The Market
Long and Short-term Outlook

March 23rd 2016
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Head of Market and Product Strategy
### Global Market Forecast 2015: Highlights

GMF 2015 key numbers and 20-year change

<table>
<thead>
<tr>
<th>World Fleet Forecast</th>
<th>2014</th>
<th>2034</th>
<th>% change 2014-2034</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPK (trillions)</td>
<td>6.2</td>
<td>15.2</td>
<td>145%</td>
</tr>
<tr>
<td>Passenger Aircraft Fleet</td>
<td>17,354</td>
<td>35,749</td>
<td>106%</td>
</tr>
<tr>
<td>New passenger aircraft deliveries</td>
<td></td>
<td>31,781</td>
<td></td>
</tr>
<tr>
<td>Dedicated Freighters</td>
<td>1,633</td>
<td>2,687</td>
<td>65%</td>
</tr>
<tr>
<td>New freighter aircraft deliveries</td>
<td></td>
<td>804</td>
<td></td>
</tr>
<tr>
<td><strong>Total New Aircraft Deliveries</strong></td>
<td>32,585</td>
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<td></td>
</tr>
</tbody>
</table>

New aircraft deliveries

+1,227 aircraft

GMF 2015 vs. GMF 2014

Passenger aircraft (≥ 100 seats)

Jet freight aircraft (>10 tons)

Source: Airbus GMF
20-year demand for 32,600 new passenger and freight aircraft

20-year new deliveries of passenger and freighter aircraft

- **22,930** single-aisle aircraft
- **8,110** twin-aisle aircraft
- **1,550** very large aircraft

**32,590** new aircraft

Market Value of

$4.9 trillion

Passenger aircraft (≥ 100 seats)
Jet freight aircraft (>10 tons)
Source: Airbus GMF
Single-aisle: 70% of units; Wide-bodies: 55% of value

20-year new deliveries of passenger and freighter aircraft

<table>
<thead>
<tr>
<th>Category</th>
<th>Units %</th>
<th>Value %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-aisle</td>
<td>70%</td>
<td>45%</td>
</tr>
<tr>
<td>Twin-aisle</td>
<td>25%</td>
<td>43%</td>
</tr>
<tr>
<td>Very Large Aircraft</td>
<td>5%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Passenger aircraft (≥ 100 seats) and jet freight aircraft (>10 tons)

Source: Airbus GMF
Air transport growth is highest in expanding regions

Emerging/Developing:
- China
- India
- Middle East
- Asia
- Africa
- CIS
- Latin America
- Eastern Europe

6.2 billion people 2014
Yearly RPK growth 2015 - 2034
+5.8%

Advanced:
- Western Europe
- North America
- Japan

1 billion people 2014
+3.8%

Source: IHS Economics, Airbus GMF
Middle Class to grow, doubling in emerging countries...

Middle Class*, millions of people

<table>
<thead>
<tr>
<th>Year</th>
<th>Middle Class*</th>
<th>North America</th>
<th>Europe</th>
<th>Emerging countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994e</td>
<td>1,176</td>
<td>558</td>
<td>391</td>
<td>227</td>
</tr>
<tr>
<td>2004</td>
<td>1,792</td>
<td>1,120</td>
<td>425</td>
<td>247</td>
</tr>
<tr>
<td>2014</td>
<td>2,703</td>
<td>2,001</td>
<td>444</td>
<td>259</td>
</tr>
<tr>
<td>2024</td>
<td>3,671</td>
<td>2,936</td>
<td>471</td>
<td>263</td>
</tr>
<tr>
<td>2034</td>
<td>4,721</td>
<td>3,977</td>
<td>480</td>
<td>264</td>
</tr>
</tbody>
</table>

Source: Oxford Economics, Kharas (Brookings 2012) Airbus GMF

- Forecast: 2024, 2034

* Households with yearly income between $20,000 and $150,000 at PPP in constant 2014 prices
** Estimate for 1994 split by region
Europeans and Americans fly most today…

2014 trips per capita

- **Europe**: 1.21 trips per capita
- **North America**: 1.63 trips per capita
- **PRC**: 0.30 trips per capita
- **India**: 0.07 trips per capita

**Propensity to travel**

- 25% of emerging countries population took a trip a year in 2014.

