

ATRiCS Sequence Planner



The **ATRiCS** Sequence Planner (SQP) automatically calculates flexible and steady start-up sequences to support a coordinated off-block process. The system has been developed in close cooperation with Fraport AG and is fully compliant with the European Community Specification for A-CDM and the national initiative “German Harmonization of Airport CDM”. In particular, it fully meets the requirements for Collaborative Pre-Departure Sequencing (Airport CDM Functional Group 5).



ATRICS Sequence Planner

Functions

The ATRiCS Sequence Planner regulates the outbound demand by calculating Target Start-Up Approval Times (TSAT) to provide the most efficient fit to available runway capacity. Especially during peak traffic times, the resulting sequence reduces the negative impact of the traditional first-come-first-served off-block approach.

Demand Prediction

Based on the confirmed Target Off-Block Time (TOBT), the Estimated Taxi Out Time (EXOT) and other relevant constraints the Sequence Planner predicts the expected demand for each individual departure runway.

Sequencing Engine

The ATRiCS Sequence Planner generates for each outbound flight a Target Startup Time (TSAT), taking into account factors such as air traffic flow management constraints and punctuality.

Priority Rules

A hierarchy of configurable priority rules is used to establish a coordinated start-up sequence. To support different airport-specific procedures as well as operating strategies, both the hierarchy and the rules themselves can be modified.

Sequence Analysis

A live view presents the current startup sequence with individual information for each flight to analyze the reason for the assigned sequence. A history view allows to search for any individual flight event and to analyze the derivation of any start-up sequence.

Optional

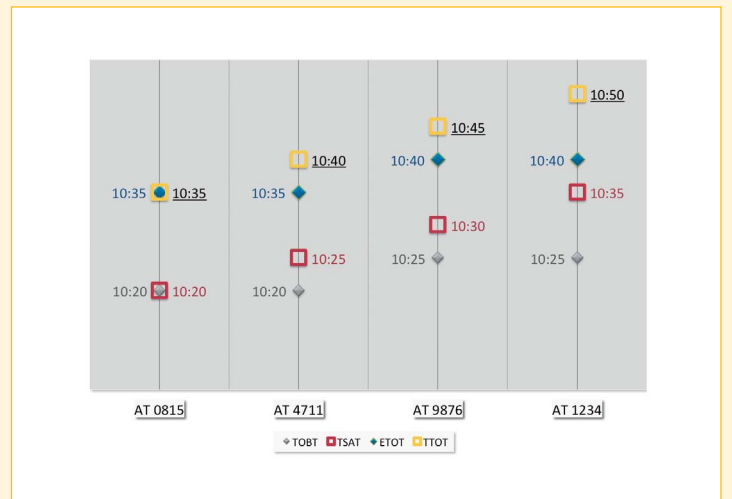
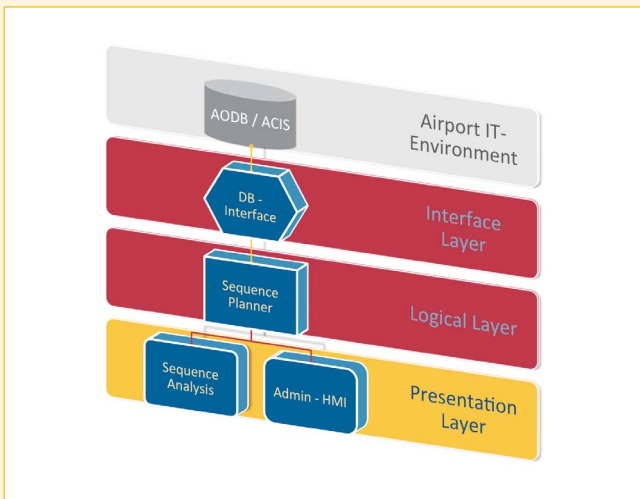
Additional modules and functions include a DPI message generator for connection to the CFMU, a situational awareness tool to display the current ground traffic situation as well as automatic detection of actual movement times.





Benefits

- ▶ **Capacity:** improves slot allocation to minimize delays caused by air traffic flow management restrictions
- ▶ **Efficiency / Environment:** reduces stop & go traffic as well as holding times at the departure runways to save delays, fuel and CO₂ emissions
- ▶ **Predictability:** minimizes variability of taxi times to support airline network operations and to reduce buffer times in the flight schedules



REFERENCES & CONFIGURATION EXAMPLES

ATRICS Sequence Planner	Frankfurt	Düsseldorf ¹⁾
Sequencing Engine		
TSAT calculation	▲	▲
Flexible priority rules	▲	▲
Consideration of de-icing	▲	▲
Optional manual ATC control	▲	▲
Automatic flight change on airline request		▲
Sequence Analysis		
live view	▲	
history view	▲	
Operations		
Trial operations	since: 3.11.2010	Planned 2011
Regular operations	since: 23.2.2011	Planned 2012
A-CDM web page	www.cdm.frankfurt-airport.de	Not yet available

1) Project realized with INFORM Institut für Operations Research und Management GmbH and topsystem Systemhaus GmbH