



ATM Twin Accelerating Innovation in Air Traffic Management

The **ATM Twin**

A cloud-native **open platform** to accelerate **innovation** in Air Traffic Management.

Innovation is central to a future-proof ATM

In a highly complex environment such as ATM, being able to innovate rapidly is key for Service Providers. As an open platform benefiting from live, historical and simulated traffic injectors, as well as fast prototyping HMI, new concepts can be tested and validated in a safe and flexible environment.

By using Open ATM APIs, the ATM Twin promotes the use of common interfaces that ease the adoption of new and disruptive services and the testing of their operational suitability.



Bringing **Operational Excellence, Agility,** and **Innovation** to Air Traffic Management

Optimizing Operations

By allowing what-if/what-else analysis, and giving access to insightful KPIs

The ATM Twin empowers operators with simulation and what-if capabilities based on a real ATM core, for smarter decisions in day-to-day operations.

Operational inefficiencies and possible improvements areas can be identified using actionable KPIs in live, replay/simulation, and training contexts.

Deploying Solutions Faster, Continuously, and On-Demand

By accelerating the deployment of new ATC system versions.

The ATM Twin software development teams work in an Agile framework, allowing for high interaction and feedback between end-users and development teams. Early interaction and adoption by users allows to de-risk acceptance.

Innovating Safely, In Shorter Cycles

By rapidly prototyping new features for operational research and development.

Safely connected to the OPS system, the ATM Twin allows users to easily implement their prototypes on a high-fidelity ATM replica. Several innovations can be tested at once, without physical on-premise testing constraints.

Trialling Green Footprint Reduction on Operational Level

By simulating the impact of Green Operations on air traffic.

The Twin allows the safe implementation of powerful Green Aviation operations. CDO trajectories can be validated, then visualized on the ATM Twin HMI. Further, expected CO2 savings can be assessed.

Lowering Training Costs

By reducing the number of instructors, increasing levels of self-training and improving planning flexibility.

No need for full capacity on-prem training rooms and data centres anymore.

Training sessions can be carried fully remotely or in a hybrid mode, or at scale according to number of participants, based on training needs. The ATM Twin leverages Machine Learning to assess training performance and provide feedback.

Fostering Collaboration

By allowing ANSPs to join forces with industry partners and other Service Providers

As a cloud-enabled platform with Open ATM APIs, the ATM Twin is designed to be a two-way highly collaborative tool.

Trying new interfaces to measure the impact of external information such as CDM or FF-ICE on the ATM system becomes easier. All this in a cybersecure manner.

A World's first ATM replica, including key design principles :



Cloud Native : Cutting-edge cloud computation capabilities, enabling faster decision making, going much further than simulation.



Data Focused : Simple generation of actionable KPIs to support operations optimization.



Modular : Modules such as AI powered sector optimization, KPI generation, or digital ATCO can be selected freely when launching a Twin session.



Composable : Domain-specific components enable the platform to be configured on-demand, supporting multiple ATM-domain specific use cases.



Multi-System : Inclusive of several ATM components such as AFTN, Radar,...



Open Source : Openly available source code of all components used to instantiate the ATM Twin.



Scalable : Reduced resource mobilization for remote training, through pseudo pilots and instructors.



Remotely Accessible : Customized ATM Twin sessions can be created anywhere and anytime.



Open to external parties : Third parties can assess their cutting-edge prototypes on the ATM-Twin by tapping on our [Publicly available APIs](#).



Highly Flexible tool : Hybrid architecture, full virtualization, and multiple instances at once.

Serving a range of use cases by **dynamically integrating different services**

For the benefit of all user profiles.

The ATM Twin can be integrated dynamically to serve different use cases, for the benefit of operational, training, and technical users.

Different Services for Different User Profiles

- I The **Technical Infrastructure** receives and stores data directly fed from a live operational ATC system through a Secure Data Bridge. Historical data is used to rapidly generate replay sessions and impactful KPIs.
- I The **ATM Twin Factory** is the central element of the ATM Twin. It contains its main code repositories and is fully cloud-based. The Twin Factory can support very different capabilities and use-cases.
- I The **Operational services** are ATM domain specific capabilities. Using Open APIs, they include real-life ATC instances and advanced ATM tools such as Conflict Detection Resolution, as well as different HMLs.



Join us on our journey to build the first ever ATM Twin



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