

*Presented by:*

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# MRO Market Update & Industry Trends





# Today's Agenda

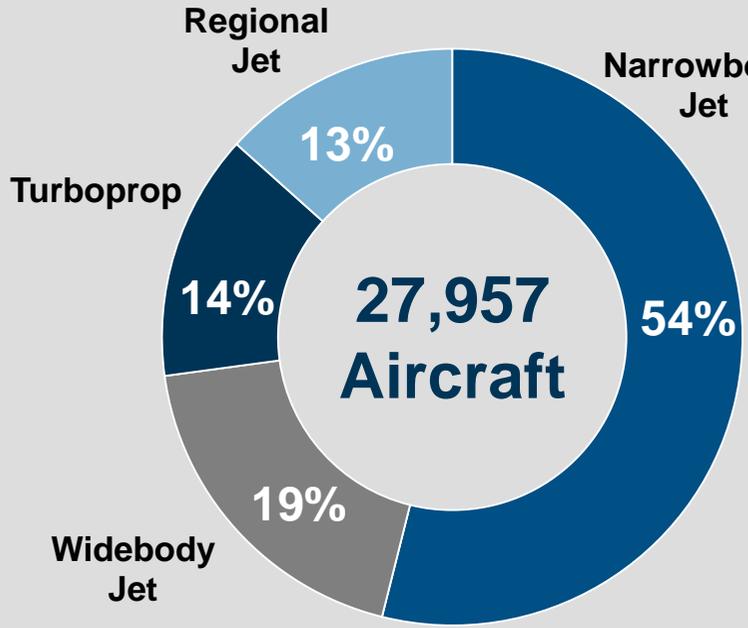
- ⚙️ **Fleet & MRO Forecast**
- ⚙️ **2016: *What a long strange ~~trip~~ year it's been...***
- ⚙️ **2017: *The year aviation & aerospace blinked...***

# MRO Forecast

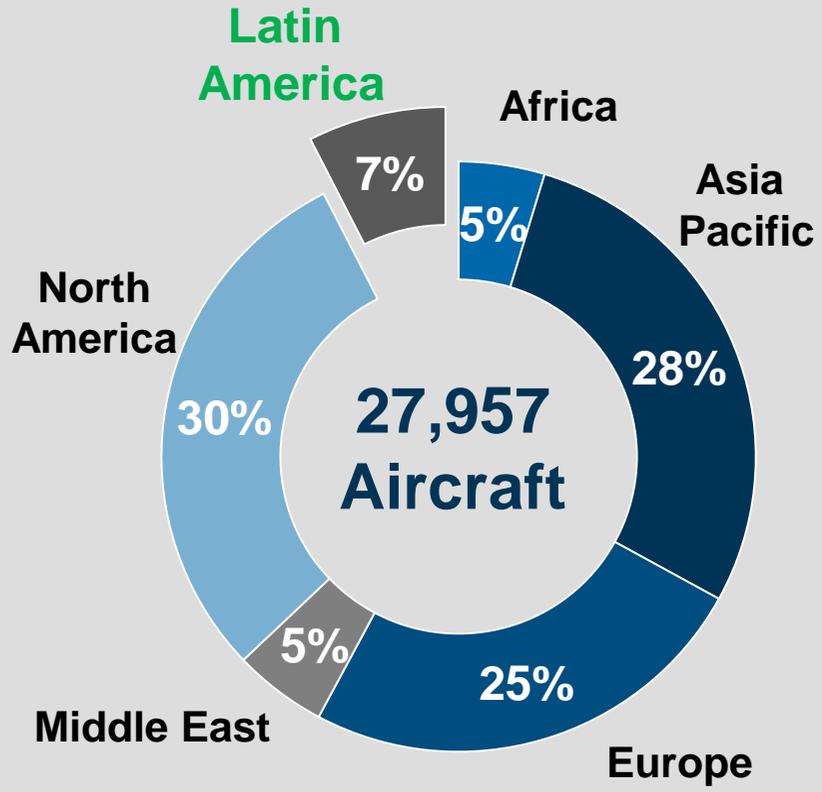


The current commercial air transport fleet consists of under 28K aircraft; over half are narrowbody aircraft

