

# The problem with people



Ford von Weise  
Citi Private Bank



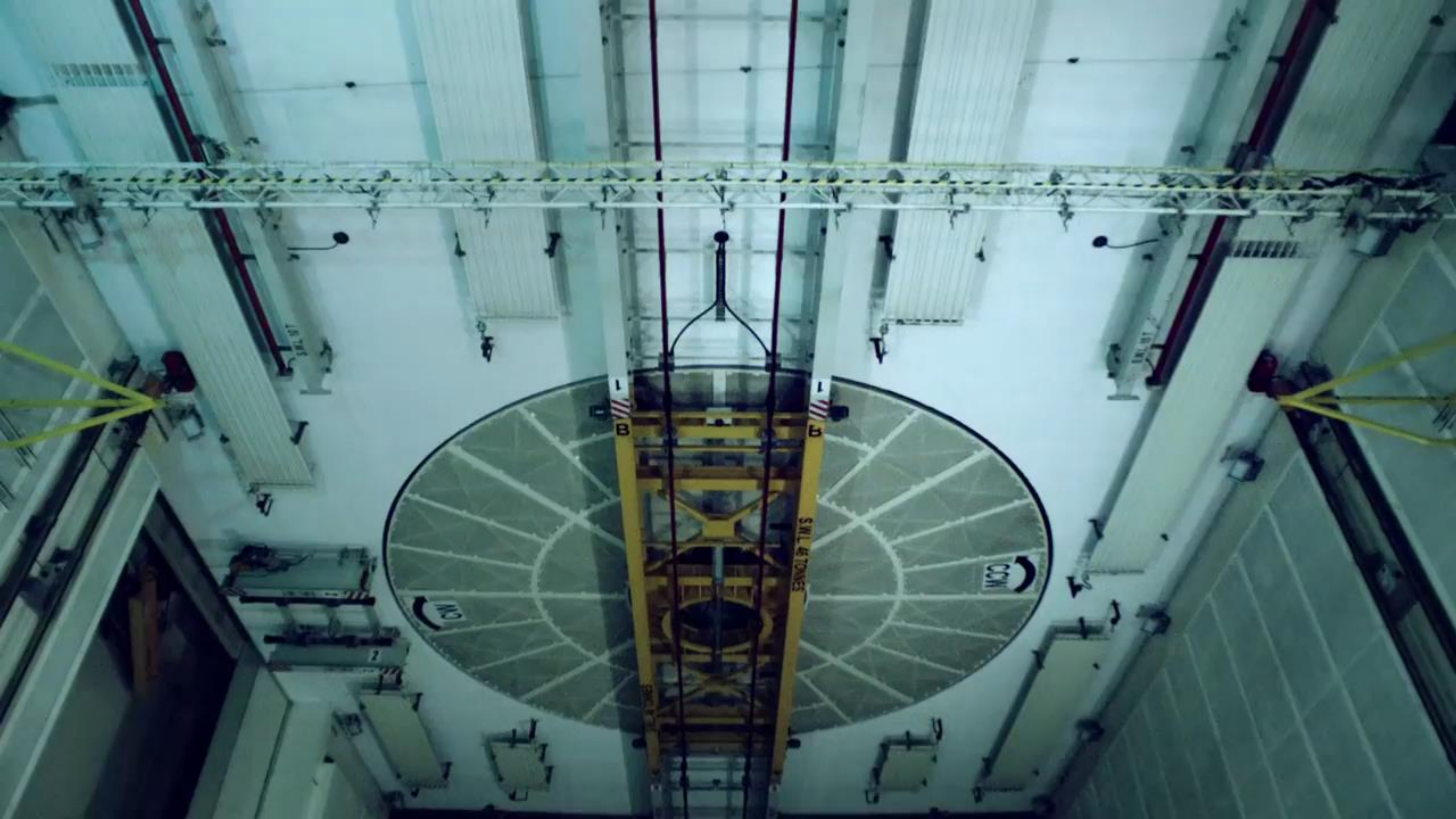
William Finden  
Oaklands Global



Liz Moscrop  
GearUp

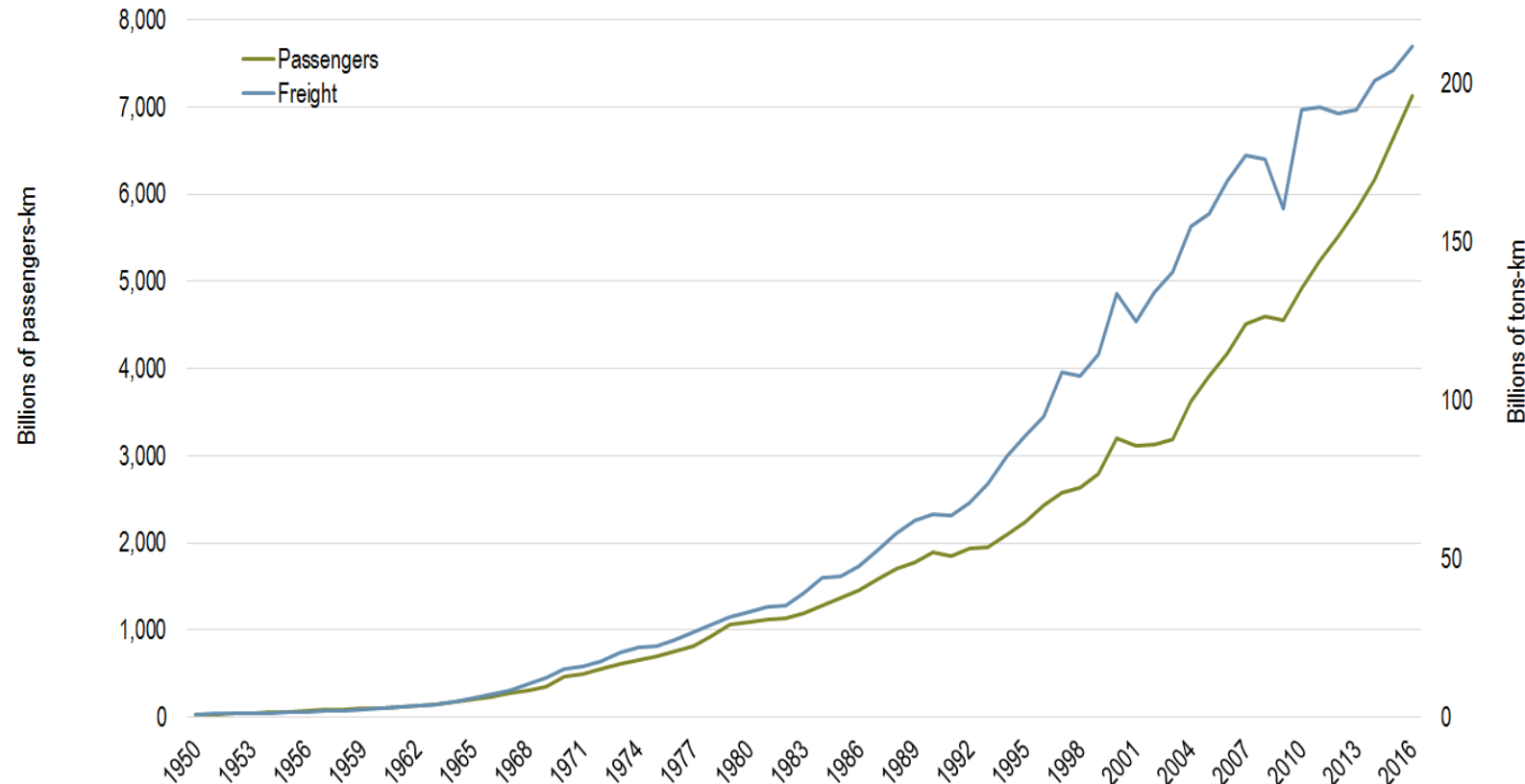


Jonathan  
Kenworthy  
CAE



# Explosive Growth in Global Aviation

## World Air Travel and World Air Freight Carried, 1950-2016




Despite growth & increased demand, all is not well:

- Engineer, technician (mechanic) shortage
- Pilot & crew shortage
- Aviation management professionals shortage

Source: Rodrigue, J-P *et al.* (2017) *The Geography of Transport Systems*, Hofstra University, Department of Global Studies & Geography, <https://transportgeography.org>.

