

Thales AMS' position and movement towards Seamless ATM and 4-D Trajectory Operations

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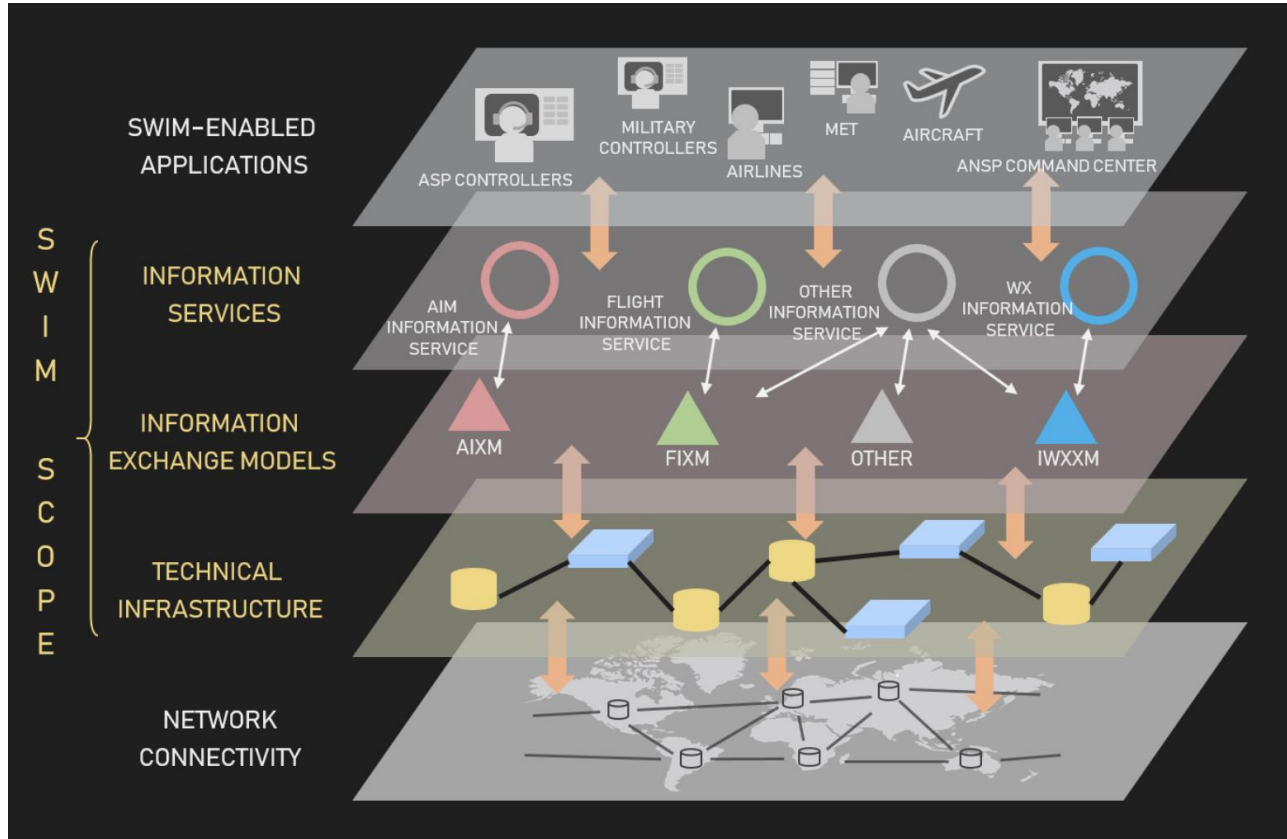
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Thales AMS moving
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Summary

