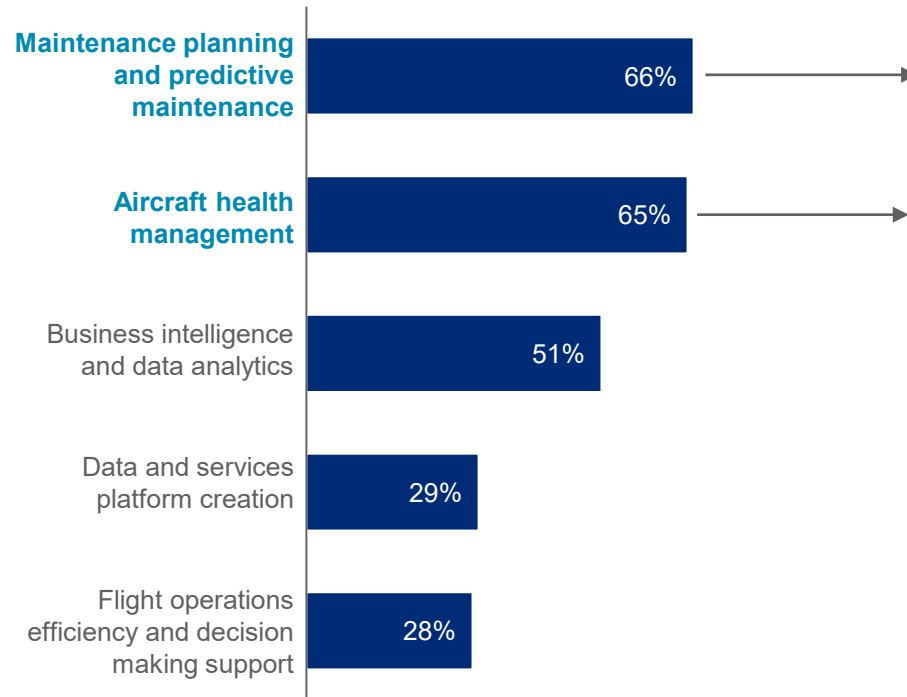
*Ranking each factor from 1 (most important) to 13 (least important) - % of respondents*



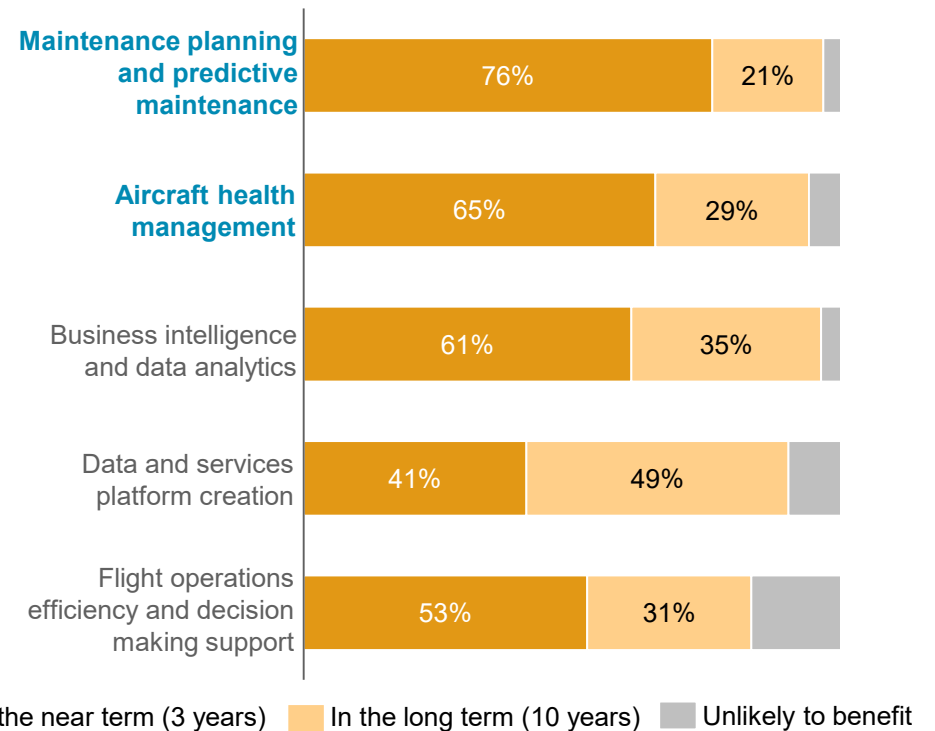
Currently, digital and data analytics offerings are not a differentiator when choosing an MRO service provider