### 2016 Global Commercial Air Transport Fleet



By Aircraft Type

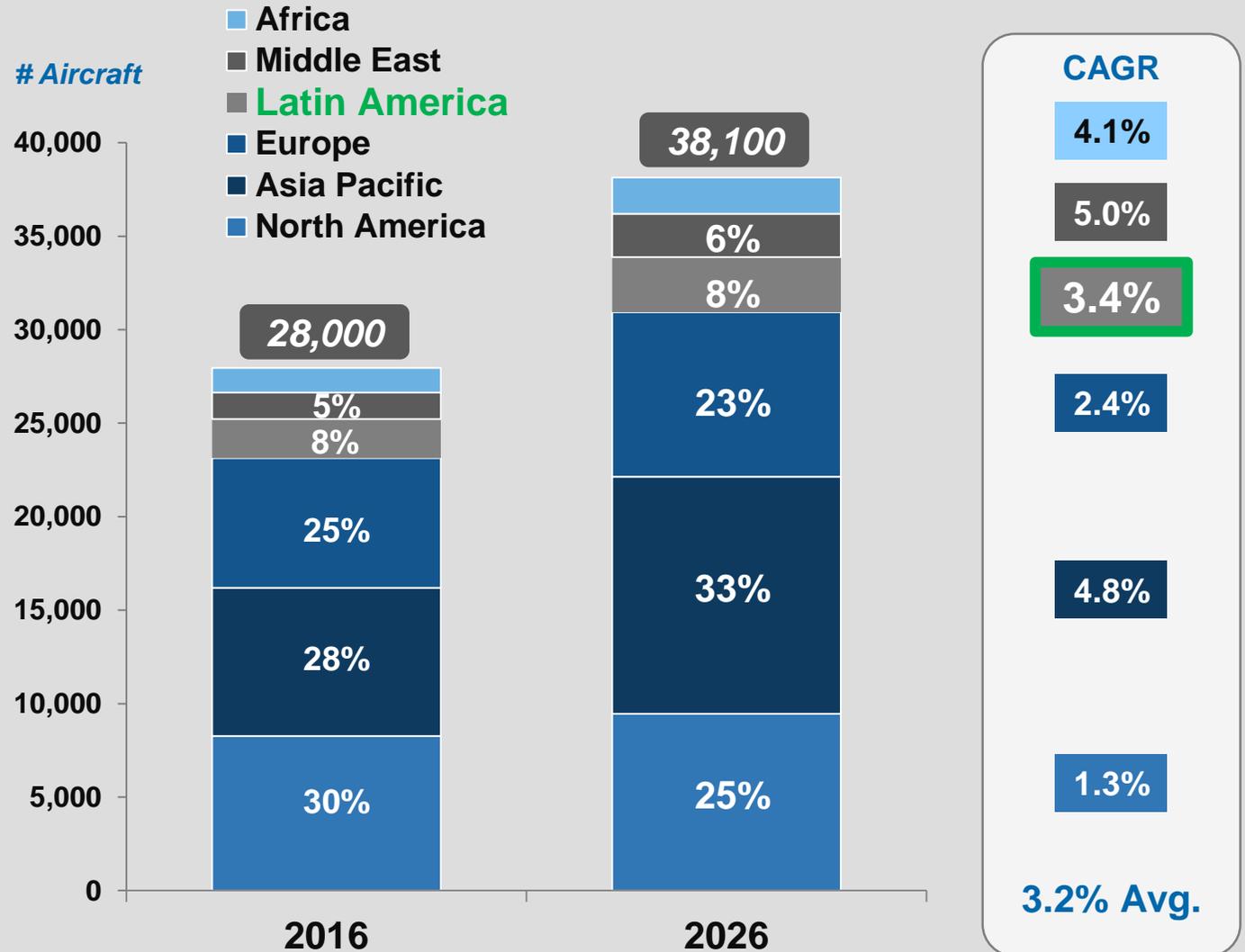


By Global Region

Source: CAPA 2016

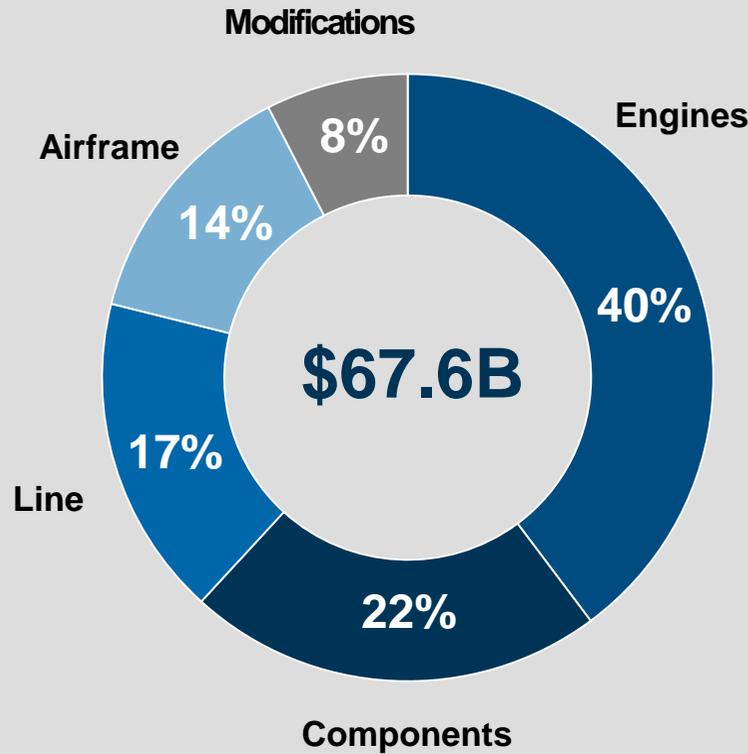
The combination of strong air travel demand and the need to replace ageing aircraft will drive fleet growth at a healthy 3.2% annually

## 10 Year Global Air Transport Fleet Growth

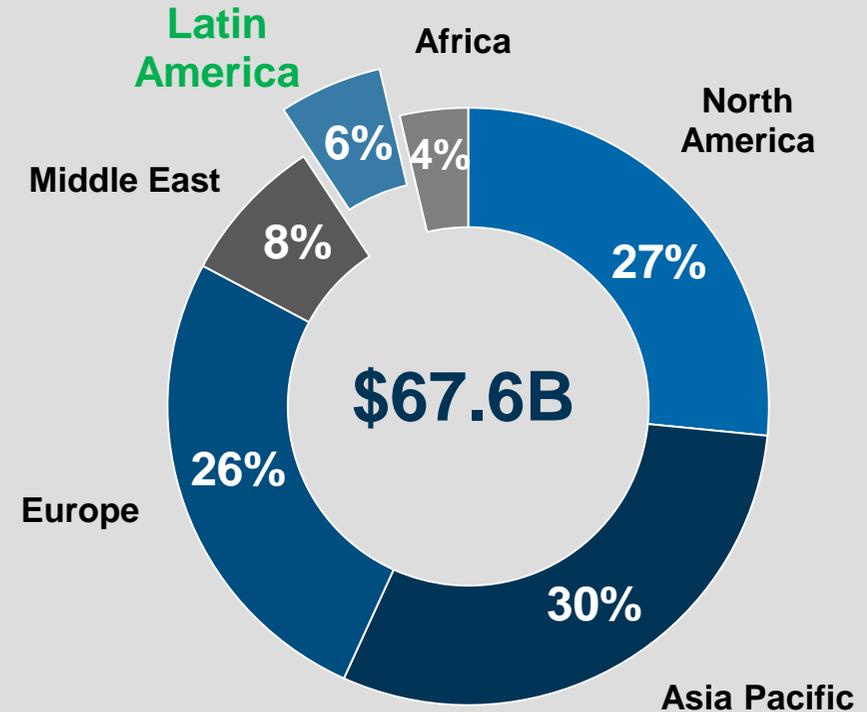


Current commercial air transport MRO demand is \$67.6B; Asia is now larger than North America and Europe in market size

## 2016 Commercial Air Transport Global MRO Demand



By MRO Segment

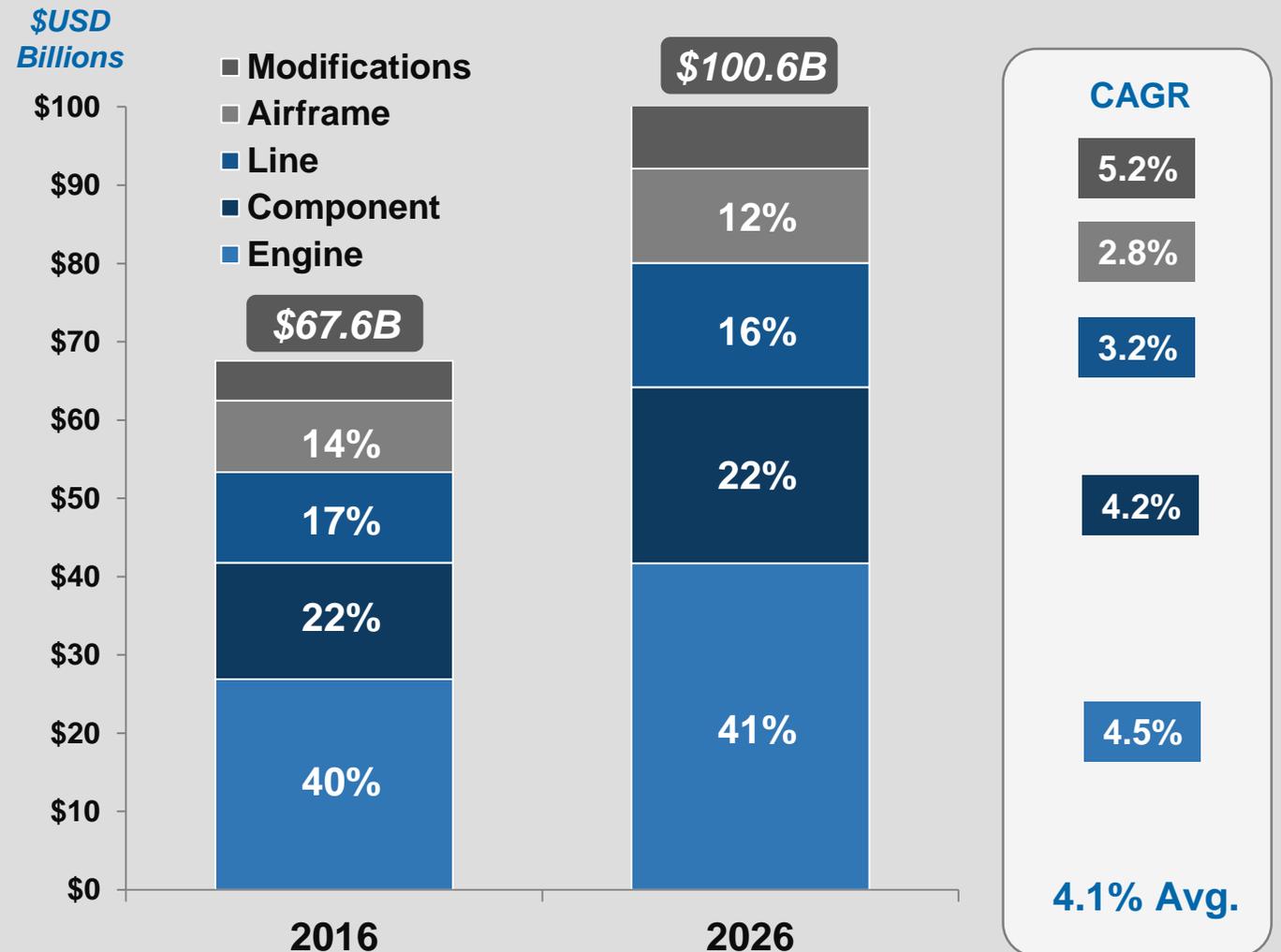


By Global Region

# The global MRO market is expected to grow by 4.1% per annum to over \$100B by 2026

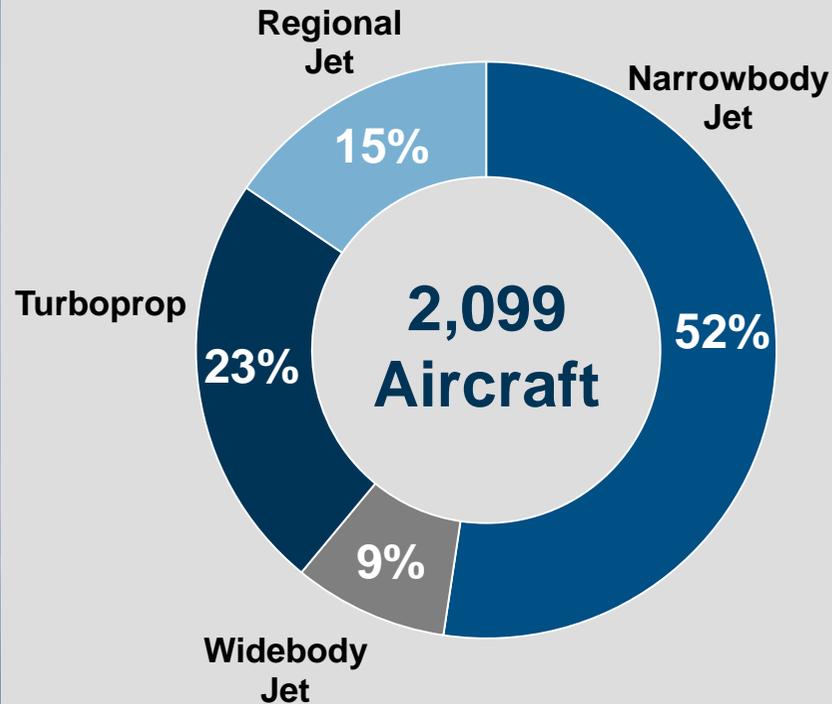
- Engine and component MRO markets remain the largest segments
- Modifications market will see the strongest growth (e.g. interiors, connectivity)
- Airframe market slows due to reduced man-hour intensity and increased check intervals as new fleets are introduced

