AVIATION STATISTICS & DATA: A VITAL TOOL FOR THE DECISION MAKING PROCESS

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London, 3rd March 2011
ICAO Statistics Programme

Why do we need Statistics?

1 – Monitor ICAO Strategic Objectives
   - Air travel safety rates
   - The environmental impact on air transport
   - The sustainable air transport development

2 – Analyse the air transport market

3 – Assess the impact of new regulations

4 – Forecasting
Forecasting: basis of any effective planning

(*) Air traffic forecasting is governed by App C of A37-20 and support all ICAO SOs

(*) 2008: Review of ICAO forecasting activities in order to ensure
  Better alignment with the Strategic Objectives
  Overall consistencies of the various forecast issued for all ICAO users
  Enhancements of the quality of the forecasts in order to provide the right outputs for an evolving civil aviation industry

(*) The restructuring of the ICAO forecasting activities have led to the development of an econometric bottom-up methodology by route groups up to the year 2030 that is able to run sensitivity analyses on air travel demand forecasts.
Before 2010, a top-down approach was used for long-term forecasts. New methodology: Bottom-up econometric approach starting at the route-group level and building up to the global level. The econometric modelling methodology is by far the most frequently used method for forecasting aviation demand in the air transport industry.

- Modelling traffic by market considering quantitative relationships such as economic growth or pax yield as a proxy for the ticket price.
- Definition of 9 forecasting regions providing 53 route groups (36 International, 8 Intra-region & 9 Domestic) plus 1 non-scheduled segment.
- Air traffic (RPKs) forecasts have been produced until 2030 and extended to the 2040 horizon which could be required for some environmental analysis.
- 3 Scenarios built: Most likely, Low and High Scenarios.
Air travel demand drivers

- State of global economy (GDP growth)
- Airline ticket price. (measured in Yields)

Source: ICAO, IHS/Global Insight
Air transport vs Economic growth

- World Real GDP
- World Passenger traffic
- World Cargo traffic

Source: ICAO, IHS/Global Insight
Factors promoting air travel demand

Globalization
Air travel demand segmentation

**Strong progression of the VFR* segment in the last 10 years**

- **Vacation and Leisure**: 49%
- **Business**: 17%
- **Others**: 7%
- **VFR**: 27%

*VFR: Visiting Friends & Relatives

Source: UNWTO
Factors promoting air travel demand

- Globalization
- Higher Disposable incomes

- Higher Disposable incomes
International Tourism Expenditures

International Tourism Expenditure (US$ billion)

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Source: World Tourism Organization (UNWTO) ©

Source: UNWTO/European Travel Commission report on 'Demographic Change and Tourism'
Factors promoting air travel demand

- Globalization
- Falling air fares
- Higher Disposable incomes
- Higher Disposable incomes
Low Cost Carriers development

Number of LCCs : 13
Deregulation : 1978

Number of LCCs : 48

Number of LCCs : 33
Deregulation : accelerating

Number of LCCs (Africa and Middle East) : 10
Deregulation : in progress

Number of LCCs (Africa and Middle East) : 10
Deregulation : uneven

Source: ICAO
Factors promoting air travel demand

- Globalization
- Falling air fares
- Liberalization
- Higher Disposable incomes

Falling air fares
Factors promoting air travel demand
ICAN: ICAO forum for liberalization

ICAO Air Services Negotiation Conference
28 June to 2 July 2010
Montego Bay, Jamaica

ICAO Air Services Negotiation Conference
28 September to 2 October 2009
Istanbul, Turkey

ICAO Air Service Negotiation Conference
24 to 27 November 2008
Dubai, United Arab Emirates

ICAN 2010

ICAN 2009

ICAN 2008
Liberalization a necessary framework for LCCs

Total European air traffic

- **1989-1999:** 4.5% p.a.
- **1999-2009:** 4.3% p.a.
- **1989-2009:** 4.4% p.a.

Source: ICAO
The link between the promoting factors

- Improving Technology
- Falling Costs
- Falling Fares
- Economic Growth
- Growing Traffic
- Liberalization
Emerging markets lead the recovery

Favoring the expansion of some regional air travel markets

Real GDP growth change in %

China forecast to have as many as 100 million of their inhabitants travelling internationally by 2020