# While not considered critical or the most important aspect of an OEM/MRO's services, digital offerings have evolved over the past decade

**What digital offerings have evolved the most?**  
*% of participants who selected each response*

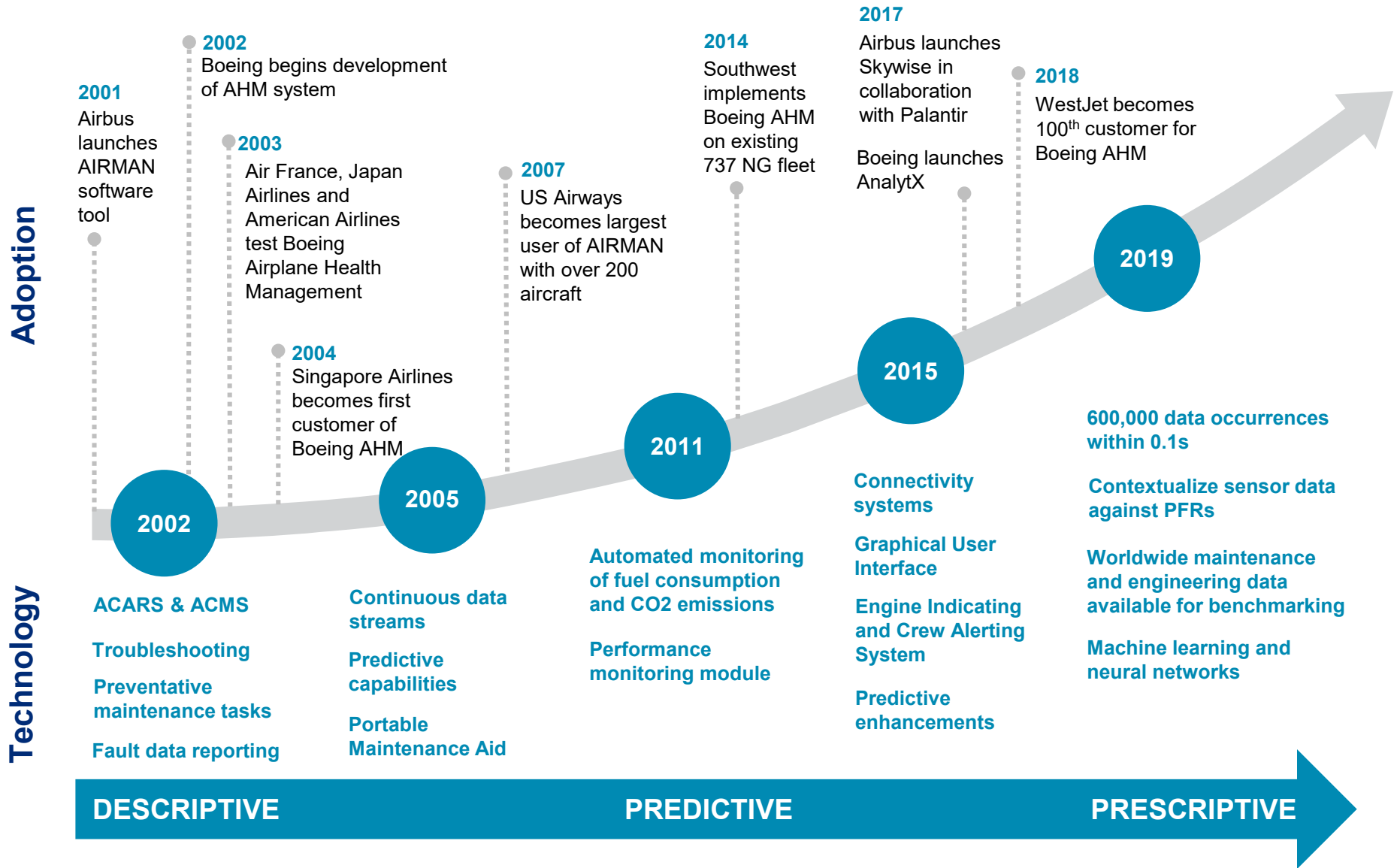


**When is each digital offering likely to benefit your business the most?**  
*Distribution of total responses*



Predictive maintenance and AHM implementation have grown over the past few years, and will benefit companies that have taken advantage of this new technology