## 10 Year Global Commercial Air Transport MRO Demand Growth

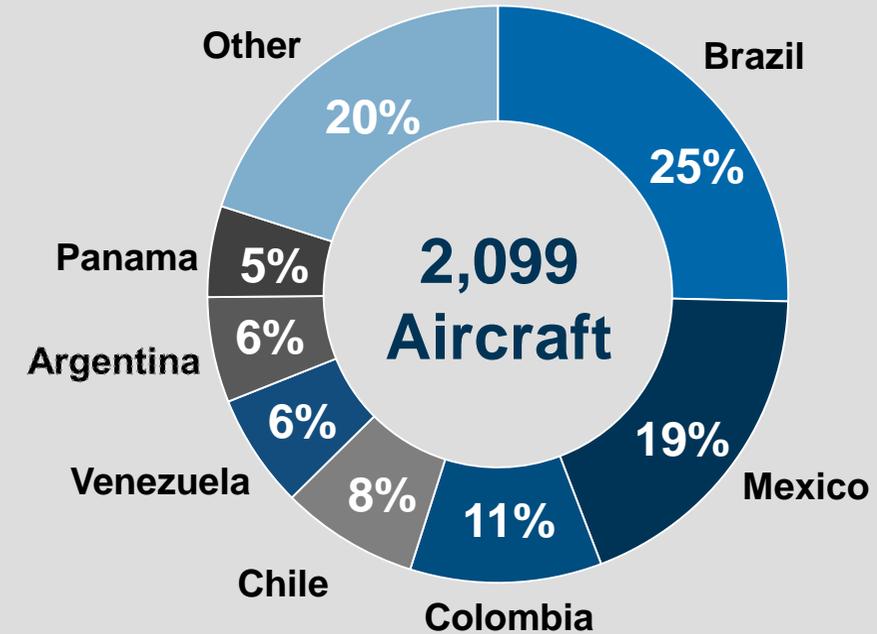


The current Latin American fleet consists of over 2,100 aircraft; with narrowbody aircraft making up more than 50% of the installed base

## 2016 Latin American Commercial Air Transport Fleet



By Aircraft Type

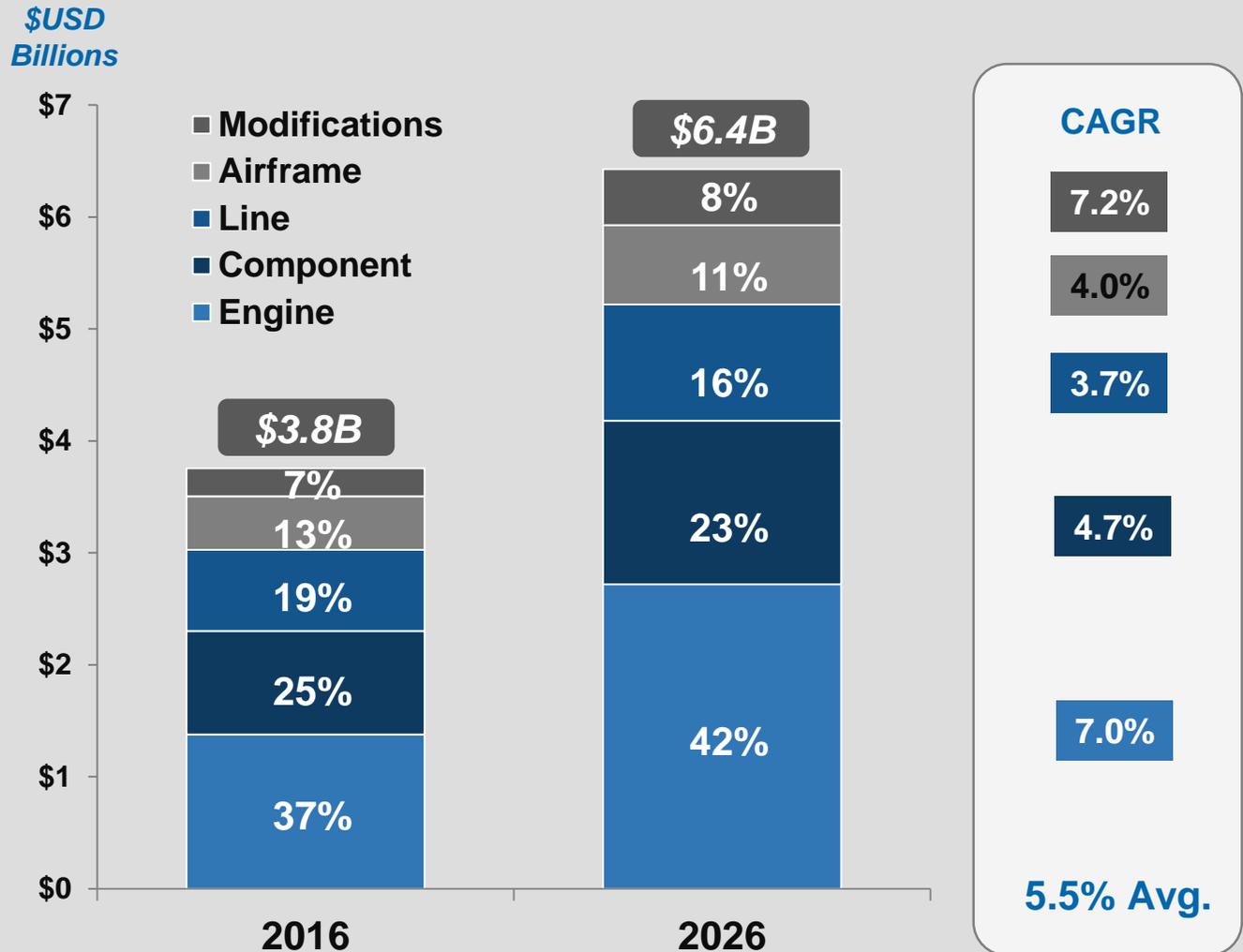


By Country

# The Latin American MRO market is expected to grow to approx. \$6.4B by 2026, at 5.5% per annum

- Modifications is the fastest growing MRO segment in Latin America
- MRO spend on widebodies in Latin America will nearly double by 2026 as the fleet increases by 56%

