GLOBAL MARKET FORECAST
## Global Market Forecast 2013: Highlights

### GMF 2013 key numbers and 20-year change

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2032</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>World Fleet Forecast</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPK (trillions)</td>
<td>5.5</td>
<td>13.9</td>
<td>151%</td>
</tr>
<tr>
<td><strong>Passenger aircraft fleet</strong></td>
<td>16,094</td>
<td>33,651</td>
<td>109%</td>
</tr>
<tr>
<td><strong>New passenger aircraft deliveries</strong></td>
<td>28,355</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dedicated freighters</strong></td>
<td>1,645</td>
<td>2,905</td>
<td>77%</td>
</tr>
<tr>
<td><strong>New freighter aircraft deliveries</strong></td>
<td>871</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total New Aircraft Deliveries</strong></td>
<td>29,226</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Market value of $4.4 trillion**

*Passenger aircraft ≥100 seats, Freight aircraft ≥10t*

*Source: Airbus GMF*
Airbus Global Market Forecast

A 20 year aircraft demand and passenger traffic forecast

**Market Research**

- **Trends Analysis**
  - Consumer & Travel Surveys
  - Tourism
  - Migration
  - Traffic flows
  - Passenger demands

- **Airlines**
  - Business Models
  - Operations
  - Competition
  - Geopolitics

- **Governments & Regulators**
  - Liberalization/deregulation
  - Investments and constraints
  - Geopolitics

**Forecast**

- **Traffic**
  - Economics and Econometrics
  - Fuel costs
  - Yields
  - Load Factors
  - Trade and Value of Goods

- **Network Development**
  - Route planning
  - Origin and destination demand
  - Population centers

- **Fleet trends**
  - Aircraft economics
  - Utilization
  - Fleet age and retirements
How many passengers will fly?

Where will passengers fly?

How will passengers fly?
How many passengers will fly?

Where will passengers fly?

How will passengers fly?
Passenger traffic is outperforming GDP growth

World real GDP and passenger traffic

Source: IHS Global Insight, OAG, Airbus
Asia-Pacific and other emerging markets are leading traffic growth

ASKs year-over-year monthly evolution

Source: OAG, Airbus
Diverse emerging economies globally distributed

- **Europe-CIS**: 14 emerging economies, 380 million people (2012)
- **Middle East**: 8 emerging economies, 60 million people (2012)
- **Africa**: 11 emerging economies, 430 million people (2012)
- **Asia-Pacific**: 10 emerging economies, 3,500 million people (2012)
- **Latin America**: 11 emerging economies, 500 million people (2012)

Source: IHS Global Insight, Airbus
Air travel has proved to be resilient to external shocks

World annual traffic (RPKs - trillions)

- Oil Crisis (1973)
- Oil Crisis (1978)
- Gulf Crisis (1983)
- Asian Crisis (1993)
- WTC Attack (1998)
- SARS (2003)
- Financial Crisis (2008)

73% growth through multiple crises over the last ten years

Source: ICAO, Airbus
More wealth translates into more air travel

Trips* per capita over GDP per capita

Source: Sabre (annualized September 2012 data), IHS Global Insight, Airbus

* Passengers originating from respective country

2/3 of the population of the emerging countries will take a trip a year in 2032.
China, leading the pack

Evolution of real GDP and consumer spending 2013-2023 per global region

Real GDP average annual growth 2013-2023

Real consumption per average annual growth 2013-2023

Bubble diameter proportional to nominal GDP at PPP (Purchasing Power Parity) in US$ in 2023

Source: IHS Global insight (April 2014), Airbus
Global Middle Class to more than double

Source: Kharas and Gertz, Airbus

*Households with daily expenditures between $10 and $100 per person (at PPP)
Traffic forecasting process:
Dividing global air traffic into regional traffic flows

Selection of GMF traffic flows (200 in total)

Σ200 global traffic flows*

Accuracy vs. validity:
As many aggregations as possible, as many exceptions as necessary
Processing historic traffic data and forecasted socio-economic data to obtain future traffic volumes

GMF traffic forecast methodology

Air traffic
Historical data

Economy
Forecast data

Sample of socio economic variables

- Consumer price index
- Industrial production index
- Urban population
- Total population
- Gross domestic product price deflator
- GDP per capita (real/nominal)
- Oil price
- Yield (if available)
- Unemployment rate
- Gross domestic product (real/nominal)
- Private consumption
- Exchange rate
- Household disposable income
- Gross domestic product at PPP (real/nominal)
- Rural population
- Number of rooms (total hotel capacity)
- Exports (real/nominal)
- Imports (real/nominal)