# AHM technology has evolved over the past two decades, driving increased adoption rates among operators



The AHM/PM field has become increasingly crowded over the past two decades



**Rolls-Royce**



**United Technologies**



**skywise**. The beating heart of aviation

**Rockwell  
Collins**

**Esterline**

BOEING ANALYTIX



**MEGGITT**

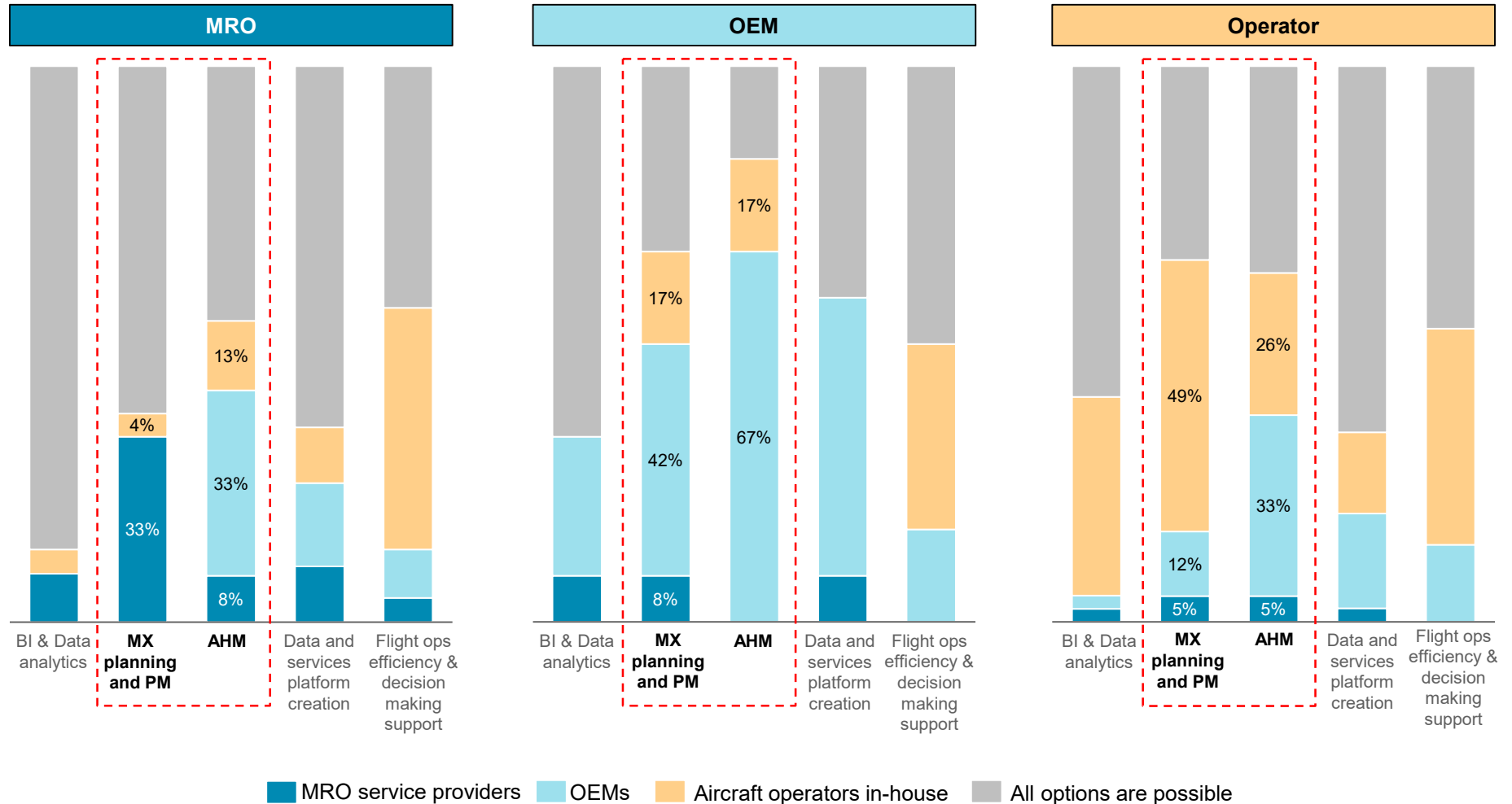


**Honeywell**

**PREDIX**

# Disagreements exist about who should provide these digital services like AHM and predictive maintenance planning

Who should be responsible for providing digital and data analytics services?  
*Distribution of total responses by company type*



## 4 | Conclusions

# Conclusions

## Fleet and MRO growth is supported by strong underlying metrics

- An expanding global middle class will drive demand for air travel over the next decade plus
- Emerging markets will see the largest growth on a relative basis
- The global fleet will exceed 39,000 aircraft by 2029, driving \$116B in MRO demand