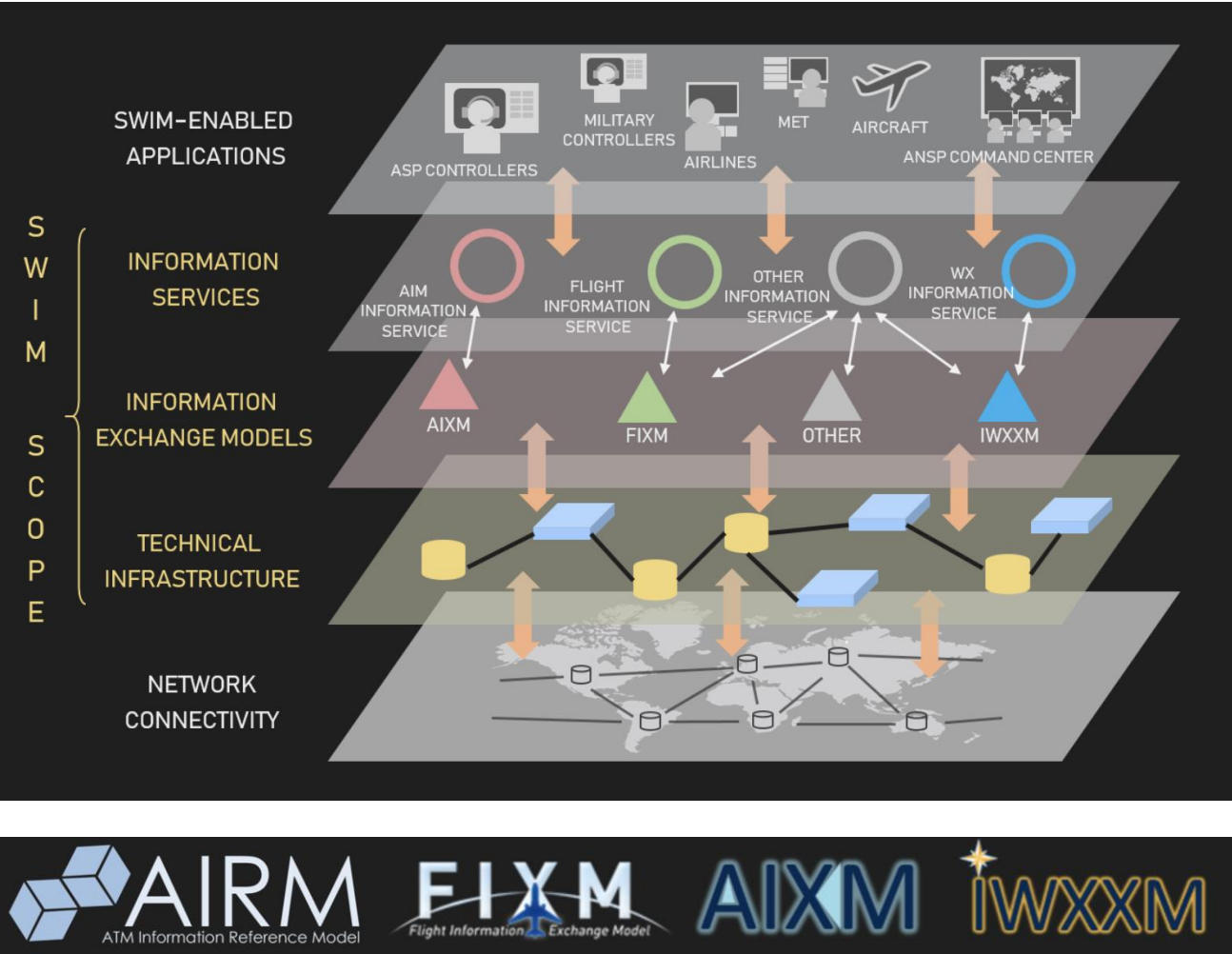
1. SWIM Enabling Architecture



> Service Oriented Architecture

- ▶ SWIM-Enabled Applications
- ▶ Leveraging SWIM Interface
 - FIXM 4.2/4.3
 - FF-ICE 1.10
 - AIXM
 - IWXXM
 - Other APIs follow 'OpenATM'
 - Aviation Data (AvD)
 - TopSky Flow