Air traffic forecast = \textit{function} (selected socio-economic variables)
Traffic will double in the next 15 years

World annual RPK (trillion)

Air traffic has doubled every 15 years

Air traffic will double in the next 15 years

Source: ICAO, Airbus
Emerging markets will drive traffic growth

Share of world RPK, by type of flow

- **Emerging - Emerging**: 43%
- **Advanced - Emerging**: 29%
- **Advanced - Advanced**: 30%

**CAGR**
- **Advanced - Advanced**: 2.6%
- **Emerging - Advanced**: 4.9%
- **Emerging - Emerging**: 6.8%

*Source: Airbus*
Domestic PRC will be the largest flow in 2032

Largest O&D flows in 2032

<table>
<thead>
<tr>
<th>Route</th>
<th>2012-2032 Billions RPK</th>
<th>2012</th>
<th>2032</th>
<th>GMF 2013 (O&amp;D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic PRC</td>
<td>1200</td>
<td>400</td>
<td>800</td>
<td>7.0%</td>
</tr>
<tr>
<td>Domestic USA</td>
<td>1000</td>
<td>300</td>
<td>700</td>
<td>1.9%</td>
</tr>
<tr>
<td>Intra Western Europe</td>
<td>800</td>
<td>200</td>
<td>600</td>
<td>2.9%</td>
</tr>
<tr>
<td>Western Europe - USA</td>
<td>700</td>
<td>200</td>
<td>500</td>
<td>3.0%</td>
</tr>
<tr>
<td>Asia - Western Europe</td>
<td>600</td>
<td>200</td>
<td>400</td>
<td>4.3%</td>
</tr>
<tr>
<td>Domestic India</td>
<td>500</td>
<td>200</td>
<td>300</td>
<td>9.8%</td>
</tr>
<tr>
<td>Asia - PRC</td>
<td>400</td>
<td>200</td>
<td>200</td>
<td>6.2%</td>
</tr>
<tr>
<td>Domestic Brazil</td>
<td>300</td>
<td>200</td>
<td>100</td>
<td>7.0%</td>
</tr>
<tr>
<td>Intra Asia</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>6.1%</td>
</tr>
<tr>
<td>Western Europe - Middle East</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>4.8%</td>
</tr>
<tr>
<td>Western Europe - South America</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>4.8%</td>
</tr>
<tr>
<td>Domestic Asia</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>5.7%</td>
</tr>
<tr>
<td>Asia - Middle East</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>8.0%</td>
</tr>
<tr>
<td>Western Europe - PRC</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>5.7%</td>
</tr>
<tr>
<td>Indian Sub - Middle East</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>6.1%</td>
</tr>
<tr>
<td>Asia - USA</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>4.2%</td>
</tr>
<tr>
<td>PRC - USA</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>6.5%</td>
</tr>
<tr>
<td>Central Europe - Western Europe</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>5.9%</td>
</tr>
<tr>
<td>South America - USA</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>5.3%</td>
</tr>
<tr>
<td>Indian Sub - USA</td>
<td>200</td>
<td>200</td>
<td>0</td>
<td>6.6%</td>
</tr>
</tbody>
</table>
Asia-Pacific to lead in world traffic by 2032

RPK traffic by airline domicile (billions)

20-year world annual traffic growth 4.7%

<table>
<thead>
<tr>
<th>Region</th>
<th>2012 traffic</th>
<th>2012-2032 traffic</th>
<th>% of 2012 world RPK</th>
<th>20-year growth</th>
<th>% of 2032 world RPK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia-Pacific</td>
<td></td>
<td></td>
<td>29%</td>
<td>5.5%</td>
<td>34%</td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td>26%</td>
<td>3.8%</td>
<td>22%</td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td>25%</td>
<td>3.0%</td>
<td>18%</td>
</tr>
<tr>
<td>Middle East</td>
<td></td>
<td></td>
<td>8%</td>
<td>7.1%</td>
<td>12%</td>
</tr>
<tr>
<td>Latin America</td>
<td></td>
<td></td>
<td>5%</td>
<td>6.0%</td>
<td>7%</td>
</tr>
<tr>
<td>CIS</td>
<td></td>
<td></td>
<td>4%</td>
<td>5.8%</td>
<td>4%</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
<td>3%</td>
<td>5.1%</td>
<td>3%</td>
</tr>
</tbody>
</table>
How many passengers will fly?