## 10-Year Global Latin American MRO Demand Growth



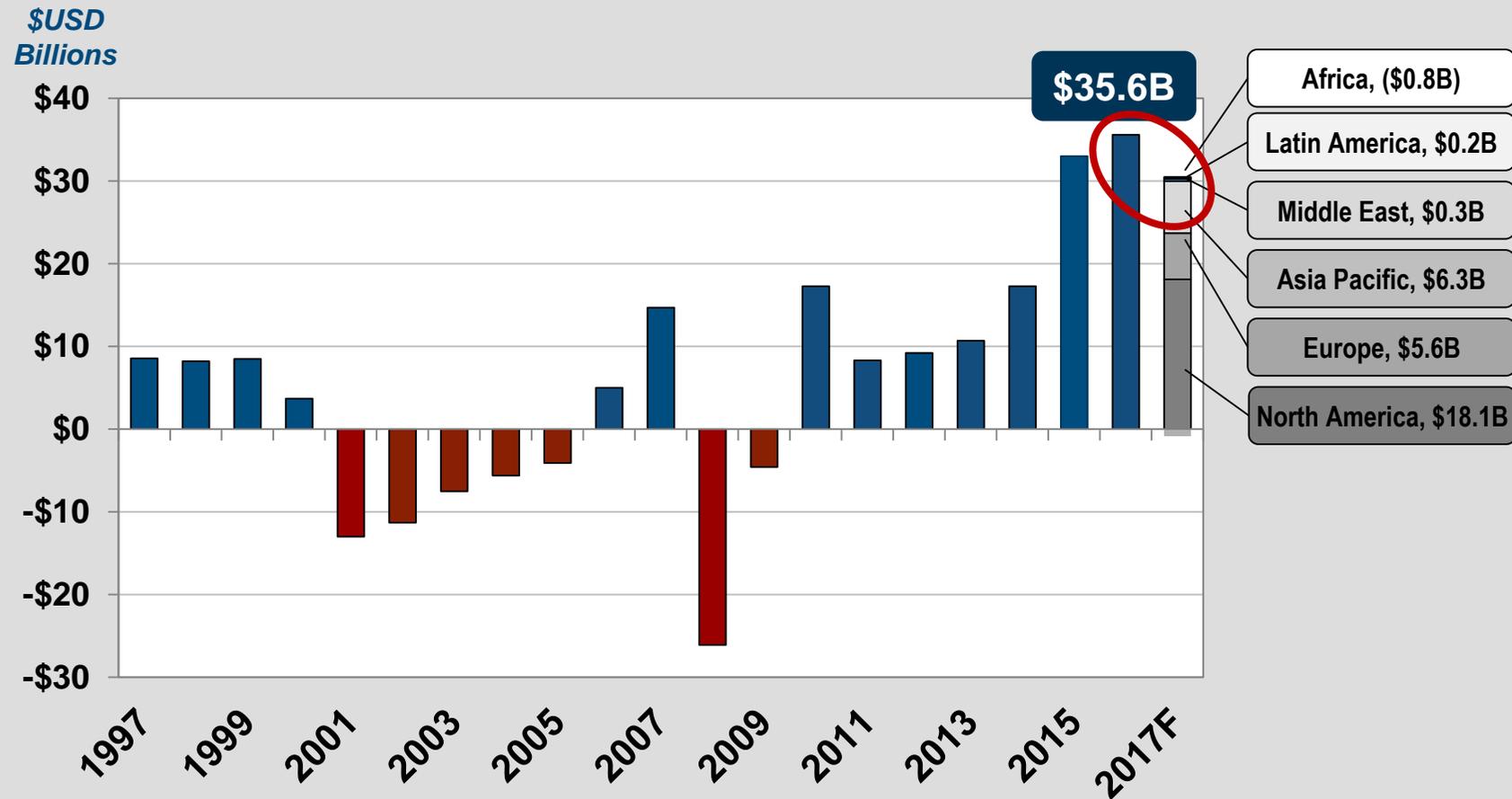
*2016: What a long strong ~~trip~~  
year it's been...*



Driven by low fuel costs and consolidation, the global airline industry achieved record profitability of over \$35B USD in 2016

# 2016 was a historic year for airline profitability...

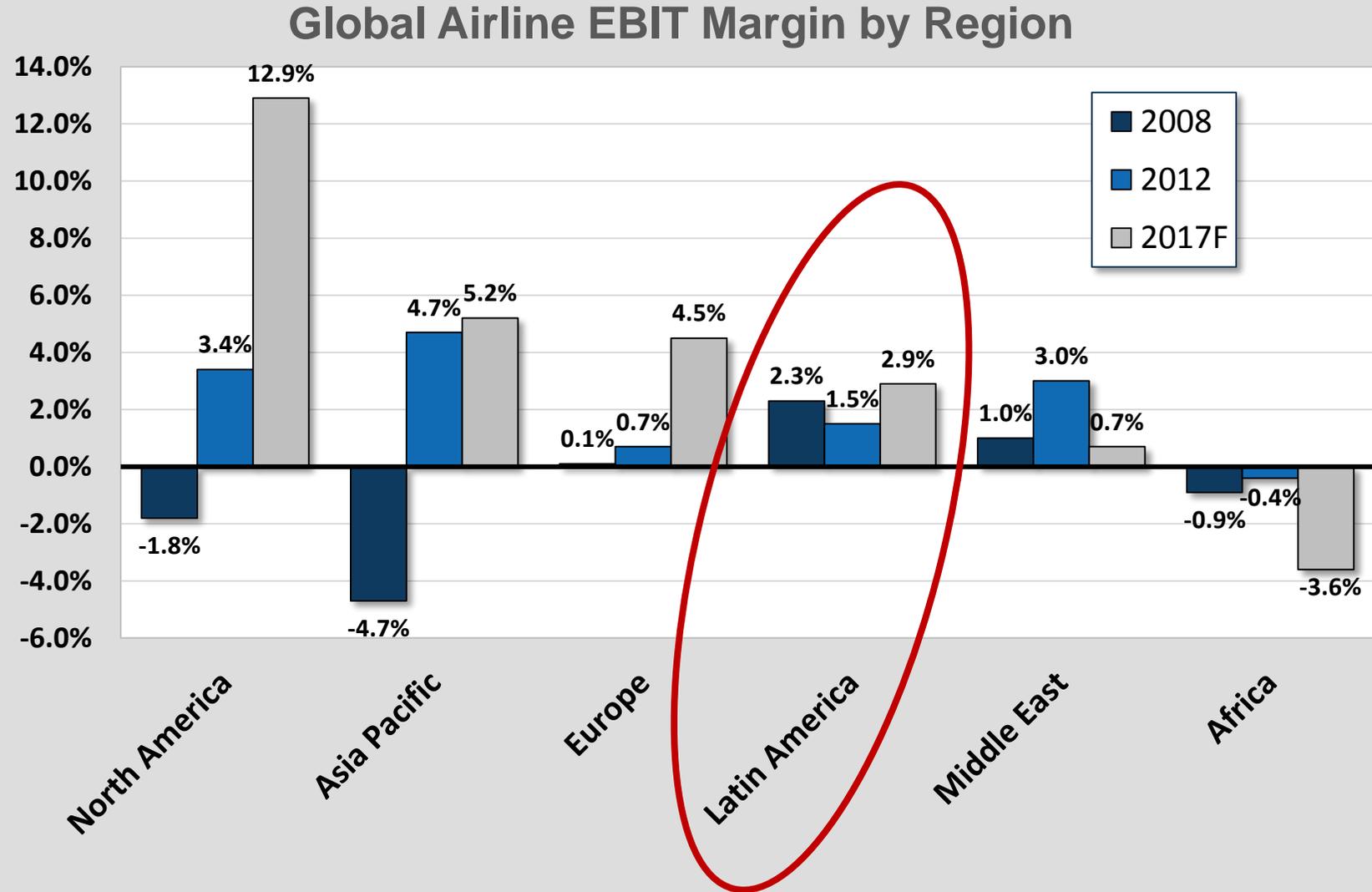
Global Airline Profitability, 1997 - 2017F



Source: IATA, ICF analysis

However, record profitability has been largely limited to carriers in North America

