Overview: Fleet Demand Trends
2018 – 2027
Demand Is By Operator, Not Region

Traditional econometric factors are no longer the main driver for airliner demand...

Changes in corporate strategies, government policies, disruptive technologies, and changes in cost factors are the issues...

Aircraft demand is now global

Airline/Alliance “turf” is global

Airliner demand is more the result of corporate direction that raw economic growth factors
The New Fleets Are Changing Airline Strategies

• As we outlined in the Airports:USA® forecast, current and emerging fleets represent new mission capabilities

• Instead of the expected move to widebodies to address airport congestion, mission applications are trending to narrow-body airliners

• Squeezing into the middle capacity bands

• Supersonic will change airline product planning
New Market Dynamics:

Decision-drivers will start with sector-costs, not seat capacity, per se.

Capacity bands are contracting: <70 seat airliners, uncertain demand. Wide-body share dropping

Mission flexibility will increasingly be important – more so than just matching capacity to “demand”

... the American Airlines comments of the flexibility of the A-319
Some Market Factors

The aircraft replacement demand bubble (Neo/Max/CSeries/E2) will be over by @ 2024

Barring another CSeries-type disruption, demand will slow materially in later part of next decade

Chances for major inroads from Chinese & Russian platforms are very low... no real performance differentiation to cut into Boeing or Airbus
Low-Density Demand – Opportunities for New Players?

New-Generation Turboprop Demand?

Global reviews indicate that demand for 30-50 seat turboprops may develop in Third World regions.

Questions regarding demand by region.

Possible North American game-changer:

90-seat Q-400
**Forecast By The Numbers**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Units</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Passenger Jet Airliners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Total, Year 2018</td>
<td>27,711</td>
<td></td>
</tr>
<tr>
<td>Total Global Fleet, End of Year 2028</td>
<td>34,382</td>
<td></td>
</tr>
<tr>
<td>Net Increase In Fleets Globally</td>
<td>6,671</td>
<td>19.4%</td>
</tr>
<tr>
<td>New Airliners: Replacement</td>
<td>6,648</td>
<td>40.5%</td>
</tr>
<tr>
<td>New Airliners: Growth</td>
<td>9,749</td>
<td>59.5%</td>
</tr>
<tr>
<td>Total New Units</td>
<td>16,397</td>
<td></td>
</tr>
</tbody>
</table>

**New Airliner Demand By Category**

<table>
<thead>
<tr>
<th>Seats</th>
<th>Units</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plus 180</td>
<td>4,761</td>
<td>29.0%</td>
</tr>
<tr>
<td>126-180</td>
<td>7,148</td>
<td>43.6%</td>
</tr>
<tr>
<td>101-125</td>
<td>2,979</td>
<td>18.2%</td>
</tr>
<tr>
<td>75-100</td>
<td>1,509</td>
<td>9.2%</td>
</tr>
<tr>
<td>Total</td>
<td>16,397</td>
<td></td>
</tr>
</tbody>
</table>

**New Airliner Demand By Region Of Operator HQ**

<table>
<thead>
<tr>
<th>Region</th>
<th>Units</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa &amp; Middle East</td>
<td>805</td>
<td>4.9%</td>
</tr>
<tr>
<td>Asia</td>
<td>1,265</td>
<td>7.7%</td>
</tr>
<tr>
<td>China</td>
<td>6,095</td>
<td>37.2%</td>
</tr>
<tr>
<td>Europe</td>
<td>3,558</td>
<td>21.7%</td>
</tr>
<tr>
<td>North America</td>
<td>3,290</td>
<td>20.1%</td>
</tr>
<tr>
<td>Latin America</td>
<td>1,384</td>
<td>8.4%</td>
</tr>
</tbody>
</table>

- Fleet Growth: 19.4%
- Total Demand: 19,423
- Replacement: 40.5%
- New Demand: 59.5%
- Main Demand: 126-180 seat platforms
- China Demand: 6,095 units
- Passenger aircraft only...
Chinese Airlines - Where The Action Is...

New Aircraft Demand By Region
2018-2027

- Africa & ME: 805
- Asia & Pac: 1,265
- China: 6,095
- Europe: 3,558
- North America: 3,290
- Latin America: 1,384
Uncertainty of fuel costs will drive a higher percentage of current fleets to be replaced.
Points To Consider

1. Oil – if hovers at $80 - $100 USD – additional and more rapid retiremens

2. China – the demand could deflate, depending on slowing economic growth

3. Wider mission envelopes
The Manufacturers...

Embraer – Victor Vieira
Boeing – Jim Freitas
Bombardier – Jerome Cheung
Airbus – Simon Pickup
Mitsubishi – Gordon Preston
Boom Supersonic – Blake Scholl