2. SWIM Use-Cases



> Many SESAR Projects

> Connection to Eurocontrol Network Manager

- ▶ FIXM and FF-ICE for FPL Filing

> FPL DataLake

> SWIM-Enabled Applications

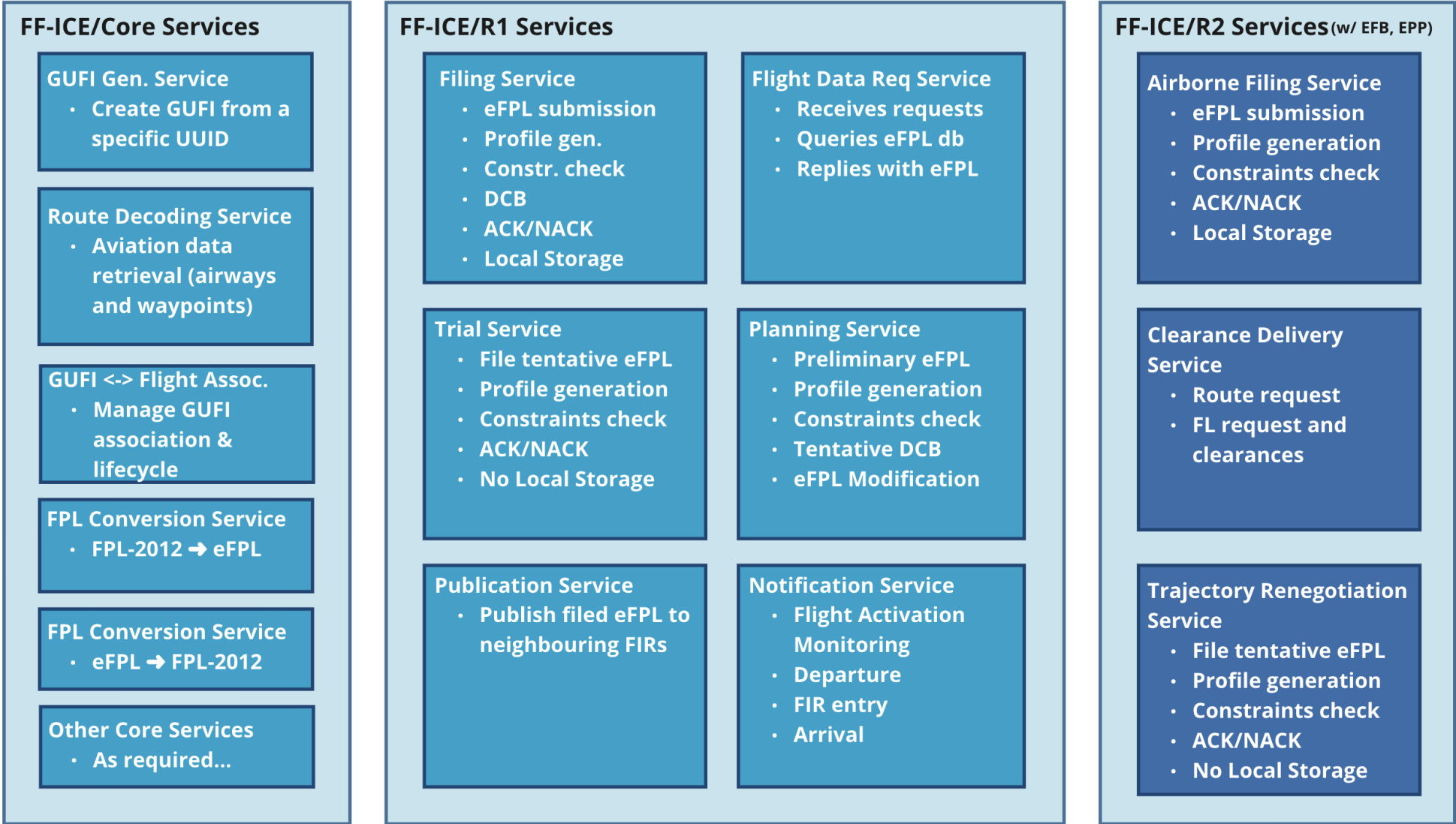
> Multi Region TBO

- ▶ Several ANSPs in Asia Pacific participating

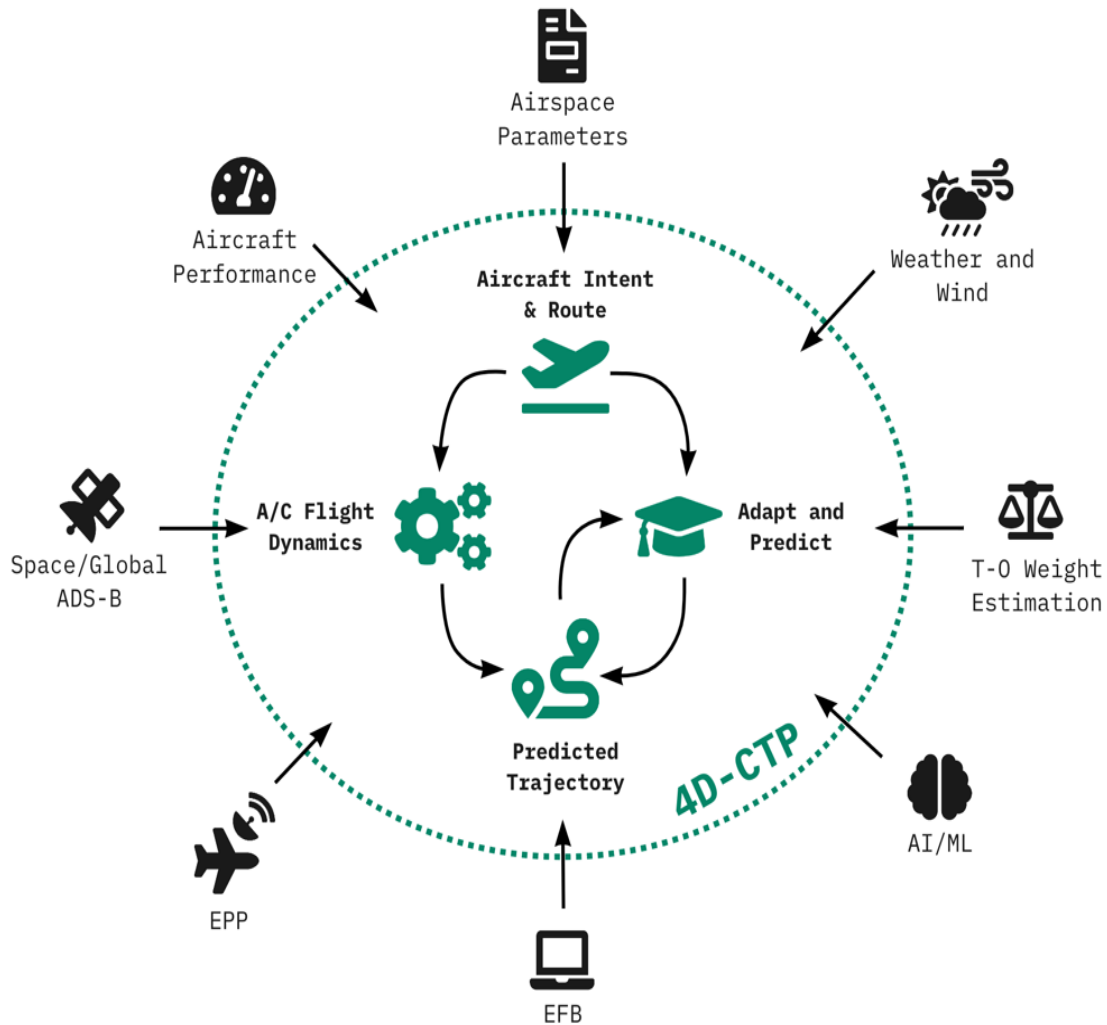
- ▶ Several desktop exercises

- ▶ One real connected flight

3. FF-ICE Activities and Roadmap



4. Enhanced Trajectory Prediction Serving FF-ICE and TBO



> Harnessing digital aviation data to improve Trajectory Prediction

- ▶ Avionics Data (EPP, EFB)
- ▶ Complex Clearances (ATN-B2)
- ▶ Latest Aircraft Performance
- ▶ Weather and Wind Updates (Improved TP)
- ▶ Trajectory Adaptation and Prediction
 - AI model trained with env. situation
- ▶ Ground Systems Collaboration (Open APIs)
 - SWIM, FF-ICE, A-CDM, TBO