## ...but many airlines continue to struggle



# Follow the Money: Airlines are spending their hard earned profits in three primary areas

## 1. Labor ~ 20%:

- Profit sharing
- Wage increases

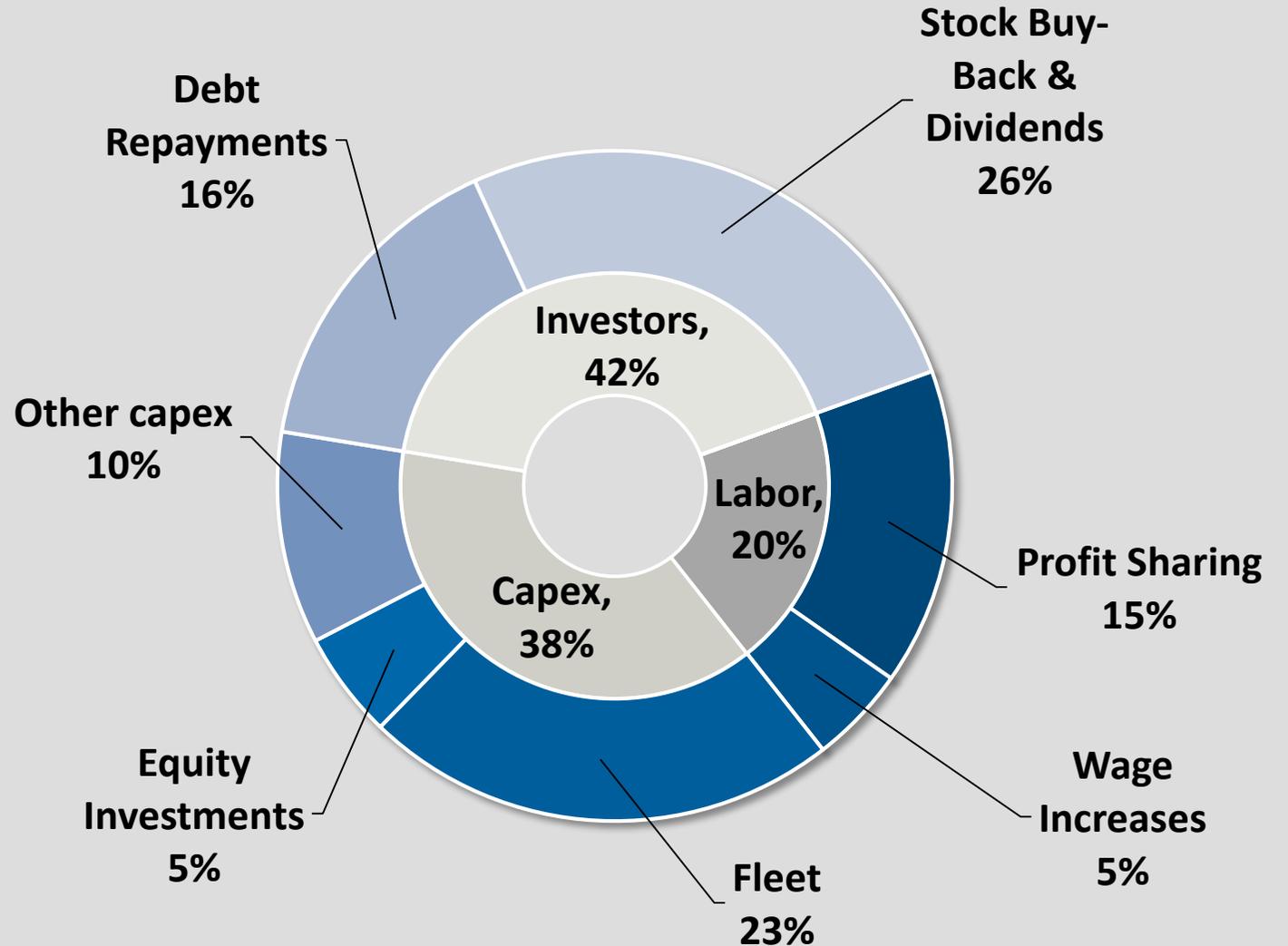
## 2. Capex ~ 38%:

- Fleet renewal & cabin upgrades
- Facilities, offices, lounges
- Equity partner investments

## 3. Investors ~ 42%:

- Stock buy-backs
- Dividends
- Debt repayment

## Airline Profit Spend Analysis

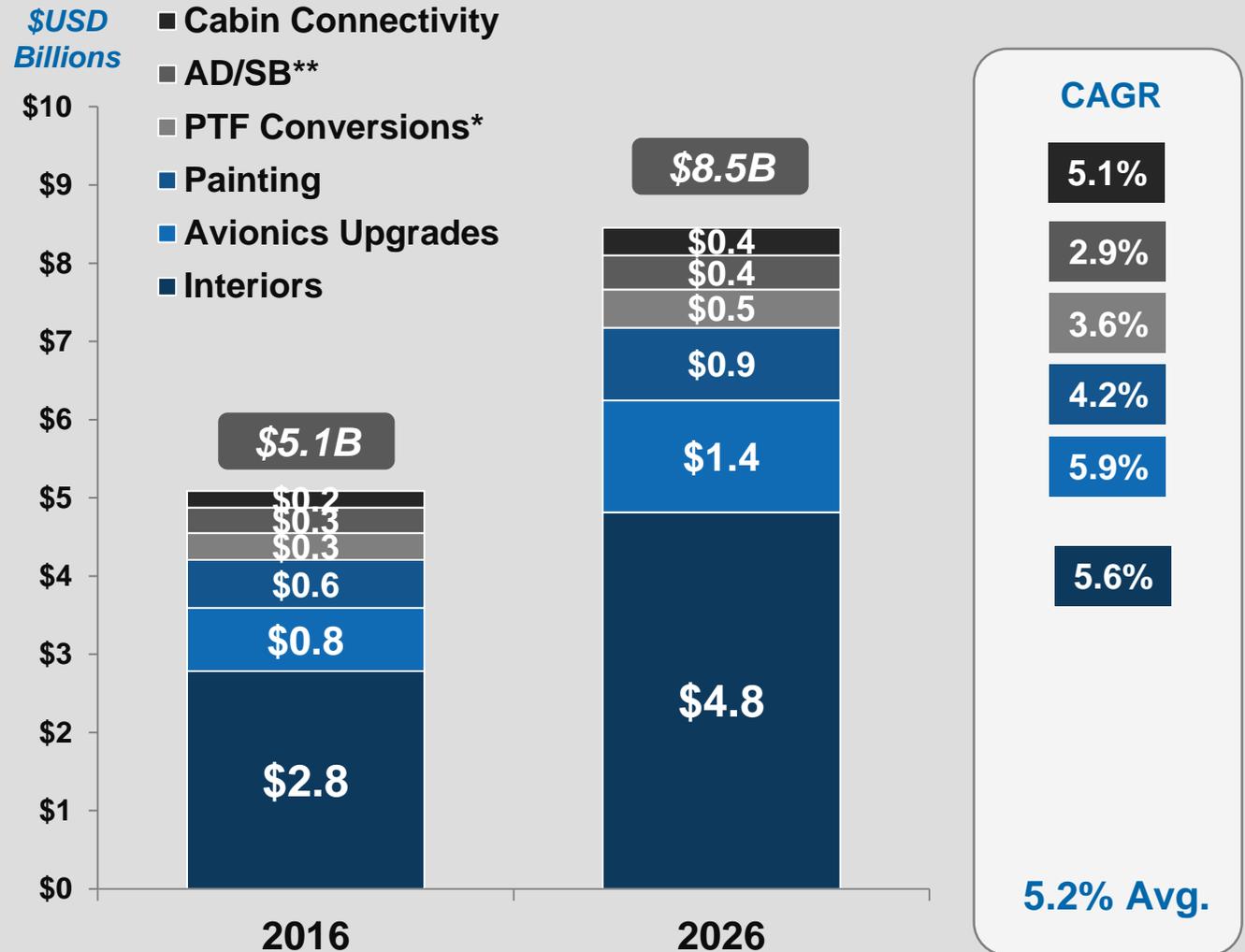


# Aviation is experiencing a new golden age of aircraft cabin interiors

## MRO modification market growth drivers include:

- Latest lie-flat seats are now the minimum standard
- Premium economy
- Wi-fi, on-board connectivity
- Capacity (ASM/K) increase (“Cabin Densification”)
- Coming soon: ADS-B Mod program

## Commercial Air Transport Modifications Forecast



Modifications demand includes labor and material spend

\*Passenger-To-Freighter Conversions

\*\*Airworthiness Directives / Service Bulletins

Source: ICF analysis, constant 2016 US\$

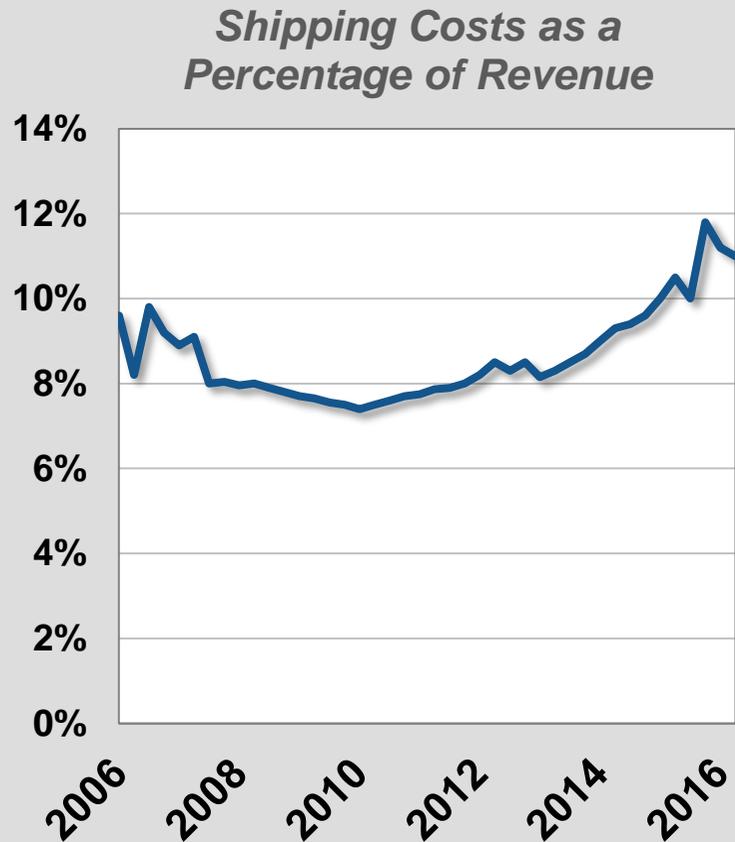
Amazon is very well positioned to lead a major disruption of the air cargo industry



