


OPTIMIZING OPERATIONAL EFFICIENCIES WHILE LOWERING CO₂ EMISSIONS

SITA and SkySoft-ATM cooperating on a new project

Claude Levacher, sales and marketing director, SkySoft



 With travel rebounding fast to pre-Covid levels, the industry faces significant congestion challenges, as headlines globally show. This issue is not restricted to passengers in the airport, but the strain is also back on air navigation service providers (ANSPs) for the efficient and safe movement of aircraft. Congestion of the global airspace is once again a topic for air transport, along with the associated costs of delays and rising emissions.

These are significant challenges for a sector already under pressure to reduce its environmental impacts, become net-zero by 2050 and build back leaner following the crippling financial effects of the pandemic.

Today, SITA and SkySoft support the industry's carbon net-zero journey with technology to improve efficiency. Operational efficiencies can help save up to 10% of the industry's carbon emissions, according to the Waypoint 2050 report. One of our latest explorations is to develop and bring wider benefits of our existing technologies and solutions to assist ANSPs in better managing the airspace, supporting more efficient air traffic management (ATM) operations.

The challenges of ATM today

It's important to state first the complexity of air traffic management. On the ground, ATC has the hard job of safely and efficiently tracking and managing thousands of aircraft each day. Guiding pilots through the airspace and maintaining safety requires good communication and collaboration. But information flow today between an aircraft and the air traffic control center covering the respective airspace is not optimal because air transport operations remain siloed today despite efforts.

Today's air traffic management relies mostly on inefficient legacy systems, as

reflected by the increasingly crowded skies. For passengers, it is time wasted on planes circling before landing. For airlines, flight delays cost money. In a large and busy airspace like Europe, for example, this represents billions of euros every year.

Considering the impact of Covid-19 on revenue and the rising price of fuel, excess fuel use associated with indirect and inefficient flight paths and congestion in the air will add further strain to the bottom line as well as have wider environmental ramifications.

Several state programs are in place to modernize air traffic from a financial and environmental need – for example, the FAA's NextGen and SESAR in Europe. However, the implementation of such programs is at least a decade or more away due to regulatory and governance issues.

But ANSPs do not have to wait to start making positive impacts. ATM innovations can give ANSPs a headstart on driving

and reducing emissions using the latest and leading technologies.

For example, the two companies are working to integrate SITA's existing OptiFlight solution to SkySoft's ATM system in order to bring the same benefits to ATM as it does for airlines. OptiFlight provides pilots with routing recommendations by leveraging machine learning on historical data and 4D weather forecasts so that pilots can request their optimized trajectories to ATC.

There are two key issues with this today, as there is no flow between the cockpit and ATC center, and the controller is unaware of the pilots intentions, and directs are not visually displayed in the same way as a filed flight plan.

The integration between OptiFlight and the SkySoft ATM system will enable the display of recommendations on ATC displays so controllers can analyze direct route recommendations, integrate them with

“ATM innovations can give ANSPs a headstart on driving operational efficiencies while lowering greenhouse gas emissions”

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Optimizing airspace with technology

As industry-owned organizations, we are committed to supporting aviation's key challenges by developing collaborative and intelligent digital solutions. SITA and SkySoft are working together to enable greater collaboration between ANSPs and airlines, making operational improvements,

trajectory management tools and check that safety is maintained. This enhancement on data sharing will facilitate ATC decision-making.

OptiFlight's recommendations, such as shortcuts and more optimal descent approaches, would have a higher chance of being granted. This would improve the collaboration between the cockpit and ATC, enabling a more efficient airspace – reducing fuel burn, costs and carbon emissions.

The potential

While ATM modernization initiatives will take time to implement, leading ANSPs can start to improve their operations today. We are evolving some of our solutions and are actively co-innovating with customers, partners and universities to help solve the industry challenges of today and tomorrow.

SkySoft-ATM focuses on the delivery of ATM-related solutions. Major ANSPs around the world are using our Controller Workplace recording solutions. Skyguide in Switzerland has controlled civil and military flights through Europe's busiest airspace using SkySoft's ATM solution for over 15 years. Skysoft is the main technology contributor to the virtual center program transforming Skyguide's operations by exploiting the potential of open-architecture and digital technologies to deliver new levels of scalability, reliability and cost-efficiency. With this new step of integrating AI-based solutions to support a seamless integration of the Airline and ANSP constraints, SkySoft and their partners are contributing to the next newest generation of Air Traffic Management systems. ❖

Optimizing operational efficiencies for Airlines and ANSPs while lowering CO2 emissions.
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