Every part of the system benefits from increased awareness to improve its operational efficiency

5. ATM innovation worldwide – One Global Network

3 main pillars

COLLABORATE

Answering the industry's challenges by **co-innovating** with regional partner **ANSPs, universities, and start-ups**

INNOVATE

Leveraging **advanced technologies** to prototype new features **remotely** and **rapidly** in a **near-operational environment**

HARMONISE

Creating exchanges between **leading ANSPs** to accelerate **Product Roadmap convergence**

INNOVATION TOPICS

- Conflict Detection Resolution
- Green Operation
- Virtual Centres
- Automation & AI
- UAS de-confliction
- UTM / ATM
- ATM Twin
- Open ATM
- Digital Assistant



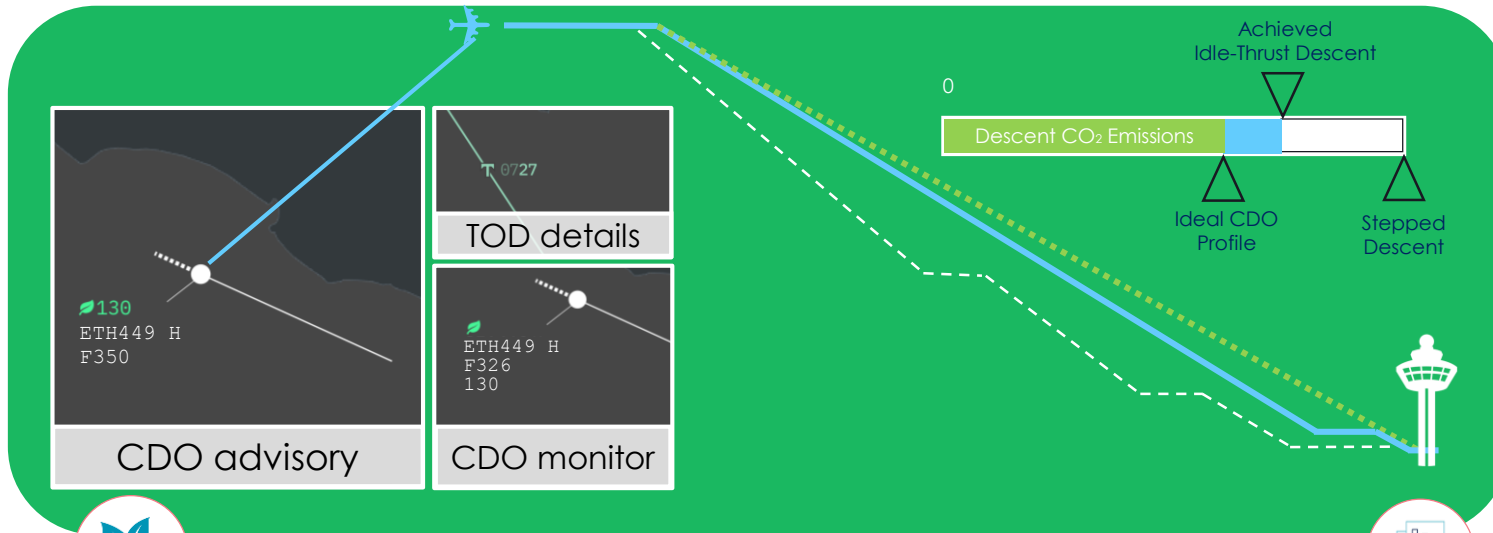
A global collaboration network to accelerate industrialization of innovations

6. Thales Initiatives in Sustainable ATM – CDO Trials



Green aviation

Enabling idle thrust descent operations for decreased CO₂ emissions



Leveraging advanced technologies

Advisories to notify controllers of eligible CDO flights

Using latest models of aircraft performance and emissions

How can CDO advisory help ANSPs ?

