Boeing Global Services
Tonya DelMaestro, Chief Marketing Officer, Commercial Services
Around the Clock. Around the World. Always Ready.
The CMO is our long-term forecast of global air travel, new airplane demand and commercial services

All jets >30 seats and freighters in commercial service

$1T

$6.8T

$9.1T

Services required to support the operation of commercial aviation
Airlines will need 44,000 new airplanes valued at $6.8 trillion

**Airplane deliveries: 44,040**
2019 - 2038

- **Regional jet**: 2,240 (5%)
- **Single-aisle**: 32,420 (74%)
- **Widebody**: 8,340 (19%)
- **Freighter**: 1,040 (2%)

**New airplane values: $6.8T**
2019 - 2038

- **Regional jet**: $105B (2%)
- **Single-aisle**: $3,775B (55%)
- **Widebody**: $2,630B (39%)
- **Freighter**: $300B (4%)
Total Lifecycle Commitment and Support

- Acquire
- Maintain
- Refresh
- Transition
- Ready
- Operate
Commercial aviation will demand $9.1 trillion in services over 20 years

### Commercial Aviation Services: $9.1T

- **Region Services | CAGR**
  - Asia Pacific: $3,480 | 5.1%
  - Europe: $1,980 | 3.3%
  - North America: $1,865 | 2.8%
  - Middle East: $790 | 4.7%
  - Latin America: $500 | 4.7%
  - Russia/CA: $270 | 2.7%
  - Africa: $215 | 5.0%
  - **World Total**: $9,100B | 4.1%

### Services by Region

- **2019 - 2038**

<table>
<thead>
<tr>
<th>Region</th>
<th>CAGR</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate &amp; External</td>
<td>3.2%</td>
<td>$155B</td>
</tr>
<tr>
<td>Marketing &amp; Planning</td>
<td>5.2%</td>
<td>$545B</td>
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<tr>
<td>Flight Ops</td>
<td>3.7%</td>
<td>$1,175B</td>
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<tr>
<td>Maintenance &amp; Engineering</td>
<td>4.0%</td>
<td>$2,400B</td>
</tr>
<tr>
<td>Ground &amp; Cargo Ops</td>
<td>4.1%</td>
<td>$4,825B</td>
</tr>
</tbody>
</table>

- **World Total**: $9,100B | 4.1%
Asia-Pacific is a primary contributor to global aviation growth

- 60% of the global population
- 58% of the 20-year economic growth
- 35% of the global economy
Asia-Pacific will need 17,390 new airplanes valued at $2.8 trillion

Airplane deliveries: 17,390
2019 - 2038

- Regional jet: 210 (1%)
- Single-aisle: 13,030 (75%)
- Widebody: 3,810 (22%)
- Freighter: 340 (2%)

New airplane values: $2,830 billion
2019 - 2038

- Regional jet: $10B (<1%)
- Single-aisle: $1,535B (54%)
- Widebody: $1,180B (42%)
- Freighter: $105B (4%)
The only complete family of freighters
Boeing family of commercial freighters

- **747-8F**: Large freighters (>80 tonnes of payload)
- **777F**: Medium widebody freighters (40-80 tonnes of payload)
- **767-300F 767-300BCF**: Standard-body freighters (<45 tonnes of payload)
- **737-800BCF**
Asia-Pacific services market trends
Asia Pacific will drive 38% of global services demand

Market Demand by Region
Commercial Aviation Services

2018 (in millions $)  
2038 (in millions $)

**EUROPE**
- $17,510  
- $10,280

**RUSSIA & C.ASIA**
- $55,870  
- $22,480

**MIDDLE EAST**
- $16,500  
- $6,210

**AFRICA**
- $119,810  
- $69,430

**NORTH AMERICA**
- $255,840  
- $94,260

**LATIN AMERICA**
- $14,970  
- $6,210

**ASIA PACIFIC**
- $37,170  
- $16,500

**Total**
- $1,865B  
- $790B

Source: CMO 2019
816,000 commercial aviation personnel needed to fly, maintain Asia Pacific fleet

- **244,000** pilots
- **249,000** technicians
- **323,000** cabin crew
Boeing Global Services in Asia-Pacific

Partnerships to grow indigenous capabilities

- Boeing Asia Pacific Aviation Services PTE Ltd. – joint venture that combines engineering expertise of commercial aircraft with SIA Engineering Company to provide MRO expertise for global fleet maintenance solutions.
- Boeing Training & Professional Services Singapore Campus – opened in 2007 and is the largest commercial aviation training facility in Asia.
- Boeing Shanghai Aviation Services (BSAS) - joint venture between Boeing, Shanghai Airport Authorities and China Eastern Airlines that provides a comprehensive range of services from engineering, aircraft maintenance and modification to component repair and overhaul and supply chain management.

Service capabilities

- Extensive local supply chain
- Maintenance, repair, and overhaul facilities
- Data-driven solutions using analytical insights
- Comprehensive training services

Knowledge transfer between commercial and government portfolios delivers unrivaled world-class services.