**FINAL EDITION** *The Times* **EXTRA! EXTRA!**  
 Amazon is investing in airplanes - takes ownership stake in two North American cargo carriers; Atlas Air & ATSG

**FINAL EDITION** *The Times* **EXTRA! EXTRA!**  
 ATSG subsidiary AMES acquires airframe MRO and freighter conversion specialist PEMCO World Air Services

### Amazon's Growing Revenue & Shipping Costs



Source: Amazon SEC Filings

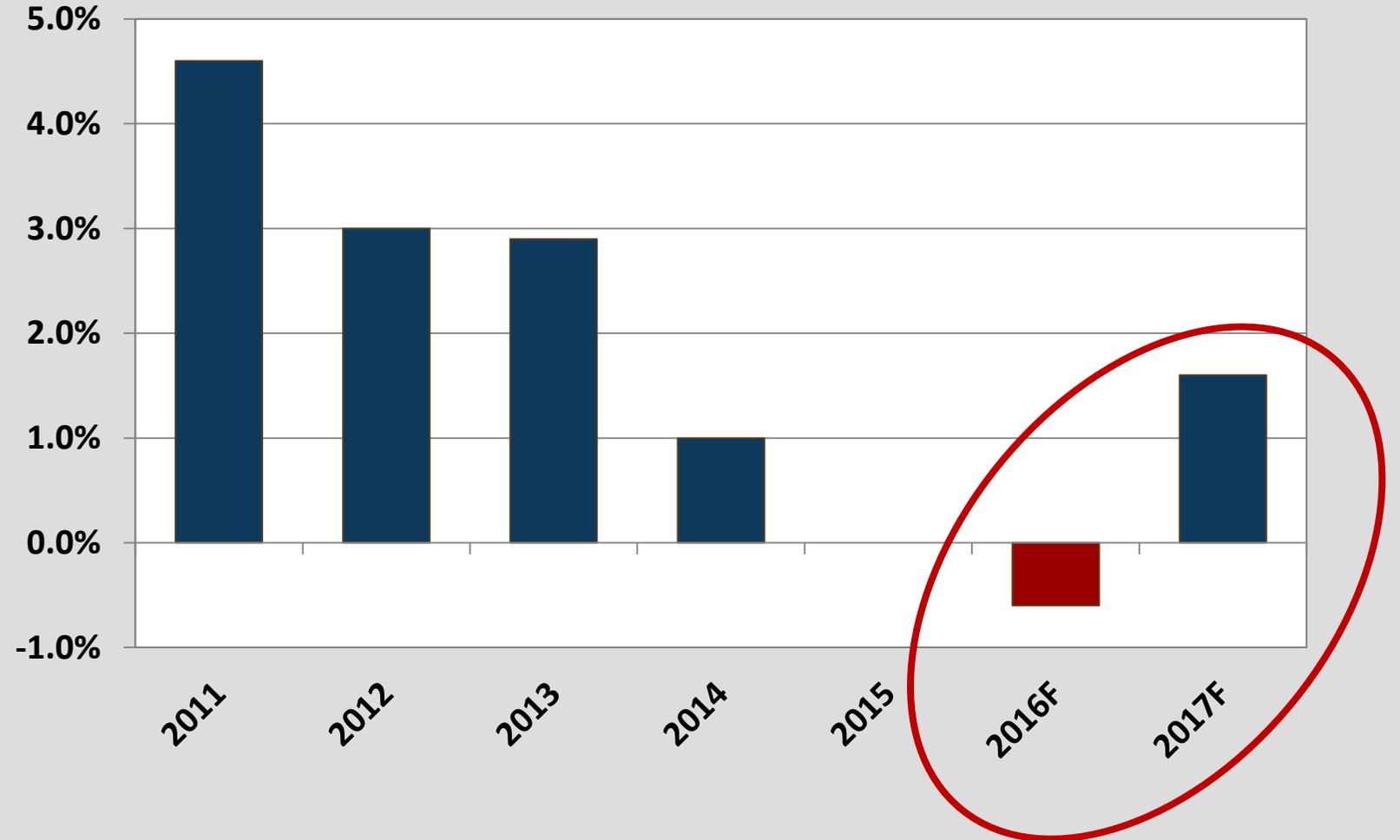
# Latin American Aviation Outlook



# The good news...

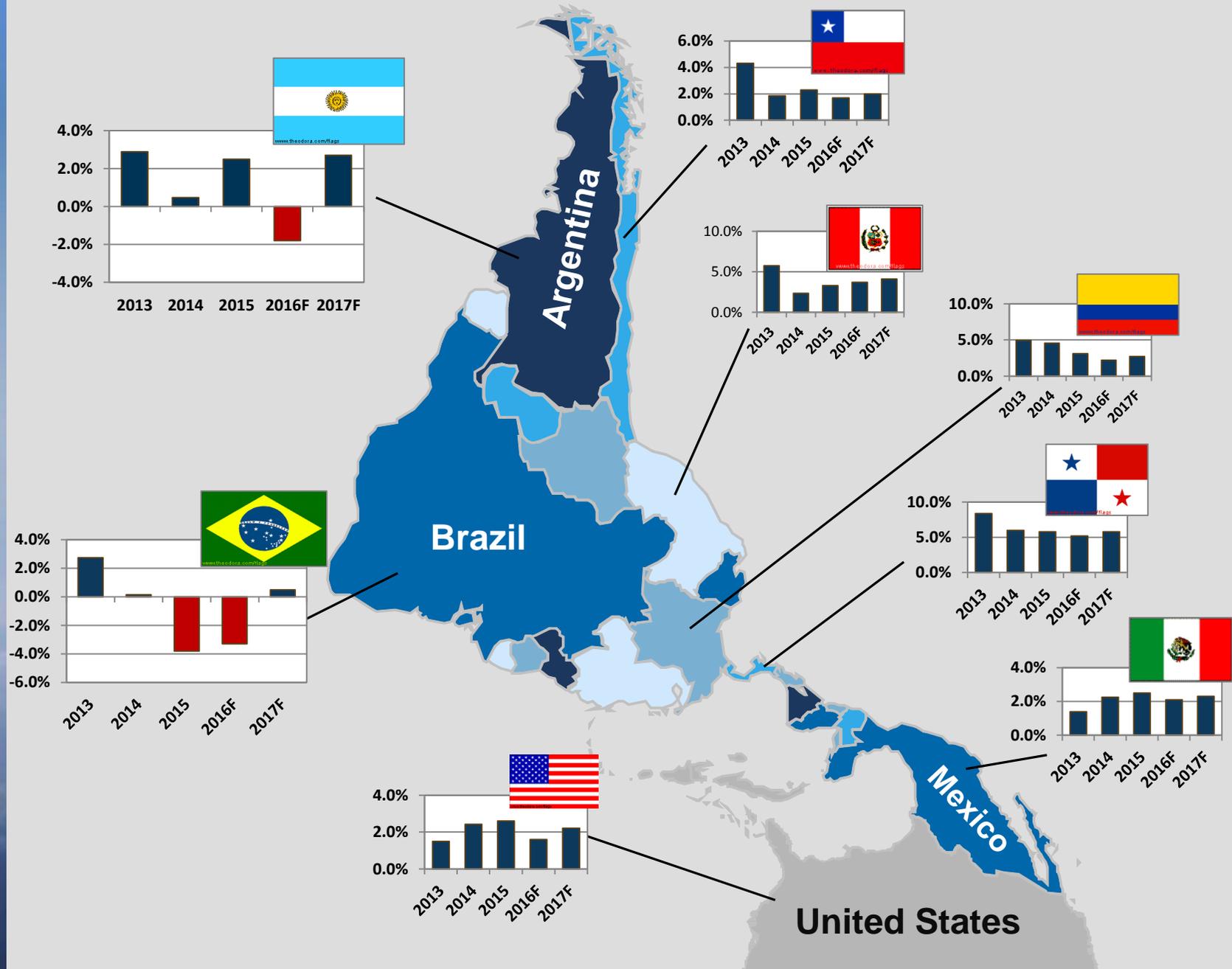
After a half decade of economic decline, Latin America is once again poised for growth in 2017

### Latin American GDP Growth



Note: All GDP Growth are calculated based on constant price (nation currency)  
Source: IMF Economic Outlook April 2016, ICF analysis

In 2017, while most countries in Latin America will see modest, but steady economic growth, the big increases will come from Brazil and Argentina