**2014 real GDP per capita**

(2010 $US thousands at Purchasing Power Parity)

Sources: Sabre, IHS Economics, Airbus GMF
...but by 2034, PRC will reach current European levels

Propensity to travel

74% of emerging countries population will take a trip a year in 2034

Propensity to travel -

Sources: Sabre, IHS Economics, Airbus GMF
Air traffic will double in 15 years

World annual RPK* (trillion)

Source: ICAO, Airbus GMF 2015

2014-2034
4.6%
Significant potential for LCCs to increase traffic to other regions

LCC market share (seats offered) in 2014 per global region

In Europe
- LCCs capture 49% of intra-regional traffic

Source: OAG (September data), Airbus
70% of traffic growth until 2034 will be coming from existing network

Source: Airbus GMF2015
47 Aviation Mega-Cities in 2014

2014 Aviation Mega-Cities

47 Aviation Mega-cities

0.9M Daily Passengers: long-haul traffic to/from/via Mega-Cities

90%+ of long-haul traffic on routes to/from/via 47 cities

22% of World GDP in 2014


• >50 000 daily long-haul passengers
• >20 000 daily long-haul passengers
• >10 000 daily long-haul passengers
... and 91 Mega-Cities in 2034

2034 Aviation Mega-Cities

91 Aviation Mega-cities
2.3M Daily Passengers: Long-Haul traffic to/from/via Mega-Cities
95%+ of long-haul traffic on routes to/from/via 91 cities
35% of World GDP in 2034

Routes between Aviation Mega-cities have more premium passengers

Percentage of premium passengers on routes types

Cities with more than 10,000 daily passengers, Long-haul, flight distance >2,000nm, excl. domestic traffic

Source: Sabre (September 2014 data), Airbus GMF2015

Percentage of premium between AMC 2014

14% compared to 11% average international long-haul
These airports are already largely congested

2014 Aviation Mega-Cities

39 out of the 47 Aviation Mega Cities are schedule-constrained today

*Aviation Mega-Cities International Airports

- **IATA WSG level 1**: airport infrastructure is adequate
- **IATA WSG level 2**: airports with potential for congestion
- **IATA WSG level 3**: airports where conditions make it impossible to meet demand

Source: IATA WSG database, Airbus GMF
Asia-Pacific to lead in world traffic by 2034

RPK traffic by airline domicile (billions)

<table>
<thead>
<tr>
<th>Region</th>
<th>2014 traffic</th>
<th>2015-2034 traffic</th>
<th>% of 2014 world RPK</th>
<th>20-year growth</th>
<th>% of 2034 world RPK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia-Pacific</td>
<td></td>
<td></td>
<td>29%</td>
<td>5.7%</td>
<td>36%</td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td>25%</td>
<td>3.6%</td>
<td>21%</td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td>25%</td>
<td>2.5%</td>
<td>17%</td>
</tr>
<tr>
<td>Middle East</td>
<td></td>
<td></td>
<td>9%</td>
<td>6.7%</td>
<td>13%</td>
</tr>
<tr>
<td>Latin America</td>
<td></td>
<td></td>
<td>5%</td>
<td>5.2%</td>
<td>6%</td>
</tr>
<tr>
<td>CIS</td>
<td></td>
<td></td>
<td>4%</td>
<td>4.9%</td>
<td>4%</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
<td>3%</td>
<td>5.3%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: Airbus GMF2015

20-year world annual traffic growth 4.6%
Demand for some 32,600 new passenger and freighter aircraft

