Asia Pacific Aviation

EMBRACING FUTURE CHALLENGES

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Association of Asia Pacific Airlines
Overview

- Asia Pacific aviation
- Industry trends & outlook
- Evolving business strategies
- Global regulatory challenges
- Future growth
Aviation: delivering global mobility

- Safely connecting people and business
- Wider social and economic benefits
- Outstanding safety record
- Committed to sustainable growth

4.4 billion passengers
12 million daily

35% by value of global trade
Goods worth US$6 trillion

Source: IATA WATS 2018E, ATAG Aviation Benefits Beyond Borders 2018
Asia Pacific

- Diverse geographic region
- Home to more than 4 billion people
- Dynamic economies generate 34% of global GDP
- Aviation widely recognised as a key contributor to economic and social development
  - Supports 30 million jobs and US$684 billion in GDP
- Wide range of income levels, rapidly growing middle class

Source: IMF WEO October 2018, ATAG Aviation Benefits Beyond Borders 2018
Households with yearly income between $20,000 and $150,000 at PPP in constant 2017 prices

Growth of Asian middle class consumers

Rising demand for goods & services including air travel

Source: Airbus GMF 2018 - 2037
Households with yearly income between $20,000 and $150,000 at PPP in constant 2017 prices
Asia Pacific Aviation

US$186 billion revenue
US$9 billion net profit
1,486 million passengers
1,055 million domestic
431 million international
22 million tonnes of cargo
7,997 aircraft

Asia Pacific carriers overall market share:
34% of global passenger traffic
36% of global cargo traffic

Source: Combined AAPA + non-AAPA airlines GMT+5 to GMT+12
## World’s ten busiest domestic routes

<table>
<thead>
<tr>
<th>Rank</th>
<th>Route</th>
<th>PAX (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jeju – Seoul</td>
<td>13.5</td>
</tr>
<tr>
<td>2</td>
<td>Melbourne – Sydney</td>
<td>7.8</td>
</tr>
<tr>
<td>3</td>
<td>Fukuoka – Tokyo</td>
<td>7.6</td>
</tr>
<tr>
<td>4</td>
<td>Sapporo – Tokyo</td>
<td>7.4</td>
</tr>
<tr>
<td>5</td>
<td>Beijing – Shanghai</td>
<td>6.4</td>
</tr>
<tr>
<td>6</td>
<td>Hanoi – Ho Chi Minh City</td>
<td>6.4</td>
</tr>
<tr>
<td>7</td>
<td>Delhi – Mumbai</td>
<td>5.6</td>
</tr>
<tr>
<td>8</td>
<td>Tokyo – Okinawa</td>
<td>4.8</td>
</tr>
<tr>
<td>9</td>
<td>Jeddah – Riyadh</td>
<td>4.8</td>
</tr>
<tr>
<td>10</td>
<td>Beijing - Chengdu</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Source: IATA WATS 2018, 2017 data

*almost all in Asia Pacific*
# World’s ten busiest international / regional routes

<table>
<thead>
<tr>
<th>Rank</th>
<th>Route</th>
<th>PAX (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hong Kong - Taipei</td>
<td>5.4</td>
</tr>
<tr>
<td>2</td>
<td>Dublin – London</td>
<td>3.4</td>
</tr>
<tr>
<td>3</td>
<td>Jakarta – Singapore</td>
<td>3.3</td>
</tr>
<tr>
<td>4</td>
<td>Bangkok – Hong Kong</td>
<td>3.1</td>
</tr>
<tr>
<td>5</td>
<td>Kuala Lumpur – Singapore</td>
<td>2.8</td>
</tr>
<tr>
<td>6</td>
<td>Hong Kong – Seoul</td>
<td>2.7</td>
</tr>
<tr>
<td>7</td>
<td>London – New York</td>
<td>2.7</td>
</tr>
<tr>
<td>8</td>
<td>Osaka – Taipei</td>
<td>2.6</td>
</tr>
<tr>
<td>9</td>
<td>Bangkok – Singapore</td>
<td>2.5</td>
</tr>
<tr>
<td>10</td>
<td>Tokyo – Taipei</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Source: IATA WATS 2018, 2017 data

*almost all in Asia Pacific*
Industry Outlook
Policy uncertainty including trade frictions may undermine confidence

Source: IMF WEO October 2018
Global passenger and cargo traffic

Robust growth in air passenger markets
Trend rate +6.9% p.a.

Firm air cargo markets
Trend rate +5.1% p.a.