Maximise extent of idle-thrust operation*	Reduce number of clearances
Identify CDO qualifying flights before TOD	VHF decluttering
Assist ATCOs to manage CDO descent	Track real-time emissions KPI's

*1.1M tonnes CO₂ savings per year in ECAC zone, Eurocontrol

Actionable Insights

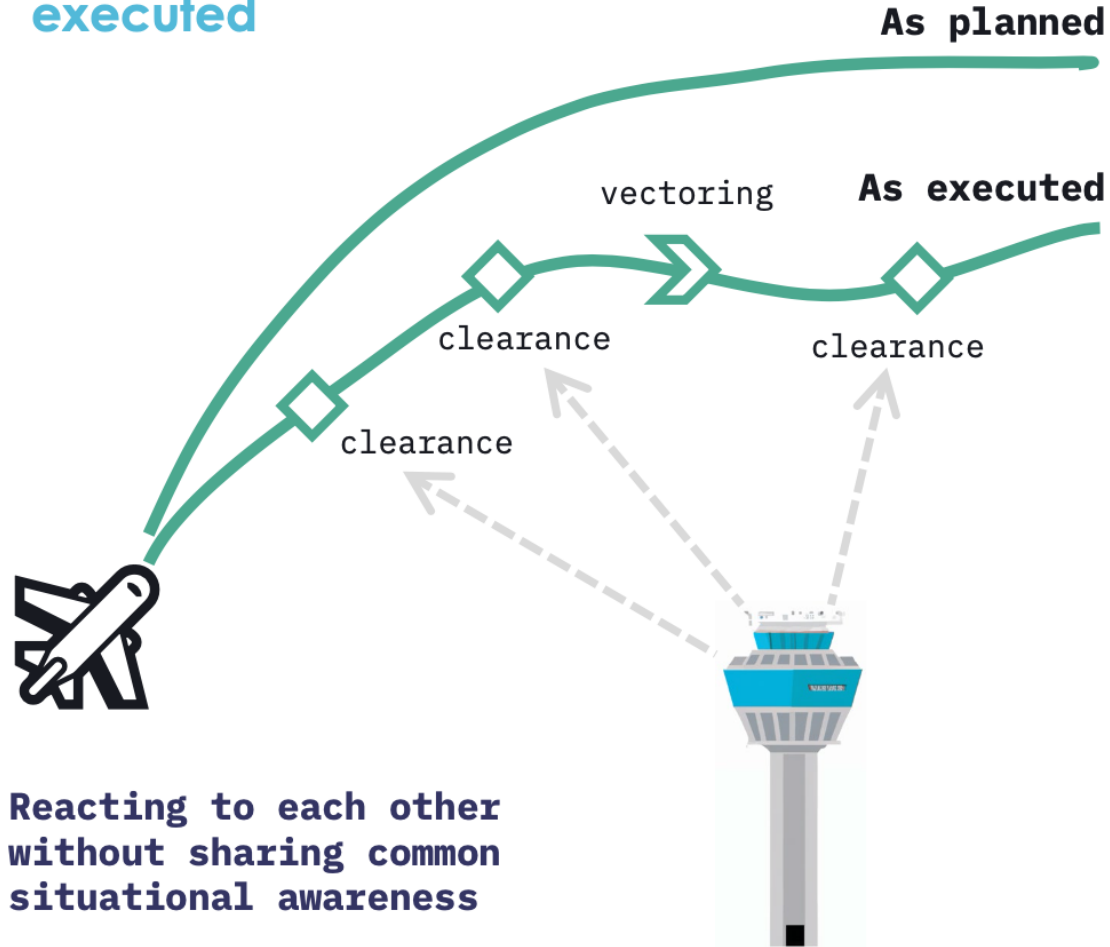
Measuring of CO₂ savings

Assessment ATCO & Pilot workload

