Aviation connects and unites us!

Airbus Global Market Forecast 2021 - 2040
## Covid in numbers – key data

*An unprecedented shock*

<table>
<thead>
<tr>
<th>2019</th>
<th>2020</th>
<th>2021* (YoY)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.0%</strong></td>
<td><strong>-66%</strong></td>
<td><strong>18%</strong></td>
</tr>
<tr>
<td>RPK growth</td>
<td>RPK decrease</td>
<td>RPK increase</td>
</tr>
<tr>
<td><strong>2.7%</strong></td>
<td><strong>-3.5%</strong></td>
<td><strong>5.6%</strong></td>
</tr>
<tr>
<td>GDP growth</td>
<td>GDP decrease</td>
<td>GDP increase</td>
</tr>
<tr>
<td><strong>+200</strong></td>
<td><strong>-2,700</strong></td>
<td><strong>+470</strong></td>
</tr>
<tr>
<td>million passengers</td>
<td>million passengers</td>
<td>million passengers</td>
</tr>
<tr>
<td><strong>82.5%</strong></td>
<td><strong>65.1%</strong></td>
<td><strong>67.1%</strong></td>
</tr>
<tr>
<td>Record Load factor</td>
<td>Load factor</td>
<td>Load factor</td>
</tr>
</tbody>
</table>

* IATA industry statistics Fact Sheet released in Oct. 2021 (2021 vs. 2020)

Source: ICAO, IATA, IHS Markit, Airbus
Airbus expects a full recovery of air traffic between 2023 and 2025

Traffic (RPKs) base 100 compared to equivalent month in 2019

Source: OAG, FR24, SABRE, IATA, IHS Markit, OWID,
September 21 projection from Airbus GMF
New trends are emerging but too early to estimate traffic impact
Social and environmental considerations will play a role

Corporate travel evolution  
(Alternative) Energy cost  
Environment awareness and passenger behaviour
Aviation economic benefits extend beyond our industry

$3.5 trillion contribution to annual global GDP (4%) and **87 million jobs**

Support tourism industry, **over 10% of world GDP**; with many small country over 25%

**Connect small islands** to essential business, education and health services overseas

Carries **35% of World trade** in value

Source: ATAG, Airbus GMF 2021
GDP remains the fundamental long term driver for traffic growth

World real GDP (billion 2015 USD)

~2 years lag

Source: IHS Markit, Airbus GMF
Middle class will enlarge both in relative and absolute numbers

Middle class (millions of people)

<table>
<thead>
<tr>
<th>Year</th>
<th>Other countries</th>
<th>Mature countries</th>
<th>Emerging countries</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2,970</td>
<td></td>
<td></td>
<td>2,970</td>
</tr>
<tr>
<td>2020</td>
<td>3,810</td>
<td></td>
<td></td>
<td>3,810</td>
</tr>
<tr>
<td>2030</td>
<td>5,000</td>
<td></td>
<td></td>
<td>5,000</td>
</tr>
<tr>
<td>2040</td>
<td>5,760</td>
<td></td>
<td></td>
<td>5,760</td>
</tr>
</tbody>
</table>

% of middle class in world population

- 43% in 2010
- 49% in 2020
- 59% in 2030
- 63% in 2040

Source: Oxford Economics, Airbus GMF
Traffic to reconnect to pre-crisis trend with 2 years shift

Traffic growth 2019-2040 3.9% CAGR

~2 years lag

Source: IHS, Airbus GMF
Mature flows will grow by approx. 2-3% per year

Top 20 traffic flows (RPK)

- Domestic PRC
- Domestic USA
- Intra - Western Europe
- Western Europe - USA
- Western Europe - Middle East
- Domestic - Asia Emerging
- Domestic - India
- Asia Developed - Asia Emerging
- Central Europe - Western Europe
- Indian Sub-continent - Middle East
- Asia Emerging – PRC
- PRC - USA
- Asia Emerging - Middle East
- Asia Developed - USA
- Asia Developed - Western Europe
- Asia Developed – PRC
- Middle East – USA
- Western Europe - PRC
- Western Europe - South America
- Intra - Asia Developed

Source: Airbus GMF 2021
Domestic PRC to become the largest flow. Highest growth to/from/within Asia.

Top 20 traffic flows (RPK)

- Domestic PRC
- Domestic USA
- Intra - Western Europe
- Western Europe - USA
- Western Europe - Middle East
- Domestic - Asia Emerging
- Domestic - India
- Asia Developed - Asia Emerging
- Central Europe - Western Europe
- Indian Sub-continent - Middle East
- Asia Emerging – PRC
- PRC - USA
- Asia Emerging - Middle East
- Asia Developed - USA
- Asia Developed - Western Europe
- Asia Developed – PRC
- Middle East – USA
- Western Europe - PRC
- Western Europe - South America
- Intra - Asia Developed

Source: Airbus GMF 2021
Strong industry track record on productivity improvement

**Daily utilisation**
- 1999: 8.5 hours/day
- 2019: 10.6 hours/day
- Increase: +2 hours/day

**Average seats per flight**
- 1999: 161 seats/flight
- 2019: 179 seats/flight
- Increase: +18 seats/flight

**Load factor**
- 1999: 69.8%
- 2019: 82.5%
- Increase: +13 pp

**RPK (m) per a/c**
- 1999: 300m
- 2019: 435m
- Increase: +45%

Source: IATA, ICAO, Cirium, OAG, Airbus
Generating considerably lower emissions per Revenue Passenger Kilometre

CO₂ emissions per RPK (grams)

CAGR 1990-2019: -2.6%

Source: IATA, ICAO, EDGAR CO₂ emissions, Airbus
Only 13% of 2019 fleet in service were new generation aircraft