## Aftermarket battles will intensify, driven by an expanded OEM presence along with the increasing popularity and availability of USM and PMA materials

- An acceleration of aircraft retirements in developed regions will replenish the shrinking supply of used parts
- Industry acceptance of alternate materials sources will increase competition in the aftermarket



## Despite near term global risks, the industry is bullish about both short and long-term growth potential

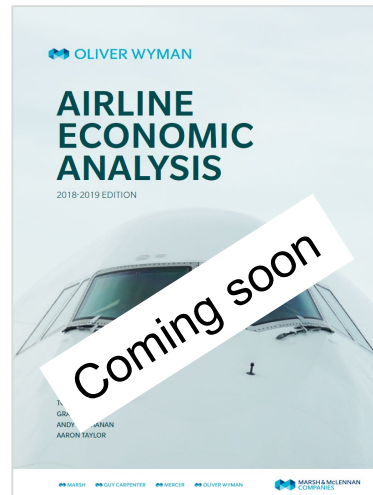
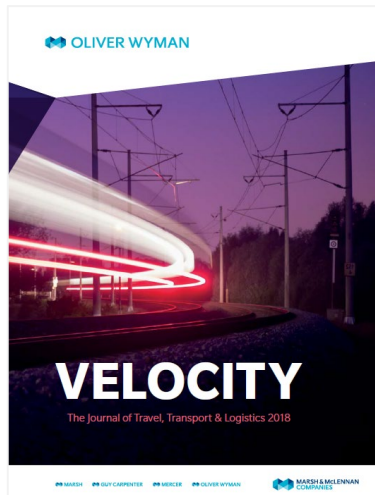
- Tightening labor conditions, fuel prices, global trade wars and political instability are all external factors that could negatively affect market growth
- Future sentiment is largely positive, with plans in place to deal with a potential downturn

## Digital offerings will continue to evolve and positively impact the bottom line

- Mx planning, AHM and predictive maintenance have evolved the most
- As these offerings begin to impact cost more substantially, they will become important factors considered by operators when choosing an MRO

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