Results of passenger air traffic demand forecasting (2015-2030, World and Russia)

Air Transportation System Modelling Workshop

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Content

Bottom-Up Results

- Total world air traffic
- Regional distribution of traffic
- Change in world traffic structure. Range distribution
- Change in world traffic structure. Intensity distribution
- Change in world traffic structure. Big airports and intensive routes
- Change in world traffic structure. Range-Intensity distribution

Top-Down Results. Adjusting of Bottom-Up results

- Top-down Results
- Comparison of Top-down and Bottom-Up Results
- Comparison of Bottom-Up Results before and after correction
- Adjusted Bottom-Up results
- Final Result by Regions
- Russian air traffic forecast

Comparison with other forecasts

- Difference in traffic growth. Probable reasons of difference
- A question to future
Bottom-Up Results
Bottom-Up Results. Total world air traffic 1996-2014-2030.

>89000 routes (incl. 3480 domestic Russian routes)
>4700 airports (incl. ~700 in Russia)

- CAGR 1996-2014: ~2.9%
- CAGR 2014-2030: ~2.5%
- CAGR 1996-2014: ~3.9%
- CAGR 2014-2030: ~3.2%
- CAGR 2014-2030: ~1%
- CAGR 2014-2030: ~0.7%
Bottom-Up Results. Air traffic by Regions 1996-2014-2030.

**CAGR 2014-2030**

- **North America**
  - Seats: 1,9%
  - ASK: 3,1%
  - Dist: 1,1%

- **Europe**
  - Seats: 2,6%
  - ASK: 3,3%
  - Dist: 0,7%

- **CIS**
  - Seats: 3,1%
  - ASK: 3,5%
  - Dist: 0,4%

- **Middle East**
  - Seats: 2,8%
  - ASK: 4,9%
  - Dist: 2%

- **Asia-Pacific**
  - Seats: 2,7%
  - ASK: 2,6%
  - Dist: -0,1%

- **Africa**
  - Seats: 3,2%
  - ASK: 3,3%
  - Dist: 2%

- **Latin America**
  - Seats: 2,6%
  - ASK: 3,4%
  - Dist: 0,8%

- **World**
  - Seats: 2,5%
  - ASK: 3,2%
  - Dist: 0,1%

**Avg. distances in Regions**

- **Asia-Pacific**
  - Avg. distance: 39%

- **North America**
  - Avg. distance: 32%

- **Europe**
  - Avg. distance: 34%

- **Middle East**
  - Avg. distance: 33%

- **Latin America**
  - Avg. distance: 32%

- **CIS**
  - Avg. distance: 30%

- **Africa**
  - Avg. distance: 27%

**Carried Seats by Regions**

- **CIS**
  - 2014: 2%
  - 2020: 3%
  - 2025: 3%

- **Africa**
  - 2014: 22%
  - 2020: 30%
  - 2025: 34%

- **Latin America**
  - 2014: 23%
  - 2020: 24%
  - 2025: 24%

- **Middle East**
  - 2014: 24%
  - 2020: 24%
  - 2025: 24%

- **Europe**
  - 2014: 39%
  - 2020: 39%
  - 2025: 39%

- **North America**
  - 2014: 24%
  - 2020: 24%
  - 2025: 24%

- **Asia-Pacific**
  - 2014: 33%
  - 2020: 33%
  - 2025: 33%
Bottom-Up Results. Distribution of Seats by Range

- Length of lines, thsd km
  - 1996
  - 2014
  - 2030

Source: IAC, OAG, TCH

- Difference 2014 vs 1996
- Difference 2030 vs 2014

Source: IAC, OAG, TCH
Bottom-Up Results. Distribution of Seats by Intensity of lines
Bottom-Up Results. Big airports and intensive routes

**Airports**
(outgoing traffic >1mln seats/year)

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2014</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic on others lines</td>
<td>383</td>
<td>+165</td>
<td>+182</td>
</tr>
</tbody>
</table>

**Routes**
(>1mln seats/year, one way)

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2014</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic on others lines</td>
<td>331</td>
<td>+172</td>
<td>+469</td>
</tr>
</tbody>
</table>

**Share of big airports**

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2014</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outgoing traffic of others</td>
<td>15%</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Outgoing traffic of big airports</td>
<td>85%</td>
<td>88%</td>
<td>92%</td>
</tr>
</tbody>
</table>

**Share of intensive routes**

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2014</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic on others lines</td>
<td>80,9%</td>
<td>80,6%</td>
<td>72,3%</td>
</tr>
<tr>
<td>Traffic on big lines</td>
<td>19,1%</td>
<td>19,4%</td>
<td>27,7%</td>
</tr>
</tbody>
</table>

Source: IAC
Bottom-Up Results. Range-Intensity distribution of Seats

Change in structure of Range-Intensity distribution (2014 vs 1996 and 2030 vs 2014)

<table>
<thead>
<tr>
<th>Difference (1996-2014)</th>
<th>Length of lines, thsd km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of lines, thsd km</td>
<td></td>
</tr>
<tr>
<td>Seats, mlns</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Difference (2014-2030)</th>
<th>Length of lines, thsd km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of lines, thsd km</td>
<td></td>
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<tr>
<td>Seats, mlns</td>
<td></td>
</tr>
</tbody>
</table>