* Western built passenger aircraft above 100 seats – pax aircraft only / **1st generation: A300, DC 9, DC10, 707, 727, 737, 747 / 2nd generation: A310, MD11, MD80, MD90,737, 747, 757, 767, F100 / Previous generation: A320 Fam., A330, A340, 717,737NG, 747, 777 / New generation: A220, A320neo Fam., A330neo, A350, A380, 737Max, 777X, 787 & new programs

Source: Cirium, Airbus
Demand for some 39,000 aircraft over the next 20 years

Fleet in service (thousands)

- **Beginning 2020**: 22,950
- **2040**:
  - **Grow** (60% of deliveries): 23,770
  - **Replace** (40% of deliveries): 15,250
  - **Stay** (34% of 2020 fleet): 7,700
- **2021-2040 New Deliveries**: 39,020

Notes: Passenger aircraft (≥100 seats) & Freight (>10t) | Rounded figures to nearest 10
Source: Airbus GMF 2021
Out of the 2021-2040 demand, 76% is for small aircraft category.

<table>
<thead>
<tr>
<th>Category</th>
<th>Aircraft</th>
<th>Share of Total New Del</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMALL</td>
<td>29,690</td>
<td>76%</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>5,340</td>
<td>14%</td>
</tr>
<tr>
<td>LARGE</td>
<td>3,990</td>
<td>10%</td>
</tr>
</tbody>
</table>

Jet Passenger aircraft $\geq$100 seats and Freighter $\geq$10 tons
Source: Airbus Market Forecasts
Note: demand for all commercial aircraft above 100 seats & freighters above 10t
# 2019-2040 Fleet in Service

<table>
<thead>
<tr>
<th>Region</th>
<th>2019</th>
<th>2040</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRC, x2.9</td>
<td>3,810</td>
<td>10,900</td>
<td>x 2.9</td>
</tr>
<tr>
<td>Asia-Pacific ex. PRC</td>
<td>3,960</td>
<td>9,730</td>
<td>x 2.5</td>
</tr>
<tr>
<td>North America</td>
<td>5,700</td>
<td>8,490</td>
<td>x 1.5</td>
</tr>
<tr>
<td>Europe</td>
<td>4,950</td>
<td>8,390</td>
<td>x 1.7</td>
</tr>
<tr>
<td>Middle East</td>
<td>1,300</td>
<td>3,210</td>
<td>x 2.5</td>
</tr>
<tr>
<td>Latin America</td>
<td>1,440</td>
<td>2,820</td>
<td>x 2.0</td>
</tr>
<tr>
<td>CIS</td>
<td>1,110</td>
<td>1,740</td>
<td>x 1.6</td>
</tr>
<tr>
<td>Africa</td>
<td>680</td>
<td>1,440</td>
<td>x 2.1</td>
</tr>
</tbody>
</table>

Jet passenger aircraft >=100 seats and Freighter >=10 tons

Source: Airbus Market Forecasts
Large aircraft demand more concentrated in Middle-East and Asia

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Number of aircraft</th>
</tr>
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<tbody>
<tr>
<td>North America</td>
<td>6,420</td>
</tr>
<tr>
<td>Europe</td>
<td>6,960</td>
</tr>
<tr>
<td>Middle East</td>
<td>8,220</td>
</tr>
<tr>
<td>Asia/Pacific</td>
<td>9,400</td>
</tr>
<tr>
<td>Latin America</td>
<td>2,460</td>
</tr>
<tr>
<td>Africa</td>
<td>1,100</td>
</tr>
</tbody>
</table>

Jet passenger aircraft >=100 seats and Freighter >=10 tons

Source: Airbus Market Forecasts
Strong cargo forecast driven by trade and e-commerce

World international trade

(trillion 2015 $US)

Forecast

World GDP  World international trade

CAGR 2004-2019

CAGR 2019-2040

Source: IATA, Seabury, IHS Economics, Airbus GMF

World air cargo traffic

General Cargo

Express

2019

215 billion FTK

83%

17%

2019-2040 CAGR +2.7%

2040

410 billion FTK

77%

23%

2019-2040 CAGR +4.7%

2019 - 2040 CAGR +4.7%

2019 - 2040 CAGR +2.7%

express

2019 - 2040 CAGR +4.7%

2019 - 2040 CAGR +2.7%

2019

215 billion FTK

83%

17%

2019-2040 CAGR +2.7%

2040

410 billion FTK

77%

23%

2019-2040 CAGR +4.7%

World GDP  World international trade

CAGR 2004-2019

CAGR 2019-2040

Source: IATA, Seabury, IHS Economics, Airbus GMF
The freighter fleet will reach almost 3,000 aircraft by 2040

Freighter fleet in service evolution

- Beginning 2020: 2,030
- 2040:
  - Grow: 2,980
  - Replace: 1,490
  - Stay: 540
- Demand:
  - 2,440
  - 880 new built
  - 1560 converted

Note: Jet freighter aircraft, payload > 10ton
Source: Airbus GMF21
World demand for ~2,440 freighter aircraft 2021-2040

1,000 small freighters
900 mid size freighters
540 large freighters

Note: Jet freighter aircraft, payload > 10ton
Source: Airbus GMF
39,000 deliveries
New gen aircraft with 25% lower carbon footprint
Summary

- Traffic recovery under way
- Fundamental drivers of passenger demand remain
- Air traffic (RPK) forecast to grow 3.9% per annum
- 39,000 new aircraft deliveries by 2040
- 880 new freighters by 2040
- Replacement with latest generation is today’s most significant lever for decarbonisation