Fleet in service evolution: 2015-2034

- **Beginning 2015**: 19,000
- **2034**: 38,500
  - **Growth**: 19,500
  - **Replacement**: 13,100
  - **Stay in service**: 5,900

Note: Passenger aircraft ≥100 seats, Freighter aircraft ≥10 tonnes

Source: Airbus
Regional breakdown of 32,600 new passenger and freighter deliveries

North America: 5,880
Latin America: 2,540
Africa: 1,130
Europe: 6,450
CIS: 1,310
Middle East: 2,460
Asia-Pacific: 12,810

20-YEAR NEW DELIVERIES

- SINGLE-AISLE: 22,920
- TWIN-AISLE & VLA: 9,660

Source: Airbus GMF
Airbus backlog well aligned with demand forecast

Airbus backlog and GMF demand forecast by region

- **North America**: 9% (17%)
- **Europe & CIS**: 18% (24%)
- **Middle East**: 6% (7%)
- **Asia-Pacific**: 29% (39%)
- **Latin America**: 6% (8%)
- **Africa**: 1% (3%)
- **Lessors**: 20%

Source: Airbus GMF2015
Values as at end December 2015
Total backlog includes undisclosed
The short term - what’s hot today?

Emerging economies  
Oil price  
Cycle - Orders, deliveries…
Air travel has proven to be resilient to external shocks

Source: ICAO, Airbus

World traffic - 98% growth since 9/11

Source: ICAO, Airbus
World GDP Growth  +2.5%
Passenger Traffic (RPKs)  +6.5%
Capacity (ASKs)  +5.6%
Load Factor  +0.6 percentage point

Reaching record levels: world average. 80.3%

Market

Over 3.5bn passengers in 2015
2016 outlook 3.8bn passengers

Source: IATA members traffic for 2015 published
Passenger traffic is outperforming GDP growth

World real GDP and passenger traffic

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

ASKs year-over-year monthly evolution

% (year-over-year)

Source: OAG, Airbus
Emerging economies are a global phenomenon

World map of emerging countries

LATIN AMERICA
- 11 emerging economies
- 500 million people

AFRICA
- 11 emerging economies
- 430 million people

MIDDLE EAST
- 8 emerging economies
- 60 million people

EUROPE-CIS
- 14 emerging economies
- 380 million people

ASIA-PACIFIC
- 10 emerging economies
- 3,500 million people

Source: IHS Global Insight, Airbus
Emerging markets accounting for a growing share of the world economy

Emerging markets* as a share of world economy (%)

Source: IHS Economics, Airbus

* 54 emerging economies
Emerging markets economic growth rate tapers but added volume remains impressive and is expected to rebound.

Emerging economies* added economic volume in 2015 corresponds to the size of their economy in 1982.

Source: IHS Economics, Airbus

* 54 emerging economies
Each year, deliveries represent on average 7% of the in service fleet.

Source: Airbus analysis from ASCEND database

Aircraft >= 100 seats

Yearly deliveries of aircraft above 100 seats

Deliveries as % of fleet

Source: Airbus analysis from ASCEND database
Aircraft >= 100 seats
Top three airline costs – Fuel, Ownership, Maintenance

Distribution of Total Airline Cost – FY 2014

- Fuel and Oil: 33.3%
- Aircraft Ownership: 11.5%
- Maintenance and Overhaul: 11.0%
- Flight Equipment Insurance: 0.2%
- Other: 0.7%
- General and Administrative: 6.0%
- Station and Ground: 6.6%
- Reservation, Ticketing, Sales and Promotion: 7.2%
- Flight Deck Crew: 6.0%
- Cabin Attendants: 4.9%
- Airport Charges: 4.5%
- Passenger Service: 4.4%
- Air Navigation Charges: 4.4%
- Other*: 0.2%
- Total: $128.2 Billion (59 airlines)

*Includes Load Insurance for pax and cargo
**Flight Equipment Insurance plus IT and Communications (partially captured here as several airlines wouldn’t report it)

Source: IATA ACMG, FY ’13
Past data show no correlation between oil price and aircraft retirement age.

