WHU Research Study

The Impact of COVID-19 on Climate Change Mitigation and Decarbonization in Global Aviation

Global Senior Expert Survey (11/2020)

Executive Summary and Key Results

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Key Results and Insights of Survey Analysis (1/3)

Context and current situation

- Efforts to contain the virus resulted in a drop in demand for air travel and unintentionally reduced CO₂ emissions globally.
- Aviation sector is now highly dependent on state support and public capital to survive and withstand the COVID-19 crisis.
- Global passenger traffic is not expected to return to pre-COVID-19 levels before 2024. CO₂ emissions will increase again as industry recovers.
- ICAO has changed CORSIA baseline to 2019 to facilitate recovery; pressure to decarbonize is reduced until industry has fully recovered.
- However, leading nations and regions such as the EU, USA and China are increasingly committed to achieve net carbon neutrality fast.

Due to the continued expectation of long-term growth, there is a growing risk that the relative importance of aviation as a major CO₂ emitter (>2% of global CO₂ emissions) will substantially increase if no further CO₂ reduction measures or targets are enforced globally.

WHU research – Background of study participants

224 Survey participants
Experts and (senior) managers

20.8% Rate of response
Total contacted: 1,078

Industry distribution
Every relevant expert group from the aviation sector is represented in the survey

- Airlines + Infrastructure: 35%
- Aerospace + Energy / Fuel: 18%
- Government + Associations: 21%
- Consulting + Academia: 26%

Global distribution
Participants from all over the world enabled cross-country comparisons

- GSA*: 28%
- Rest of Europe: 36%
- North America: 19%
- Rest of World: 17%

Leadership seniority and employment tenure
More than 80% of participants have more than 4 years of relevant industry experience across different functional roles

- 1-4 years: 18%
- 4-5 years: 21%
- More than 5 years: 61%

*GSA = Germany, Switzerland, and Austria
Key Results and Insights of Survey Analysis (2/3)

Recovery and growth expectations (next 20 years)

46.8%

of survey participants expect global passenger traffic to return to pre-COVID-19 levels in **2024** (IATA projection)

3.33%

Annual average growth rate of global passenger traffic **until 2039**

Only 23% of survey participants are more optimistic and expect global passenger traffic levels to re-reach pre-pandemic levels **before 2024**

Although most participants confirm the IATA recovery projection (2024), 30% are more pessimistic and expect full recovery **later than 2024**

Regarding global passenger traffic, 83% of participants expect an annual average growth rate of more than 2%

On average, the participants expect aviation to grow at a **slightly lower** rate than projected by IATA (3.70%, 05/20)

Potential reason: 87% of participants expect the demand for business travel to somewhat or strongly decrease in a post-COVID-19 world

In comparison, 68% expect the demand for leisure travel to either stay constant or grow after the pandemic has subsided

CO₂ reduction targets

Ambitions and feasibility are still far apart

More than 60% of the participants **support the tightening** of the current CO₂ reduction targets of the aviation sector

Regarding the impact of COVID-19 on reaching the committed CO₂ reduction targets, there are **two opposing views**. 46% expect accelerated progress, whereas 41% expect decelerated progress

75% of participants agree that the COVID-19 crisis should be used as an **opportunity** to transition to a **low-carbon future**

In addition, more than 45% of the participants stated that the **motivation and commitment** of the sector to reach even the current CO₂ reduction targets has **somewhat or strongly decreased** due to COVID-19

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Key Results and Insights of Survey Analysis (3/3)

Impact and effectiveness of decarbonization measures in aviation

**Operational Improvements**

In the short term, until 2030, the participants consider fleet renewal and air traffic management as by far the most effective operational measures to reduce CO₂ emissions. However, 39% expect the speed of the fleet renewal process to be reduced due to the impact of COVID-19.

**Market-based Measures (MBMs)**

In comparison to other measures, the participants consider MBMs to be the most effective tool to decarbonize the sector in the short term (until 2030). But: 65% agree with the ICAO decision to adjust the CORSIA baseline to 2019 emission levels in order to facilitate industry recovery.

**Aircraft and Propulsion Technology**

- **Electric aircraft**: 75% of participants see no future for the electric aircraft on long-haul routes, not even in the long term (after 2040).
- **Hydrogen-powered aircraft**: 69% expect availability after 2040 for long-haul flights, whereas 41% expect availability for short-haul flights between 2030-2040.
- **Hybrid aircraft (electric or hydrogen)**: 42-55% of participants anticipate hybrid aircraft to be available on short-haul routes between 2030-2040. 46-68% expect availability on long-haul routes after 2040.

**Sustainable Aviation Fuels (SAFs)**

In comparison to all other measures, the participants consider SAF to be far the most effective measure to decarbonize the sector in the long term (betw. 2030-2050). Short term SAF quota (until 2030) Approximately 50% of participants call for the introduction of a globally binding SAF quota of 6% by 2030. Long term SAF quota (after 2030) 73% demand a globally binding SAF quota of more than 25% after 2030.

68% of the participants recommend to share the additional costs of SAF between airlines and governments.

**Global government support is urgently requested**

78% of survey participants call for additional global government action to reduce CO₂ emissions from aviation. However, there are two opposing views on whether individual governments should step forward and unilaterally implement measures that go beyond the already existing decarbonization measures and goals. 39% in favor | 52% against.

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