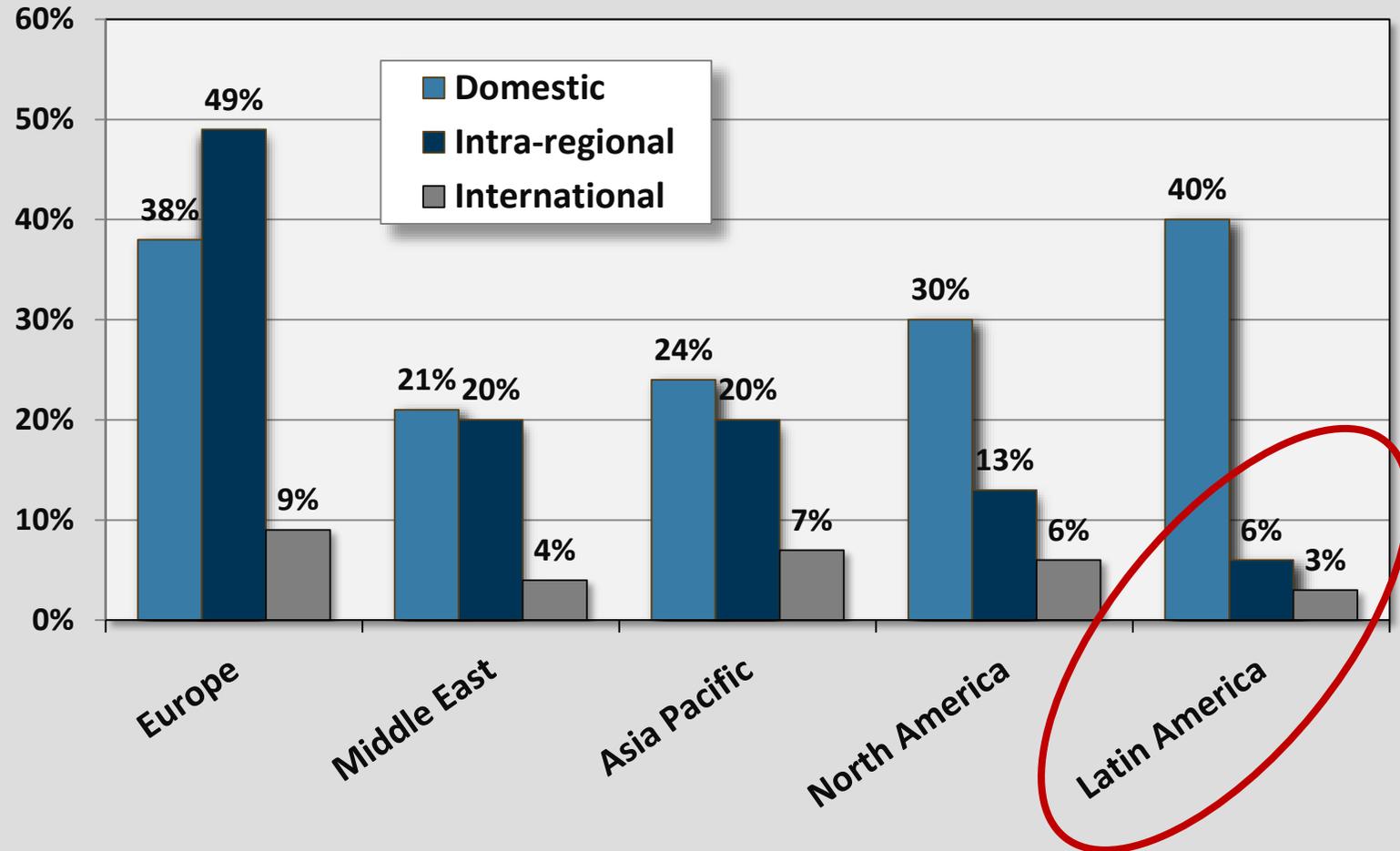


Note: All GDP Growth are calculated based on constant price (nation currency)  
 Source: IMF Economic Outlook April 2016, ICF analysis

# Latin America is in the midst of an “LCC Renaissance”

- Copa restructuring Copa Colombia into new ultra-LCC called Wingo
- VivaColombia launches subsidiary Viva Air in Peru
- Flybondi plans to launch ultra-LCC in Argentina in 2017
- Chilean based Sky Airline switching its business model to ultra-LCC
- Mexican LCC Volaris announces new subsidiary in San Jose, Cost Rica

LCC Market Share (seats offered) by Global Region



# There continues to be significant interest and external financial investment in Latin American carriers



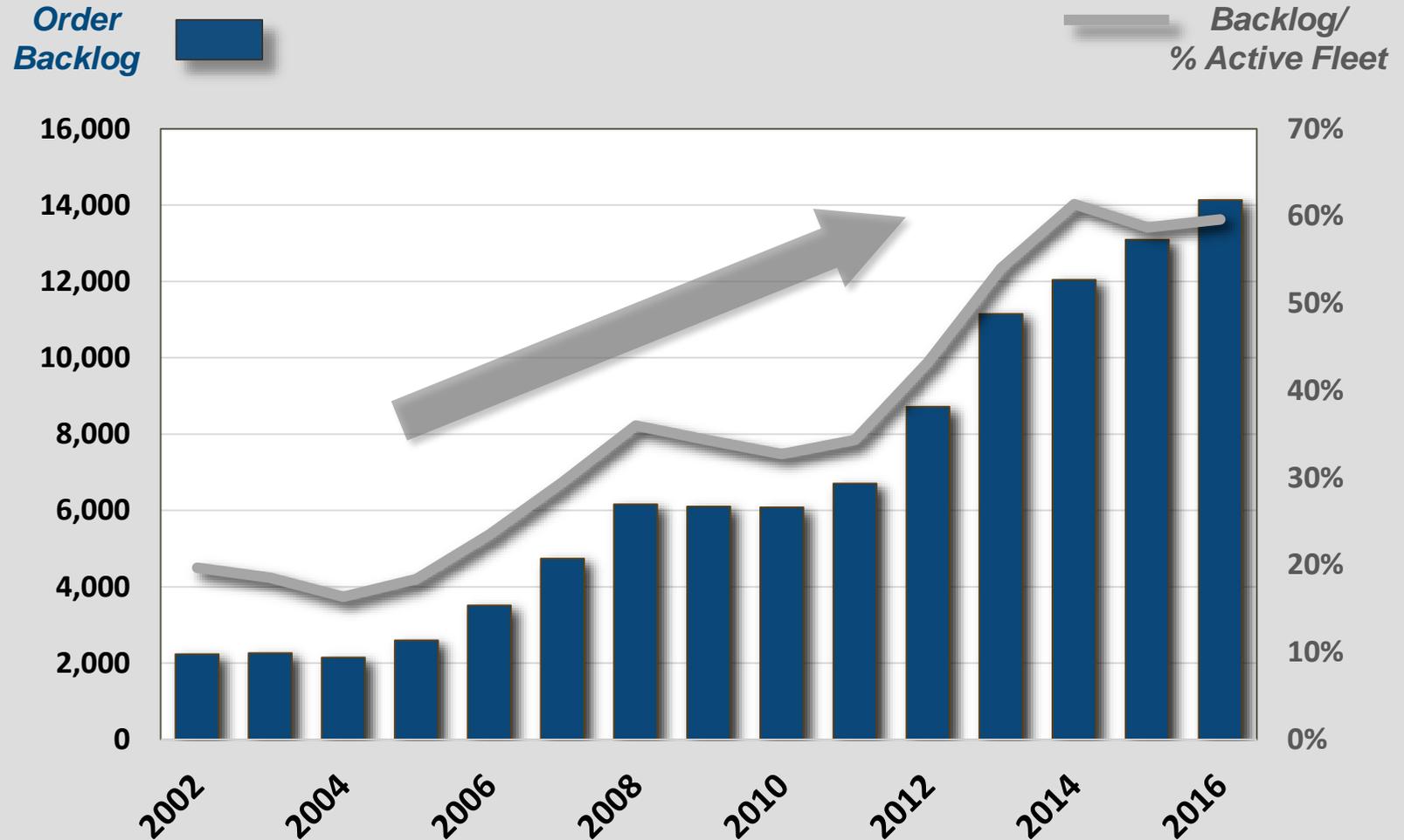
# 2017: The year aviation & aerospace blinked...