Brent oil price (nominal US$ per bbl) vs Aircraft* Half-Life

Source: ASCEND, Airbus, IHS Energy
Passenger aircraft (>100 seats)
*A/C age when 50% of delivered aircraft are still in service
No clear trend in survival curves over the last 5 years

**Attrition Curves based on SA fleet in service**

Share of delivered a/c still in service

Avg. yearly oil price

- 2014@ $99 per barrel
- 2013@ $9 per barrel
- 2012@ $115 per barrel
- 2011@ $114 per barrel
- 2010@ $85 per barrel

**Attrition Curves based on WB fleet in service**

Share of delivered a/c still in service

Avg. yearly oil price

- 2014@ $99 per barrel
- 2013@ $9 per barrel
- 2012@ $115 per barrel
- 2011@ $114 per barrel
- 2010@ $85 per barrel

Source: Ascend
Short to medium term oil price forecasts have been revised down.

In the long-run, growing oil demand and limited reserves will bring prices back to their trend levels.

Source: IHS Energy (Feb. 2016), Airbus
Lower fuel prices bolstering the bottom line

US AIRLINES
(sample representing 20% of world traffic)

EUROPEAN AIRLINES
(sample representing 15% of world traffic)

EMERGING MARKETS AIRLINES
(sample representing 15% of world traffic)

AIRCINES WORLDWIDE
(sample representing 60% of world traffic)

Source: The Airline Analyst, Airbus
Backlog and delivery ratio above 10:1 in 2015

Airbus backlog

Airbus deliveries
(scale 1/5 x backlog)
Backlog and delivery ratio at 7:1 in 2020, A320 at rate 60 from mid 2019

Airbus backlog

Airbus deliveries
(scale 1/5 x backlog)
Backlog x 2.7 since 2006 – Cancellations within historic bounds

- Swaps A320-A330ceo/neo
- Cancellations
- Backlog

2533 3421 3715 3488 3552 4437 4682 5559 6386 6831

- 2% 5% 4% 1% 2% 5% 2% 2% 1% 4%

- % Swaps ceo to neo
- % Cancellations year N / Backlog year N-1
Productivity increasing, stored aircraft around historical low

**Productivity**

ASKs per aircraft in service year-over-year monthly evolution (%)

- **Single-Aisle**
- **Twin-Aisle + VLA**

**Stored Aircraft**

Number of aircraft stored at end of the period Share of fleet (%)

- New
- Mid
- Old
- Share

* Western-built passenger aircraft ≥100 seats

Source: Ascend, OAG, Airbus
## Indicators remain encouraging

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Status</th>
<th>Trend</th>
<th>Comment</th>
</tr>
</thead>
</table>
| Economy   | ![Status Icon] | ![Trend Icon] | - World economy not expected to emerge from its soft patch of the last three years  
- Oil prices remaining at relatively low levels |
| Passenger traffic | ![Status Icon] | ![Trend Icon] | - Strong passenger traffic growth in 2015 and in early 2016, especially for airlines from emerging markets  
- Load factors holding at record high levels |
| Freight traffic | ![Status Icon] | ![Trend Icon] | - Freight traffic recovery “on hold” |
| Finance   | ![Status Icon] | ![Trend Icon] | - Interest rates still at low levels |
| Aircraft  | ![Status Icon] | ![Trend Icon] | - Stored aircraft remaining at low levels  
- Passenger aircraft productivity continues to improve |
| Airlines  | ![Status Icon] | ![Trend Icon] | - Record airline profitability in 2015, especially for airlines with no fuel hedging positions (e.g. airlines in North America) |

Traffic light code: Green: Positive, Amber: concerns, Red: Negative  
Trend indication: ⇐: unchanged, ⬆: improving, ⬇: getting worse