Source: IATA
Oil prices rising again

Source: US Energy Information Administration
Airfares follow changes in oil prices

- Airfares remain highly competitive
- Margins under pressure

Source: IATA Industry Forecast June 2018
Global airline profitability trends

- Strong passenger and air cargo markets
- Profit margin still just 4%

Source: IATA
Revenue & Profit per Passenger

Profit per Passenger below US$10 even in good years

Source: IATA
Evolving Business Strategies
Airline business model share by region

Source: IATA WATS 2018, 2017 data
Digitising the passenger experience

- Evolving consumer expectations
- Smartphone for everything
- Streamlining customer processes
- Online research + booking + ancillaries + payment + digital token
- Self-service check-in + bag drop + boarding
- Biometric identity checks
- Flight updates & baggage tracking
- Automated service recovery

*Challenge of harnessing new technologies to deliver a better passenger experience*
Global Regulatory Challenges
Global regulatory influences

- Wider impact of US and EU regulations
- Asia Pacific needs a unified voice
- Need for harmonised global standards
Global regulatory challenges

Aviation is subject to intensive regulation

- Safety
- Security
- Sustainability
- Passenger Facilitation
- Consumer Protection
- Taxes & Charges
- Infrastructure
Aviation Safety Performance

Western-built Jet Aircraft Major Accident Rates by Operator Region 2008-2018
3-year moving averages

Outstanding safety record built on focus, commitment and cooperation

Source: AAPA
*Data as of 10 October 2018
Aviation Security

• Aviation remains highly secure despite perceived risks
• Threats and challenges evolving: no room for complacency
• Good security about comprehensive threat assessment and balanced risk management, not the elimination of every conceivable risk
• Shared global concern requires close international coordination built on trusted relationships
• Mitigation measures need to be proportionate, focus on the probable threat, avoid unnecessary disruption
• Approach to security can learn from safety management
Cybersecurity

- Universal dependence on information technology
- Growing connectivity and digitisation bring increased challenges and vulnerabilities
- Cyber threats constantly evolving
- Criminals as well as State actors
- New regulatory initiatives
- Focus on ecosystem and resilience

Requires trust and cooperative efforts
Aviation & Sustainable development

• Aviation pursuing ambitious strategy:
  - Fuel efficiency + Operational enhancements + Infrastructure improvements + Sustainable alternative fuels + Carbon offsets
  - Carbon Neutral Growth from 2020
  - A 50% reduction in net aviation CO$_2$ emissions by 2050, relative to 2005 levels

• Aviation is the first industry sector to commit to CO$_2$ reductions using a global market based measure

• ICAO CORSIA
  - Emissions reporting for all operators - 2019
  - Carbon offsetting obligations - 2021 onwards

• Risk of duplicative measures undermining support

Aviation continues to deliver on its commitments
Passenger Facilitation

- Challenges of processing 12 million daily passengers
- Harness technologies to streamline airline, security & border control processes
- Lack of data exchange standards and concerns over privacy issues
- Proliferation of complex and inconsistent passenger rights regulations confuse travellers
- Mass disruption events require close cooperation of multiple stakeholders

Need for closer collaboration to improve passenger facilitation whilst enhancing border security
Taxes & Charges

• Opportunistic taxes hurt economic development & impede job creation

• User charges must be transparent, cost-related, non-discriminatory & for current use

• Economic regulation of monopoly service providers required

Aviation is a catalyst for economic growth, job creation & social development
Future Growth
Global Aviation - Future growth

Source: Boeing CMO 2018-2037
*Does not include travel within China
Global aviation - future aircraft orders

New airplane deliveries by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Airplanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific</td>
<td>16,930</td>
</tr>
<tr>
<td>North America</td>
<td>8,800</td>
</tr>
<tr>
<td>Europe</td>
<td>8,490</td>
</tr>
<tr>
<td>Middle East</td>
<td>2,990</td>
</tr>
<tr>
<td>Latin America</td>
<td>3,040</td>
</tr>
<tr>
<td>Russia &amp; Central Asia</td>
<td>1,290</td>
</tr>
<tr>
<td>Africa</td>
<td>1,190</td>
</tr>
<tr>
<td>World Total</td>
<td>42,700</td>
</tr>
</tbody>
</table>

- Asia Pacific to account for 40% of new aircraft deliveries
- Corresponding infrastructure & manpower requirements

Source: Boeing CMO 2018-2037
Aviation – manpower development challenge

- Need to attract, train and develop skilled manpower to meet future growth
- ICAO Next Generation of Aviation Professionals (NGAP) programme
- Government policy on education and training
- Private sector partnerships
- Commitment to workforce diversity and gender equality

Source: Boeing Pilot and Technician Outlook 2018 - 2037
Infrastructure

• Airport Capacity
  - Long-term planning to meet projected growth
  - Capital investments required but need cost vigilance
  - Slot management only an interim measure

• Various forms of public and private sector involvement

• Economic regulation & oversight
  - Balancing interests of airlines, airports and travelling public

*Governments have a responsibility to coordinate infrastructure planning and regulatory oversight*
Closing thoughts

- Aviation a key driver of global economic and social development
- Infrastructure planning is now critical
- Airline strategies evolving in response to changing market dynamics and consumer preferences
- Regulatory oversight should focus on maintaining consistent global standards on safety, security and ensuring a competitive business landscape

Asia Pacific airlines at the forefront of global air transport development