## 2018 CIVIL AVIATION MARKET DRIVERS

## Business Aviation

Signs of  
Improvement

**+2%** YOY  
Utilization


**<10%**  
Inventory for sale



**NEW**  
Large jet programs

## Commercial Aviation

All-Time  
High

**>5%** YOY  
Passenger traffic

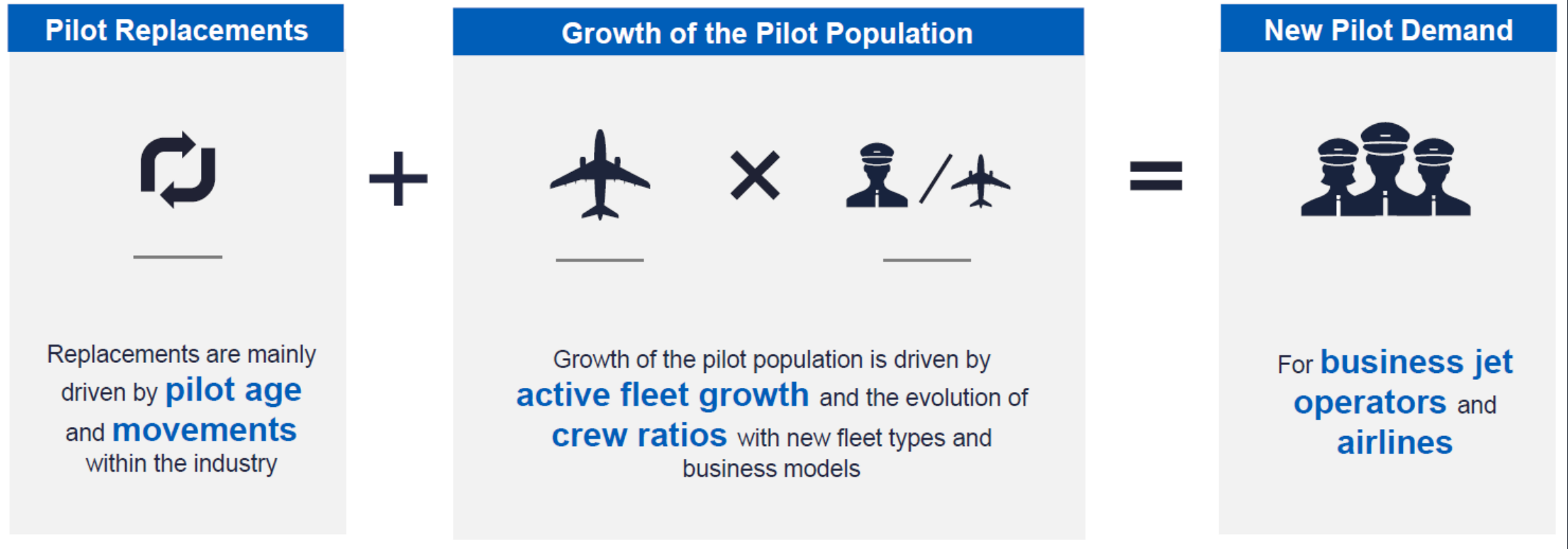

**>20K**  
Direct city-pairs


**>81%**  
Average load factor

**GLOBAL CIVIL AVIATION TALENT POOL UNDER PRESSURE**

Sources: Business aviation based on FAA/ Eurocontrol/ Amstat (2018), Commercial aviation based on IATA Annual Review (2018) and Global Report (2017)

