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[ENS-007] Aircraft Operator’s ATM Overview

Blair Cowles
Assistant Director: Safety, Operations and Infrastructure – Asia Pacific
IATA’s mission is to represent, lead and serve the airline industry.

Represents airlines’ interests to governments & international organizations.
240+ member airlines
Representing 84% of air traffic
SO&I Offices Worldwide
Importance of Air Transport

- Connects the world’s cities with over 36,000 routes
- Flies over 2.8 billion passengers
- Flies 48 million tonnes of freight annually worth $5.3 trillion (35% of world trade)
- Generates a total of 56.6 million jobs globally with direct employment of over 8.4 million
- Economic footprint (direct, indirect, induced and tourism catalytic) estimated at $2.2 trillion, equivalent to 3.5% of world GDP
Importance of Air Transport

**BEYOND TODAY**
A comparison of aviation’s global reach in 1990 and 2010 and forecast to 2030

<table>
<thead>
<tr>
<th>Passengers</th>
<th>Passenger kilometres flown</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990: 1.2 billion</td>
<td>2010: 4,845,644,203,000 km</td>
</tr>
<tr>
<td>2010: 2.7 billion</td>
<td>1990: 2,032,524,685,000 km</td>
</tr>
<tr>
<td>2030: 5.9 billion</td>
<td>2030: 8,372,629,584,200 km</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft movements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990: 14.8 million</td>
</tr>
<tr>
<td>2010: 26 million</td>
</tr>
<tr>
<td>2030: 40.7 million</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft in service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990: 17,307</td>
</tr>
<tr>
<td>2010: 23,844</td>
</tr>
<tr>
<td>2030: 45,273</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Jobs supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990: 57 million</td>
</tr>
<tr>
<td>2010: 56.6 million</td>
</tr>
<tr>
<td>2030: 62.7 million</td>
</tr>
</tbody>
</table>

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**Key facts and figures from the world of air transport**

- **56.6 million** Supported by aviation worldwide
- **US$2.2 trillion** Aviation’s global economic impact
- 19th: If aviation were a country, it would rank 19th in size by GDP
- **3,846** Airports with scheduled services
- **1,568** Commercial airlines
- **192** Air navigation service providers
- **23,844** Commercial aircraft in service

Source: Air Transport Action Group
Note: Figures are for 2010
Market Forecast

GROWTH!

<table>
<thead>
<tr>
<th>Airplanes in service 2011 and 2031</th>
<th>Demand by size 2012 to 2031</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>2011</td>
</tr>
<tr>
<td>Large</td>
<td>790</td>
</tr>
<tr>
<td>Twin aisle</td>
<td>3,710</td>
</tr>
<tr>
<td>Single aisle</td>
<td>12,610</td>
</tr>
<tr>
<td>Regional jets</td>
<td>2,780</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19,890</td>
</tr>
</tbody>
</table>

*$ values throughout the CMO are catalog prices.
Safety, Operations and Infrastructure (SO&I)

To promote safe, secure, efficient and economical air transport
Safety
Operations & Infrastructure
Infrastructure Enhancements

- Performance Based Navigation Implementation
- Continuous Descent Operations
- Continuous Climb Operations
The lack of global harmonization affects the bottom line
Air Traffic Control

Fragmentation
Inefficiencies
Delays
Sub-optimal routes
expensive
<table>
<thead>
<tr>
<th>Category</th>
<th>Europe</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>11.5 million km²</td>
<td>10.4 million km²</td>
</tr>
<tr>
<td>Airports</td>
<td>450</td>
<td>509</td>
</tr>
<tr>
<td>ANSPs</td>
<td>38</td>
<td>1</td>
</tr>
<tr>
<td>En route centers</td>
<td>63</td>
<td>20</td>
</tr>
<tr>
<td>Traffic</td>
<td>9.5 million</td>
<td>15.9 million</td>
</tr>
<tr>
<td>Total Staff</td>
<td>57,000</td>
<td>35,200</td>
</tr>
<tr>
<td>Air Traffic Controllers</td>
<td>16,700</td>
<td>14,600</td>
</tr>
<tr>
<td>Controlled flight hours</td>
<td>13.8 million</td>
<td>23.4 million</td>
</tr>
</tbody>
</table>
Hamonized Avionics Requirements between FIRs

- DME
- RVSM
- RNP A/R
- ACARS
- CPDLC
- RNP4
- GNSS
- RNP10
- ADS-C
- ADS-B
- HF
- MLS
- ILS
- EGPWS
- IRS
- VHF
- TCAS
- VHF
- VHF
- RNP4
- VOR
- ADS-B
- ILS
- SATVOICE
- VDLM2
- RADAR
- ETOPS
- SATVOICE
- RNP A/R
- RVSM
- ACARS
Harmonization
The World’s largest aviation market
And in 2030....?
And in 2030...?
Seamless Asian Skies Vision

A safe, uniform, and sustainable Asia Pacific aviation infrastructure for 2020 and beyond

- Harmonized, Interoperable, regional network of air navigation services
- Political Leadership & Mandate required
Seamless Asian Skies Strategy

- ICAO plays a vital role
  - Future concepts
  - Regulation and guidelines
  - But States responsible for implementation.
Seamless ATM Planning

- The Global Air Navigation Plan
- The Global Aviation Safety Plan
- Asia Pacific Regional Air Navigation Plan for Seamless ATM
  - The Aviation System Block upgrades
- Capability driven – not technology led
Plan for seamless ATM

- Seamless NOT Single
- Collaboration is the key component of success
- Short term action required NOW
- Plan for the future growth
- Consider future Regional structures to manage the transition
- Issue are not technical but institutional
- NETWORK MANAGEMENT ACROSS ASIA PACIFIC
The challenge for States today

- Immediate actions
  - Drive infrastructure improvements in States and between States
- Future planning
  - Commit to ‘Seamless ATM in Asia Pacific”
  - Challenge is not technical but institutional
Questions?