Where will passengers fly?

How will passengers fly?
Stepwise global traffic breakdown

- 200 global traffic flows
- >10,000 country pairs
- >200,000 O&D city pairs
- >2,500,000 O&D city pair routings

Macro traffic forecast — Micro network forecast
Aviation shapes the world

Origin-destination passenger traffic per city, 2013 – 2032 growth and 2032 volume

Traffic growth (20-year CAGR)

Traffic volume (monthly O&D PAX)

Source: Sabre, Airbus
Network development

Identification of new routes candidates

- Probabilistic model based on combination of all possible O&Ds and current networks

Optimizer

Start year → year +1

Network forecast

Validation of new routes candidates

- Enough demand?

Recomputation of world network

- Including validated candidates

More than 10,000 candidates

AAA-BBB
CCC-DDD
EEE-FFF
GGG-HHH
III-JJJ
KKK-LLL
...

O&D growth
Airbus does not only focus on consolidation.
42 cities in the world handle more than 10,000 long haul passengers per day …

2012 cities with more than 10,000 daily long-haul passengers

- >50,000 daily long-haul passengers
- >20,000 daily long-haul passengers
- >10,000 daily long-haul passengers

Long-haul traffic is concentrated on a few main aviation centres

Traffic as of month of September; Source: GMF 2013
Long haul traffic: flight distance >2,000nm, excl. domestic traffic;
… and by 2032 there will be 90 Mega-cities

Long-haul traffic is more and more concentrated on main aviation centres

Traffic as of month of September. Source: GMF 2013

Long haul traffic: flight distance >2,000nm, excl. domestic traffic;

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How many passengers will fly?

Where will passengers fly?

How will passengers fly?
Growth can be accommodated by growth in frequency, capacity or both simultaneously.

- **Step 1**: increase in Frequency only
- **Step 2**: increase in both Frequency & Capacity
- **Step 3**: increase in Capacity only

Source: Airbus Market Research and Forecasts
LCCs in Asia-Pacific continue to boom

LCC Seats Offered and Flights, base year 2000 = 100

Source: OAG, Airbus Market Research and Forecasts| Note: Includes all intra-regional and domestic traffic

Average aircraft capacity growth since 2000

49%
Demand for over 29,200 new aircraft

Fleet in service evolution; 2013-2032

+ 3.7% per annum

New aircraft 29,226

Growth

Stay in service & Converted

Replaced

Source: Airbus

Note: Passenger aircraft ≥100 seats, Freighter aircraft ≥10 tonnes
Single-aisle: 69% of units; Wide-bodies: 59% of value

20-year new deliveries of passenger and freighter aircraft

- **Single-aisle**: 69% of units; 41% of value
- **Small twin-aisle**: 17% of units; 26% of value
- **Intermediate twin-aisle**: 8% of units; 17% of value
- **Very Large Aircraft**: 6% of units; 16% of value

Source: Airbus
Open demand for 2,300 Single-Aisle aircraft before 2022

Fleet in service evolution; 2013-2022

+ 4.4% per annum

Open demand for growth: 1,724
Open demand for replacement: 564

Source: Airbus
Note: Passenger aircraft ≥100 seats
Open demand for 1,200 Twin-Aisle aircraft before 2022

Fleet in service evolution; 2013-2022

Open demand for growth: 523
Open demand for replacement: 709

Beginning 2013: 3,505
End of 2022: 5,614

Growth: 2,109
Replaced: 1,471
Stay in service & Converted: 2,034
Backlog for growth: 68%

Source: Airbus
Note: Passenger aircraft ≥100 seats
• **Strong growth in passenger traffic** – resilient growth through a difficult, but improving economic period

• **Demand for over 29,000 new aircraft by 2032** – ~28,300 passenger aircraft and nearly 900 freighter aircraft

• **Replacement of ageing fleets** – 20 year demand for nearly 11,000 passenger aircraft for replacement, largely in the single-aisle segment

• **Single-aisle aircraft represent 70% of demand in units, but wide-body aircraft represent 60% of value**

• **VLA demand driven by aviation mega-cities** – more than 99% of all long-haul passengers will fly to, from or through these cities by 2032
Global Market Forecast

Future Journeys

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THANK YOU