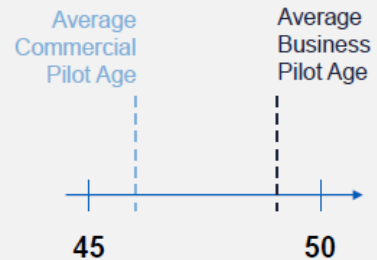
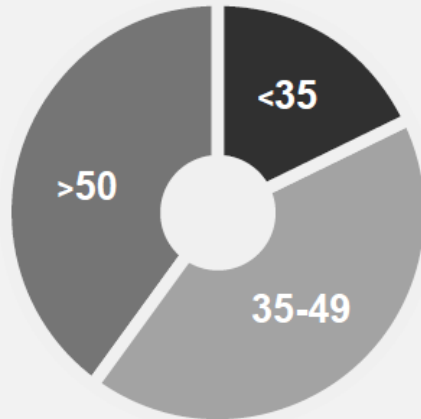
## WHAT DOES THIS MEAN FOR PILOT DEMAND?



Courtesy of CAE, Not for Distribution without Permission

# PILOT REPLACEMENTS

## Pilot Age Distribution in 2018



\*Including other attrition factors (pursuit of non-flying career, loss of medical fitness, etc.)

Sources: Business aviation based on Jetnet IQ (2017), FAA (2017), Rand (2014) and CAE analysis, Commercial aviation based on CAE analysis



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## Business Aviation // 55K Active Business Jet Pilots in 2018