Source: IAC, TCH
Top-Down Results.
Adjusting of Bottom-Up Results
Top-Down Results (Passengers)

- Pax distribution by region:
  - Asia-Pacific: 32%
  - North America: 26%
  - Europe: 23%
  - Middle East: 23%
  - Latin America: 6%
  - Africa: 8%
  - CIS: 3%
  - Asia-Pacific: 2%

- CAGR 2014-2030:
  - Asia-Pacific: 2.7%
  - North America: 1.7%
  - Europe: 2.6%
  - Middle East: 3.3%
  - Latin America: 3.2%
  - Africa: 4.3%
  - CIS: 2.9%
  - World: 2.6%

Source: IAC
Adjusting of Bottom-Up Results. Comparison Up-Down and Bottom-Up

**Top-Down Results (Passengers)**

- CIS
- Africa
- Latin America
- Middle East
- Europe
- North America
- Asia-Pacific

**Bottom-Up Results (Seats)**

- CIS
- Africa
- Latin America
- Middle East
- Europe
- North America
- Asia-Pacific

**Pax/Seats Ratio ("Passenger load factor")**

- Asia-Pacific
- Africa
- Latin America
- Middle East
- Europe
- North America
- CIS
- World

Source: IAC
Adjusting of Bottom-Up Results. Comparison Before and after correction

Carried Seats by Regions (Bottom-Up Results before correction)

Carried Seats by Regions (Adjusted Bottom-Up Results)

CAGR 2014-2030

Source: IAC
World traffic forecast. Final Result. Regional distribution

Carried Seats by Regions

ASK by Regions
World traffic forecast. Final Results by Regions

- **North America**
  - Seats: 1.7%, 1.4%
  - ASK: 1.0%, 1.1%
  - Avg. Dist.: 2.9%, 1.4%

- **Europe**
  - Seats: 3.0%, 3.0%
  - ASK: 2.6%, 2.6%
  - Avg. Dist.: 3.3%, 3.3%

- **North America**
  - Seats: 3.2%, 3.5%
  - ASK: 4.2%, 3.5%
  - Avg. Dist.: 3.5%, 3.5%

- **Africa**
  - Seats: 6.2%, 5.4%
  - ASK: 6.2%, 5.0%
  - Avg. Dist.: 6.2%, 5.0%

- **Middle East**
  - Seats: 5.5%, 5.8%
  - ASK: 4.2%, 3.9%
  - Avg. Dist.: 3.9%, 3.9%

- **Asia-Pacific**
  - Seats: 5.8%, 5.6%
  - ASK: 5.6%, 5.6%
  - Avg. Dist.: 5.6%, 5.6%

- **Latin America**
  - Seats: 3.2%, 3.5%
  - ASK: 4.2%, 3.5%
  - Avg. Dist.: 4.2%, 3.5%

- **Europe**
  - Seats: 5.7%, 5.3%
  - ASK: 5.3%, 5.1%
  - Avg. Dist.: 5.3%, 5.1%

- **Middle East**
  - Seats: 6.2%, 5.8%
  - ASK: 4.2%, 3.9%
  - Avg. Dist.: 4.2%, 3.9%

- **Africa**
  - Seats: 5.5%, 5.9%
  - ASK: 5.9%, 5.9%
  - Avg. Dist.: 5.9%, 5.9%

- **CIS**
  - Seats: 5.5%, 5.3%
  - ASK: 5.3%, 5.1%
  - Avg. Dist.: 5.3%, 5.1%

- **World**
  - Seats: 2.9%, 2.5%
  - ASK: 3.9%, 3.2%
  - Avg. Dist.: 1.0%, 0.7%

Source: IAC

CAGR 1996-2014
CAGR 2014-2030
Few words about Russia

### CAGR 2015-2030
- Seats: 2.9%
- ASK: 3.34%
- Dist: 0.43%

### Russian share in CIS
- 2014: 79.8%
- 2030: 80.0%

### Change in structure of Range-Intensity distribution

<table>
<thead>
<tr>
<th>Difference (2014-2030)</th>
<th>0-0.5</th>
<th>0.5-1</th>
<th>1-1.5</th>
<th>1.5-2</th>
<th>2-2.5</th>
<th>2.5-3</th>
<th>3-3.5</th>
<th>3.5-4</th>
<th>4-5</th>
<th>5-6</th>
<th>6-7</th>
<th>7-8</th>
<th>8-10</th>
<th>10-12</th>
<th>12-14</th>
<th>14-16</th>
<th>16+</th>
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<td>Seats, mlns</td>
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Source: IAC
Comparison with other forecasts
Comparison with other forecasts. Traffic growth by regions*

** IAC – ASK, others

** All – RPK

Probable reasons of divergence:

- GDP CAGR forecast in IAC model is lower
- Effective demand in Asia is more appropriate to short/medium-range flights than for long-haul flights
- Asian market of domestic flights becomes more mature
- Possible influence of the main business of forecast developers on the results (see next slide)

* Regional structure in different forecasts have some difference. Because of small traffic in controversial segments the influence of such difference isn’t very significant.

** All – RPK
Are we really sure about so fast growth in Asia-Pacific and Middle East?..
Thank you for your attention!

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