Artificial intelligence

OPTIMIZING FLIGHT OPERATIONS – REDUCING CO_2

The Lufthansa Group pursues a clear sustainability strategy that includes ambitious targets. We intend to be carbon neutral by 2050. To achieve this goal, we plan to halve our net emissions by 2030 compared to 2019. The most efficient flight operations as possible will play a key role in this effort – and will be further enhanced with the help of AI.

Aviation is complex. Many interlocking processes enable smooth-running flight operations. Elaborate adjustments must be made if something goes wrong – say bad weather develops or unexpected delays occur in the entire system. Routes, airplane rotations, catering and much more have to be quickly changed.

A new platform developed by the Lufthansa Group and Google Cloud can streamline and accelerate such processes. The Operations Decision Support Suite (OPSD) uses artificial intelligence (AI) to analyze mountains of data. The calculations are based on information from the past, current activities and forecasts. As a result, the planning and control experts at airlines can make better decisions in less time. Flight operations are optimized.
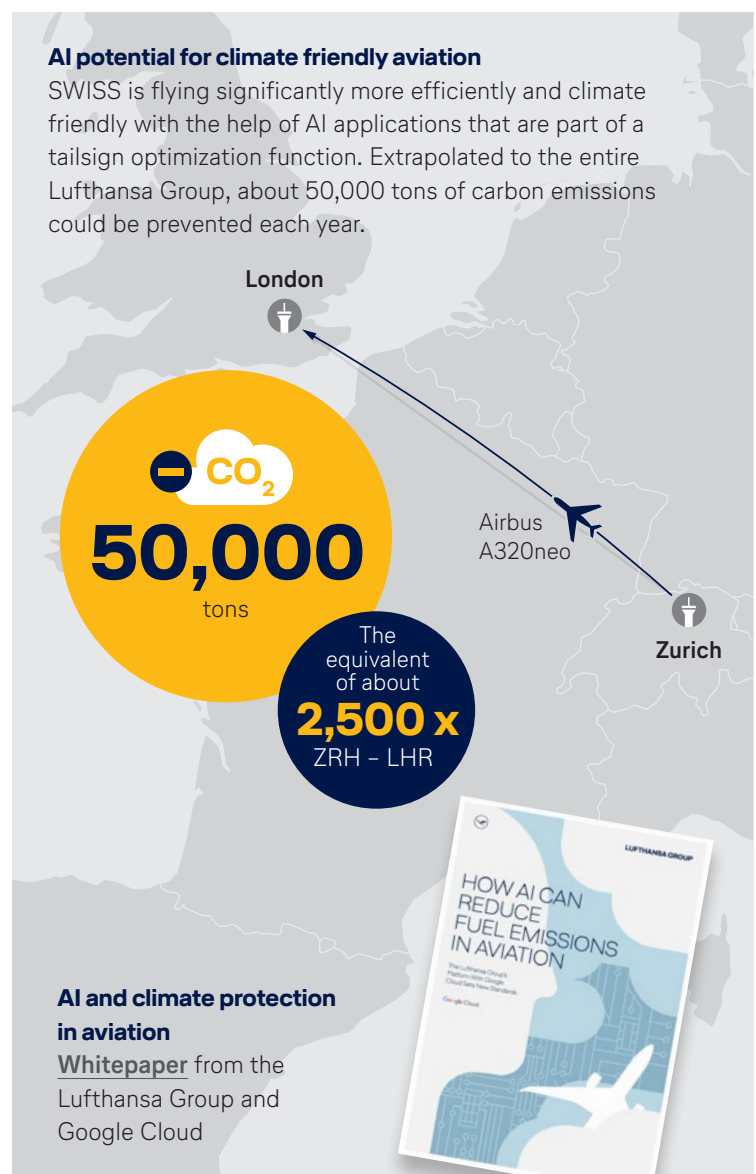
The environment and customers profit

The use of the OPSD also reduces CO_2 emissions because the efficient utilization of airlines drives down fuel consumption. The huge potential of AI is demonstrated by the tailsign optimization function introduced by SWISS in July 2021. The AI tool helps select the most efficient plane for a particular route. Up to now, such factors as plane model and average costs were the critical criteria. With the help of AI, real-time data like engine condition and drag are integrated into the process. This data-driven tailsign optimization function at SWISS is saving about 2,000 tons of fuel and reducing carbon emissions by 7,700 tons a year. This is the equivalent of about 16 roundtrip flights between Munich and New York in an Airbus A350.

AI-based functions will be introduced throughout the entire Lufthansa Group in the coming months. These additions will enable all our airlines to react more flexibly to disruptions such as weather phenomena or problems experienced by system partners. Our guests will profit from the applications as well. The new technology will enable flights to be evaluated in real time and exact connections for individual passengers found.

AI potential for climate friendly aviation

SWISS is flying significantly more efficiently and climate friendly with the help of AI applications that are part of a tailsign optimization function. Extrapolated to the entire Lufthansa Group, about 50,000 tons of carbon emissions could be prevented each year.

London

CO_2

50,000 tons

The equivalent of about **2,500 x** ZRH – LHR

Airbus A320neo

Zurich

HOW AI CAN REDUCE FUEL EMISSIONS IN AVIATION

AI and climate protection in aviation
Whitepaper from the Lufthansa Group and Google Cloud

These examples show that AI will make flying more comfortable, economic and sustainable. For this reason, state-of-the-art technologies and digital tools are a key lever that the Lufthansa Group is using to reach its sustainability goals.