4%\*  
Retirements / year

+

4%  
Movement to  
commercial / year



**+40K**  
new pilots in  
next 10 yrs

## Commercial Aviation // 305K Active Airline Pilots in 2018

3%\*  
Retirements / year

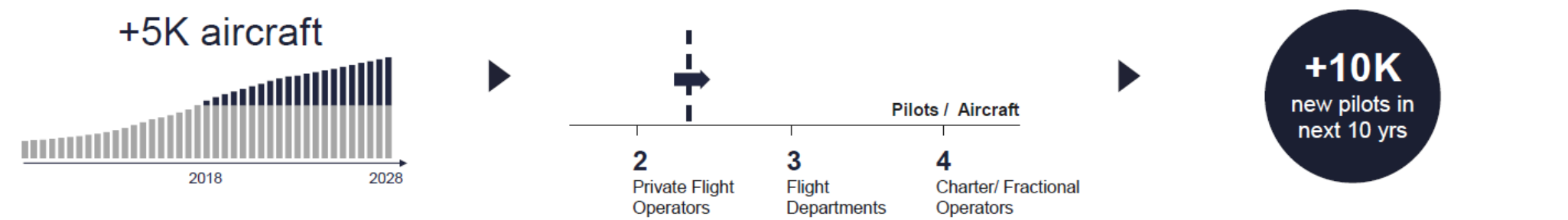


**+110K**  
new pilots in  
next 10 yrs

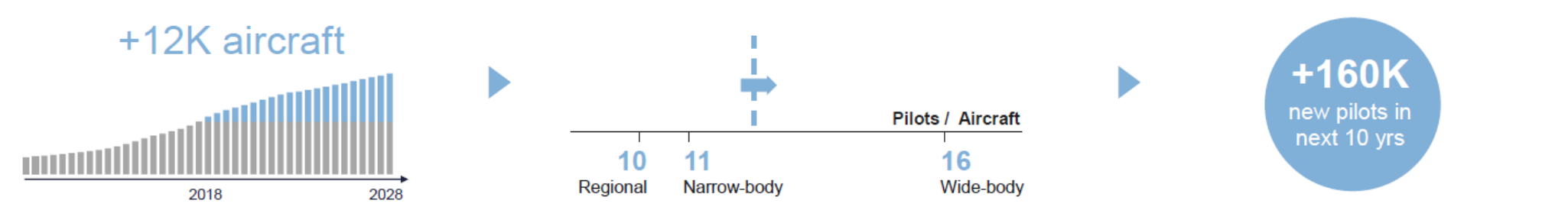
## ADDITIONAL PILOTS FOR GROWTH



### Business Aviation // 22K Active Business Jets in 2018

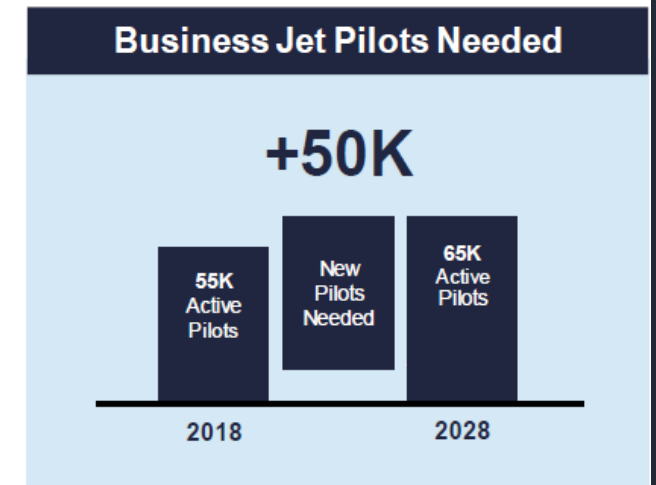
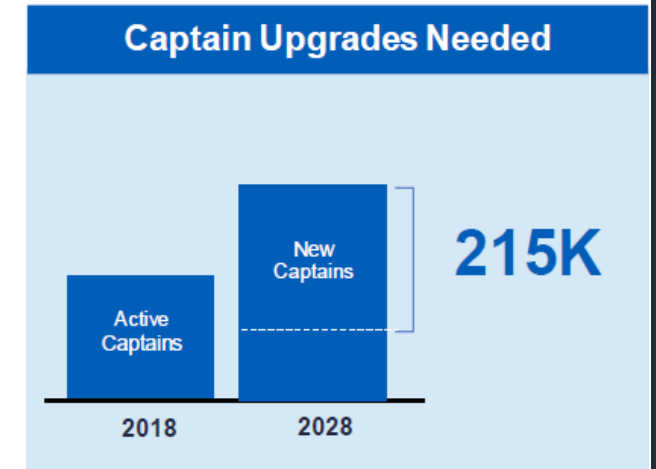
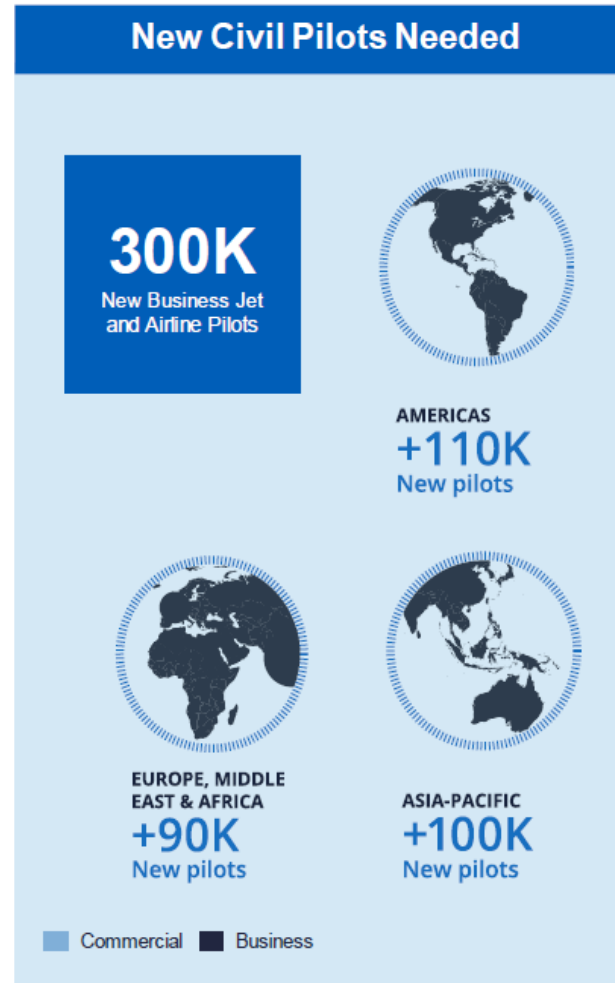
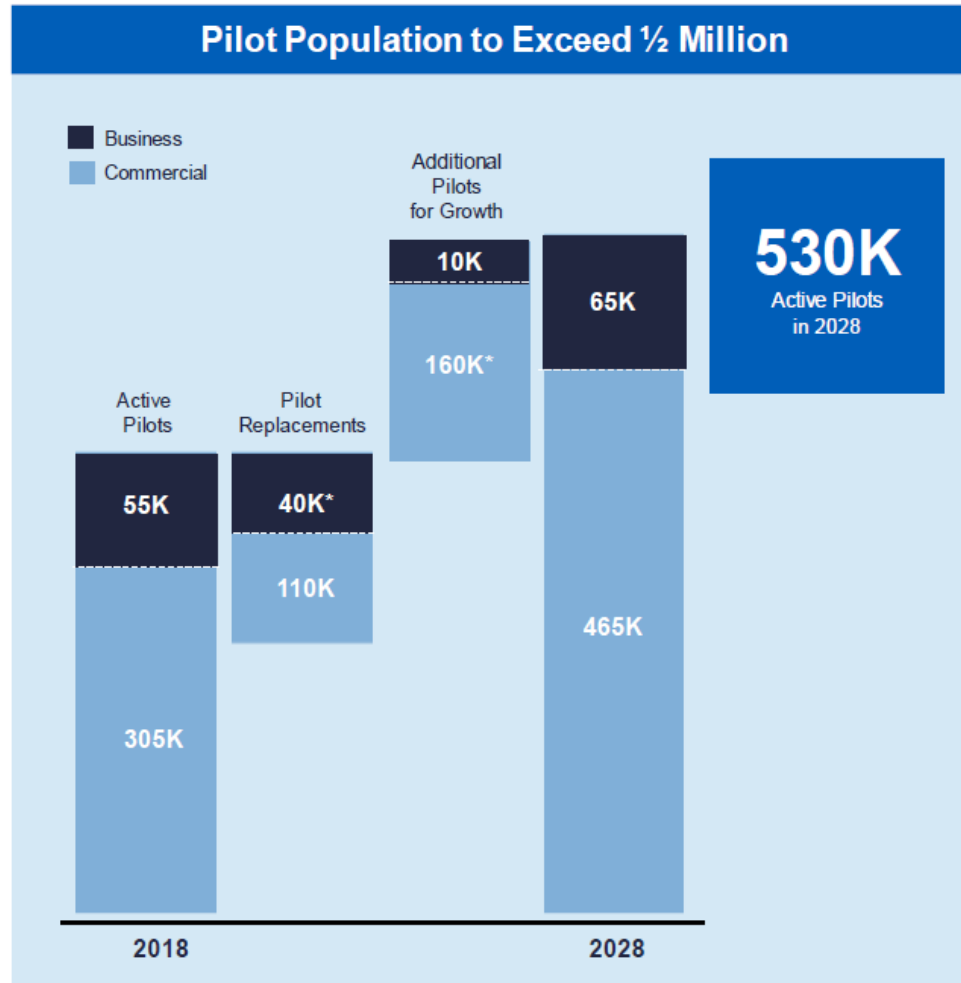


### Commercial Aviation // 27K Active Passenger Airliners in 2018



Sources: Business aviation based on Jetnet iQ (2018) and CAE analysis, Commercial aviation based on a combination of aircraft manufacturer, industry forecasts and CAE analysis

# 10-YEAR AIRLINE AND BUSINESS JET PILOT DEMAND OUTLOOK



\*Including a net 20K business jet pilots movement to airlines

Based on CAE Estimates



## HOW CAN WE DEVELOP MORE PILOTS, FASTER?



### How do we do this?

- 1** Smarter pilot creation
- 2** Better recurrent training systems

## WOMEN PILOTS IN THE CIVIL AVIATION INDUSTRY



**300K** New Civil Pilots Needed Over the Next 10 Yrs.



Women make up

**5%**

- Of the **360,000+** active civil pilots worldwide
- Of the **135,000** pilots who train at CAE every year
- Of the **1,500+** cadets who graduate from CAE academies every year

Opportunity to increase diversity while broadening the civil aviation talent pool