# Commercial aircraft OEM production backlog remains at historical highs

- Emerging market growth
- Very low interest rates
- Previously high oil and commodity prices
- Introduction of new technology aircraft/engines

## Commercial Aircraft OEM Production Backlog

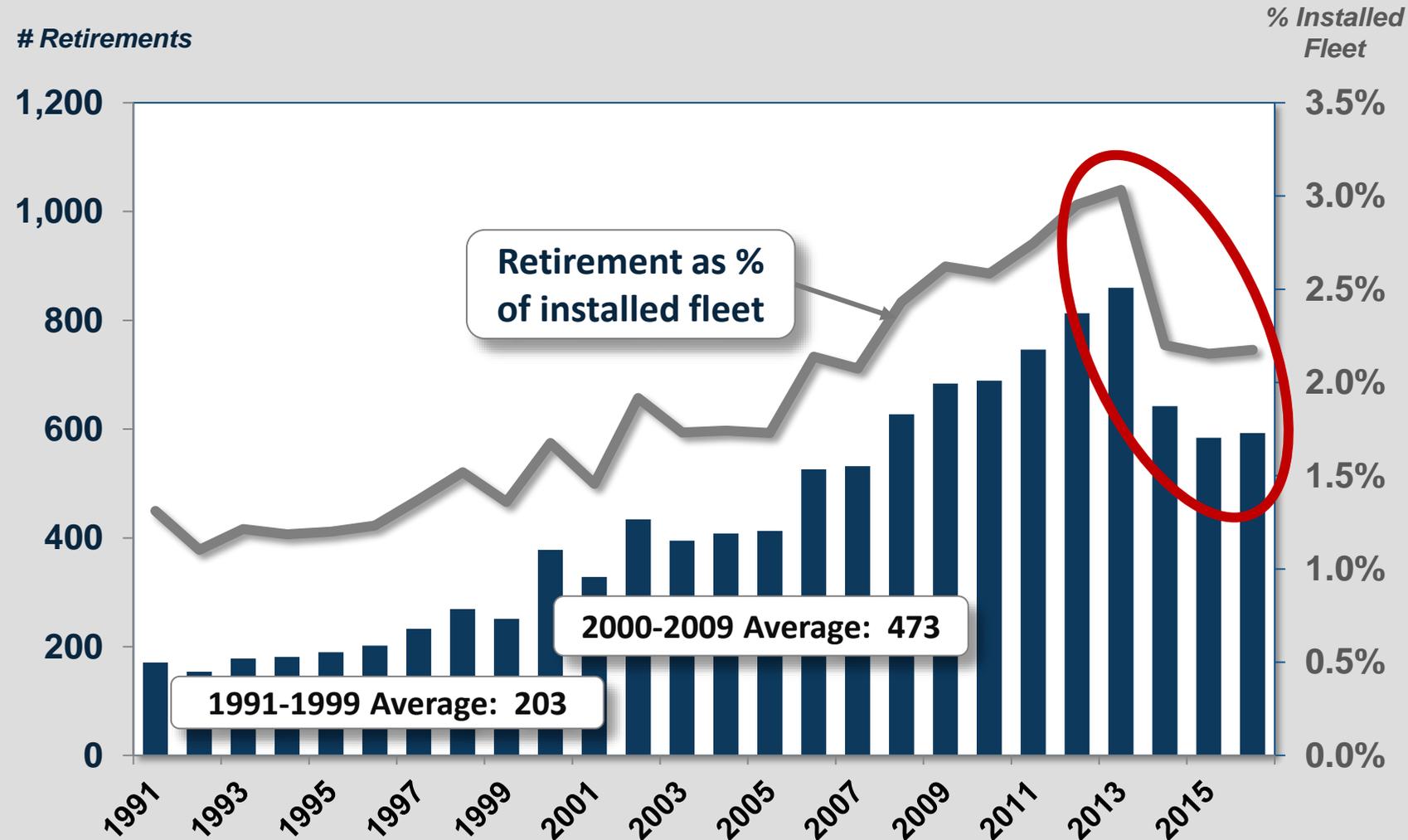


# Lower fuel costs appear to be reversing aircraft retirements trends

## Industry Impact:

- **MRO Suppliers - Positive:** Increased spend on older airframes & engines
- **Surplus Market - Negative:** Reduced part-out “feed stock”
  - OEMs: Improved new part sales
  - Distributors: Improved used part values / pricing
  - Operators: Increased material costs
  - PMA Suppliers: Very Positive

## Commercial Air Transport Annual Aircraft Retirements

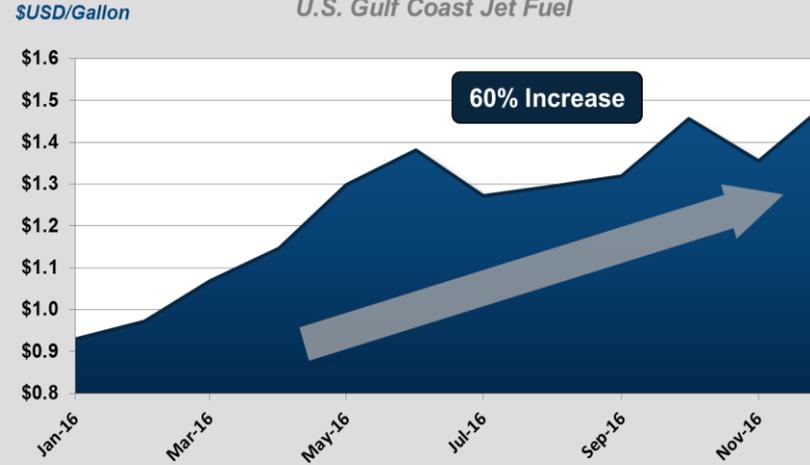


# Four external macro-economic forces are creating headwinds for global airlines and the broader aerospace & MRO supply chain

- Increased airline costs:
  - Aircraft financing
  - Fuel
  - Labor
  - MRO flight hour agreements
- Downward pressure on global GDP growth
- Downward pressure on aircraft valuations
- Potential for increase in aircraft delivery deferrals (backlog risk)
- Middle East airline titans stressed
- Advantage = Airbus

## Fuel Costs

U.S. Gulf Coast Jet Fuel



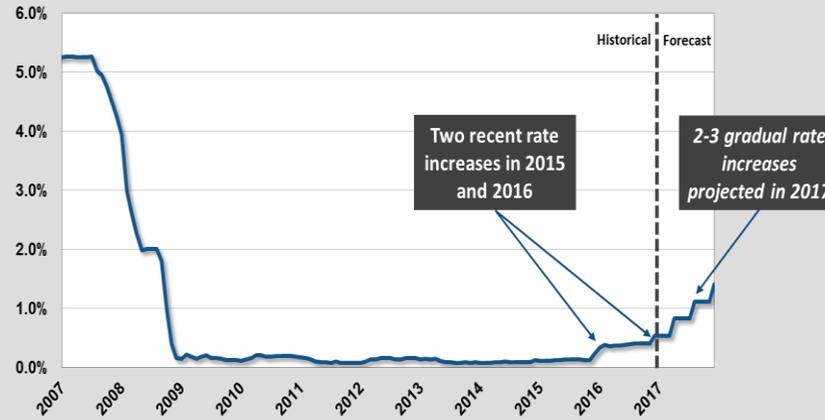
Source: EIA, ICF Analysis

## Growth of Populism/Nationalism & Impact to Global Trade



## U.S. Interest Rate Increase

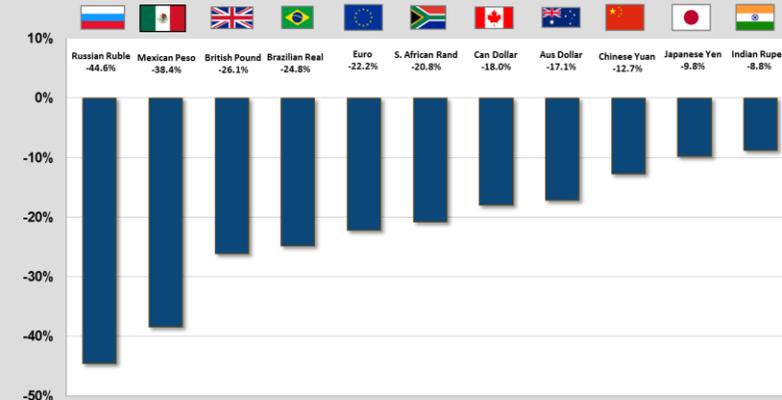
Effective Federal Funds Rate



Source: Federal Reserve Bank

## Strengthening US Dollar

Global Currency Exchange Rates vs USD  
% Value Change, January 2014 – January 2017



Source: X-Rate historical exchange rates, ICF analysis

Source: ICF analysis

AVIATION WEEK   
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LATIN AMERICA  
*January 25-26, 2017*  
*Cancun, Mexico*

# THANK YOU!

*For questions regarding this presentation, please contact:*

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