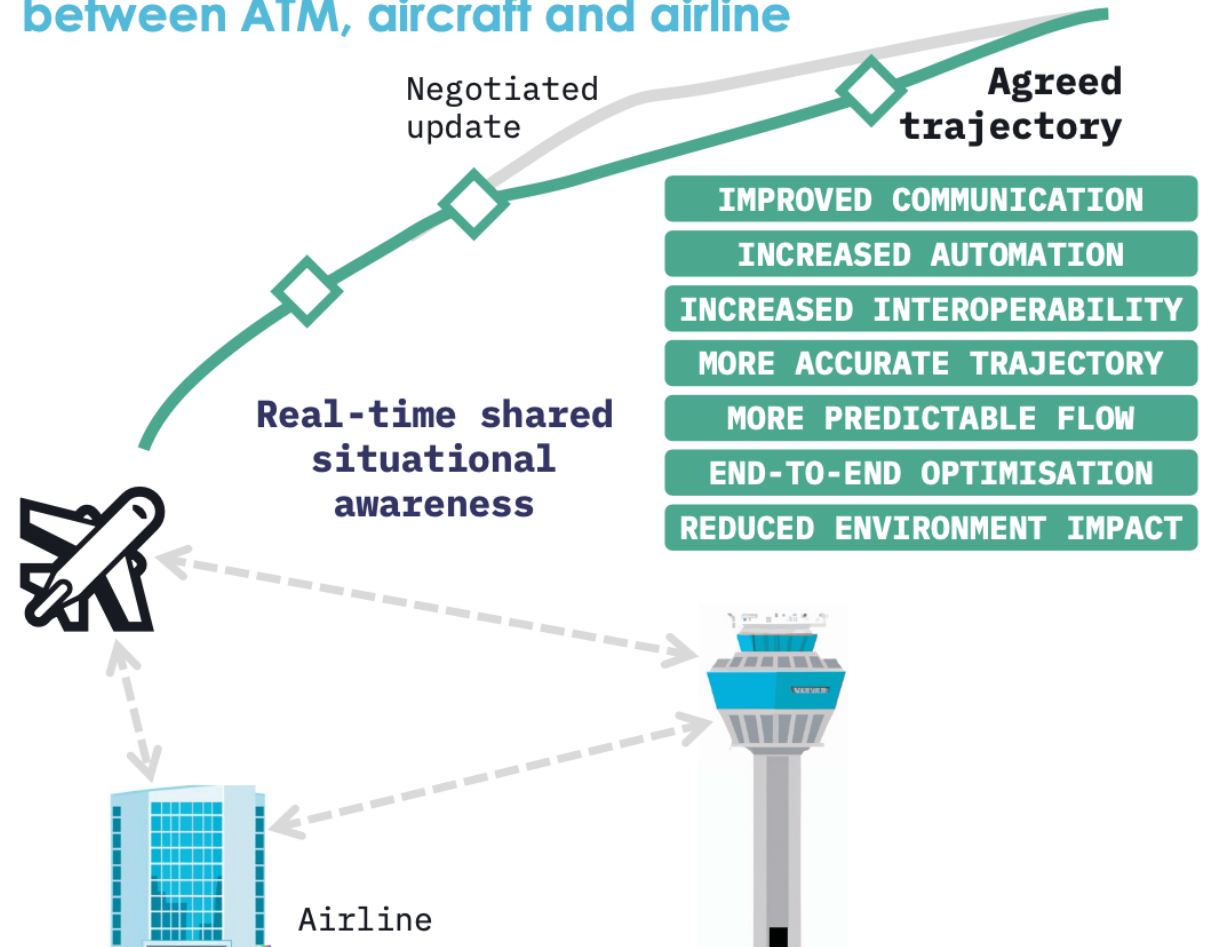
Measuring of CDO efficiency

7. Thales AMS moving towards Seamless ATM and 4-D TBO

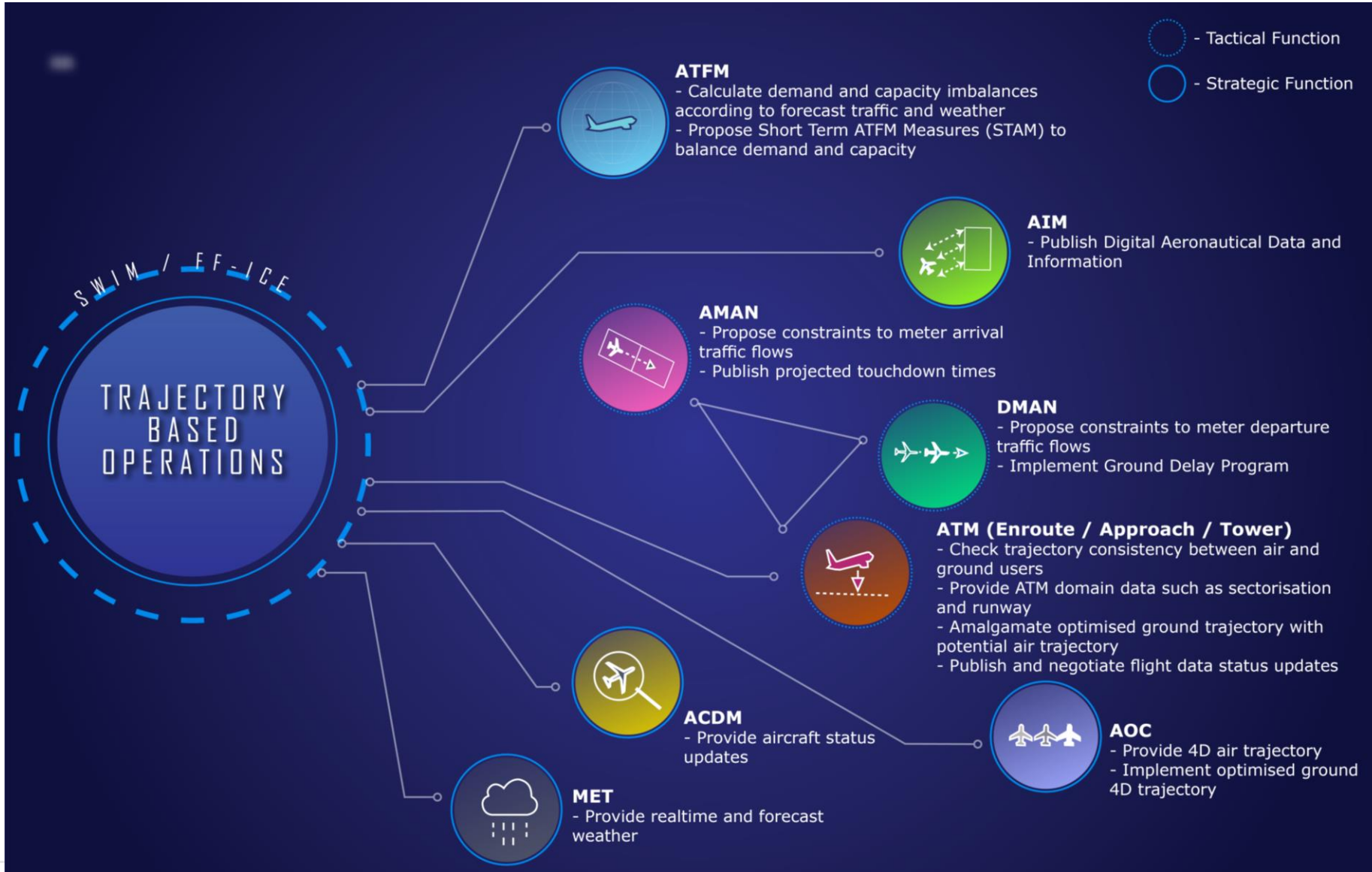
> Today: FPL is submitted; later, a flight is executed



> Tomorrow, with TBO: continuous collaboration between ATM, aircraft and airline



7. Thales AMS moving towards Seamless ATM and 4-D TBO



8. Summary

We believe that;

- > Widespread adoption of operational SWIM platforms,
- > Transition to new flight planning formats and message exchange,
- > Enhanced Data Sharing,

Will result in less tactical intervention, reductions in fuel usage and CO2 emissions

It does require us to work together to introduce capability and to plan the transitions.



Thank you

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