AIRPORTCENTRAL
DEPARTURE MANAGER (DMAN) MODULE

OPTIMIZES USE OF THE RUNWAY

When airports operate at close to their maximum capacity and budget or geographical constraints do not allow for expansion, tools are needed to make the best use of existing resources. With air traffic growth, the runway may become a bottleneck and the airport must ensure that it is used at its maximum capacity.

ISSUES

First-come first served runway service policy

When runway resources are not managed, it is not possible to reliably predict when an aircraft will be able to take-off. That affects the airport congestion status and it is not an operating model that is suitable when the runway is used at maximum capacity.

Business continuity impact

Optimization of runway resources is even more important during disruption times, in order to ensure a quick return to normal operations.

Environmental consequences and extra costs generated

Delays on the taxi way involve aircraft leaving engines on, burning extra fuel, and generating more pollution and noise.

SITA SOLUTION

The DMAN module, which is a feature of AirportCentral, is a proven application that enables increased predictability and optimizes use of the runway by:

• Calculating when an aircraft should be pushed back to arrive at the runway on time for the planned take-off.
• Evaluating the best sequence to ensure maximum throughput, while taking into account demand, runway conditions and ATC constraints.

An option that can be used by ATC operators to manage ground movements and grant/deny clearance to the runway is also available.

Integration with the SITA Airport Management Solution (AMS) components and with any other third-party systems is possible.

BENEFITS

• Increases runway capacity and on-time performance
• Optimizes the allocation of mobile resources and provides accurate take-off forecasting data
• Allows proper recovery from irregularities
• Improves environmental conditions (less noise and better air quality)
• Reduces costs by decreasing fuel consumption during taxiing
• Helps airports to achieve the A-CDM certification and connection to EUROCONTROL’s Network Manager (NMOC)

Zürich Airport annual savings

• Fuel: 1,150 Kg
• CO₂: 33.7 t
• Delays: 20,500 min
• Taxi time: 190,000 min
• Charges: €1.9 million
**HOW DOES IT WORK?**

- **Real-time information**
- **Integration with third-party systems**
- **Increased predictability**
- **Part of the AMS portfolio**

**SOLUTION COMPONENTS**

- **Planning** – enables airports to optimize use of the runway by calculating when the pushback should take place and therefore ensure that the aircraft is on the runway at the right time.
- **Constraints engine** – is the database that holds all constraints that are associated with the runway. It includes clearance times under normal weather conditions and under special conditions (e.g. fog, wind, etc.).
- **Sequence optimiser** – calculates the best sequence in real-time so that the take-off throughput remains optimum.
- **Integration** – the DMAN module is part of the AMS portfolio and uses the AirportCentral framework to store flight data information. Integration with third-party systems is possible.
- **User interface** – the operators can see the runway status and influence the outcomes of the optimization process according to the agreements made among the airport’s stakeholders.
- **ATC view (runway and ground control)** – it enables air traffic control operators to store the intermediate timestamps related to runway access in a single application, without any system integration.

**CASE STUDY**

Several operational improvements have been achieved at Zürich Airport (ZRH) since the implementation of DMAN in May 2012. Although 100% causality cannot be guaranteed, it is believed that DMAN has helped deliver the following benefits:

- Taxi-out times have reduced by an average of 40 seconds per flight.
- ATFM slot adherence has increased from 85% in 2013 to 90% in 2014.
- Take-off time accuracy has improved from an average of six minutes to 20 seconds in 2015.
- Take-off time predictability improved from 14.6 seconds to 3.9 seconds in 2015.
- The average ATFM Delay Share index at ZRH has decreased from 1.1 to 0.85, resulting in an estimated saving of 20,500 ATFM delay minutes, and generating savings of €1.9 million for the airport operators.

Estimates on annual savings are as follows:

- 1,150 Kg of fuel burn
- 33.7 t of CO2
- 20,500 minutes of delay
- €1.9 million in charges
- 190,000 minutes of taxi time

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