



Verifiable and credible sustainability data for climate-neutral aviation

Green aerospace company SATAVIA is using RKVST™ to provide transparent, continuous data provenance for the complex and often opaque carbon offset market in the aviation industry

Airlines and scientists are coming to a consensus that the water vapor trails created by airplanes at high altitudes may play a big role in global warming. When hot exhaust gases from aircraft meet the cold, low-pressure air of the atmosphere, they produce white streaks of water ice clouds in the sky called condensation trails, or contrails, which trap heat in the atmosphere at the critical altitudes where airplanes fly. When summed up over all flights, these contrails are thought to be responsible for two thirds of the climate effects of aviation, or up to 2% of all human climate impact.

SATAVIA is a green aerospace company with the mission of cutting up to 60% of aviation's climate impact via contrail prevention. It leverages cutting-edge atmospheric and climate science and high-performance computing to optimise operator flight plans for contrail prevention, avoiding the surface warming generated by aircraft-generated clouds, and accelerating the sector's progress towards climate-neutral operations.

SATAVIA
MAKING AVIATION SMARTER

Solving green aviation's contrail challenge

SATAVIA's unique DECISIONX:NETZERO platform solves the contrail challenge by creating a digital twin of the entire atmosphere from surface to space. DECISIONX:NETZERO generates best-in-class, validated and high-resolution forecasts of persistent contrails at all flight levels, based on localised conditions. The forecasts generated by DECISIONX:NETZERO can be integrated with industry-standard flight planning software to modify flight plans to prevent contrail formation and minimize climate impact. SATAVIA also quantifies and validates the climate benefit achieved for sustainability reporting and conversion into future carbon-equivalent offset benefits.

Immutable storage of flight-by-flight data, with clear oversight of provenance and governance, is a central requirement of climate benefit accounting. SATAVIA deployed RKVST, the supply chain evidence management platform, to provide a single immutable source of truth, storing key information relating to each modified flight and the climate benefit achieved from the flight modifications.

CASE STUDY: VERIFIABLE AND CREDIBLE SUSTAINABILITY DATA FOR CLIMATE-NEUTRAL AVIATION

The RKVST solution

Powered by blockchain, RKVST allows you to establish, maintain and verify a chain of custody across the entire supply chain. With RKVST you can:

- Create an immutable record of who did what when to any asset
- Prove records have not been tampered with
- Prove ownership of digital and physical assets
- Provide multi-party sharing and visibility of supply chain data

Blockchain without the complexity

With RKVST there is no need to learn or implement complex blockchain; the hard work has been done for you. The RKVST API delivers all the advantages of blockchain without the need for expert cryptographic skills and distributed ledger experience. With information stored on the blockchain, RKVST guarantees the immutability of assets making it impossible to delete, remove or tamper with the chain of evidence.

Pipeline integrations that fit the way you work

RKVST enables you to build immutable evidence ledgers with simple APIs and pipeline integrations that fit the way you work. RKVST provides a simple way of talking to your existing tools including; GitHub, Jenkins, Maven, Python and Terraform..

Why RKVST?

SATAVIA wanted to add blockchain to its solution so that customers would understand that flight path and climate benefit information were securely stored on a ledger and could not be tampered with. It was imperative that the data be unimpeachable. SATAVIA first looked at developing its own blockchain or integrating with well-known third-party blockchain services. After evaluating these solutions, the SATAVIA team felt RKVST provided the lowest barrier to entry as well as great technical pre-sales support. The RKVST API-driven blockchain meant SATAVIA was able to develop a viable solution within weeks rather than months, without the need to write custom code or interfaces, neither did it need to recruit and train blockchain specialists. The easy-to-consume Python examples aided the integration into SATAVIA's own Python application data pipelines,

making the integration both quick and simple. The team were also able to integrate RKVST in a test environment before committing a robust solution to the production system.

Results

The global potential for contrail prevention is vast, with up to 220 million tonnes of carbon dioxide equivalent (CO₂e) generated by commercial flights each year. Implementing RKVST into the SATAVIA DECISIONX:NETZERO platform means that detailed and comprehensive flight path and flight optimization data is recorded on an irrevocable, immutable ledger, together with the CO₂e reductions achieved from flight modifications.

RKVST guarantees the provenance and integrity of that data, providing a single source of truth for key information relating to each flight modified for contrail prevention and the associated climate benefits. Blockchain technology reduces the burdensome record-keeping and eliminates any double counting or double claiming of any CO₂e reductions. The transparent, continuous verification and assurance of the flight data, together with an auditable chain of custody, enables reliable sustainability reporting that meets the fundamental requirements of climate benefit accounting and the generation of carbon credits. These outcomes are significant as the successful generation of carbon credits will enable the creation of a new market worth up to \$18.3bn globally per year (source: CBI based on 2019 flight numbers).

In 2021, SATAVIA signed a world-first contract with Etihad Airways, integrating contrail prevention intelligence within routine flight operations. On one flight alone (EY914) Etihad prevented over 260 tonnes of CO₂e, with thousands of tonnes in total prevented in 2022. SATAVIA now plans to scale across the commercial aviation sector to strengthen moves towards climate-neutral operations.

Discover RKVST for yourself at: <https://rkvst.com>

Or get in touch at: info@rkvst.com

Learn more about SATAVIA: www.satavia.com