China & India lead Emerging Markets and the BRIC* in Real GDP growth

Source: IHS Global Insight

*BRIC: Brazil Russia India China
Consumer Confidence Index

Upward trend but still below the average 2007 level

Source: IHS Global Insight
Top ten traffic flows in 2030

<table>
<thead>
<tr>
<th>Traffic Flow</th>
<th>20-Year Growth %</th>
<th>% World RPKs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic North America</td>
<td>2.6%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Domestic China</td>
<td>7.9%</td>
<td>10.7%</td>
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<tr>
<td>Intra Europe</td>
<td>4.3%</td>
<td>7.4%</td>
</tr>
<tr>
<td>North American - Europe</td>
<td>2.6%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Domestic Pacific/South East Asia</td>
<td>6.7%</td>
<td>4.1%</td>
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<tr>
<td>Latin America/Caribbean - Europe</td>
<td>5.3%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Europe - China</td>
<td>7.8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>North America - Latin America/Caribbean</td>
<td>5.0%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Europe - Africa</td>
<td>5.9%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Middle East - Pacific/Southeast Asia</td>
<td>9.0%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>
Long-term traffic forecast results

World traffic in Billion RPKs

History

Most Likely scenario
2010-2030: 4.7% p.a.

High Scenario
2010-2030: 5.2% p.a.

Low scenario
2010-2030: 3.7% p.a.

Source: ICAO
## Regional passenger traffic forecasts

<table>
<thead>
<tr>
<th>Region</th>
<th>Pax Traffic</th>
<th>International (%)</th>
<th>Domestic (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Growth 2010-2030</td>
<td>Share 2030</td>
<td>Growth 2010-2030</td>
<td>Share 2030</td>
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<tr>
<td>North America</td>
<td>3.9</td>
<td>14</td>
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<td>Europe</td>
<td>4.3</td>
<td>37</td>
<td>1.7</td>
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<td>Asia/Pacific</td>
<td>5.7</td>
<td>32</td>
<td>7.1</td>
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<td>5</td>
<td>5.3</td>
<td>6</td>
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<td>Africa</td>
<td>4.7</td>
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<td>4.8</td>
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</table>

*Traffic of airlines domiciled in each region expressed in RPKs growth and market shares.*
## Aircraft movements’ forecast methodology

- Traffic forecasts converted into forecasts of aircraft movements, assumptions on future **average load factor**, **average aircraft seating capacities** and **average distance stage length**:

<table>
<thead>
<tr>
<th>Formula</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Available seat-kilometres =</td>
<td>Revenue passenger-kilometres / Average load factor</td>
</tr>
<tr>
<td>Aircraft-kilometres =</td>
<td>Available seat-kilometres / Average aircraft seating capacity</td>
</tr>
<tr>
<td>Aircraft movements =</td>
<td>Aircraft-kilometres / Average stage length</td>
</tr>
</tbody>
</table>
World total aircraft movements in 2030: 51.708

- North America, 32.3%
- Asia Pacific, 31.7%
- Europe, 23.3%
- Latin America, 7.7%
- Middle East, 2.9%
- Africa, 2.0%
Why do we need Statistics?

1 – Monitor ICAO Strategic Objectives
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   - The sustainable air transport development

2 – Analyse the air transport market
3 – Assess the impact of new regulations
4 – Forecasting
5 – Plan the development of airport and ANS facilities
6 – Negotiate bilateral agreements
7 – Calculate the individual financial contribution of States
8 – Implement future training strategies
Strong backlog for the major aircraft manufacturers

Orders and Deliveries of Boeing and Airbus, 1975-2009

Need to monitor closely any potential impact on Safety as 60% of aircraft replacement are for growth

Source: aircraft manufacturers
### Future pilots requirements* vs training capacities

#### Most likely scenario

<table>
<thead>
<tr>
<th>Region</th>
<th>Pilots Needs</th>
<th>Capacity</th>
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<tbody>
<tr>
<td>Europe</td>
<td>ICAO 15,552</td>
<td>7,955</td>
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<tr>
<td>North America</td>
<td>ICAO 10,449</td>
<td>27,655</td>
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<td>Middle East</td>
<td>ICAO 2,458</td>
<td>860</td>
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<td>Africa</td>
<td>ICAO 3,814</td>
<td>1,010</td>
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<td>Latin America</td>
<td>ICAO 6,250</td>
<td>1,945</td>
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<tr>
<td>Asia / Pacific</td>
<td>ICAO 13,983</td>
<td>4,935</td>
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<td>World</td>
<td>ICAO 52,506</td>
<td>44,360</td>
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</table>

**Source:** ICAO preliminary figures

*Estimate of average annual needs for 2010 to 2030 period based on various world fleet categories: Regional and business jets, Turboprops, Single aisle, Twin aisles and Freighters

Training capacity is based on current figures without any incremental effect due to planned additional capacities.
Statistics derived products

Indicators for Monitoring purposes such as, Liberalization pace

Enhanced transparency of aviation policies

Forecasts & economic analyses and studies
World Air Services Agreements Web Database

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90 distinct provisions covered
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A built-in search engine

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