

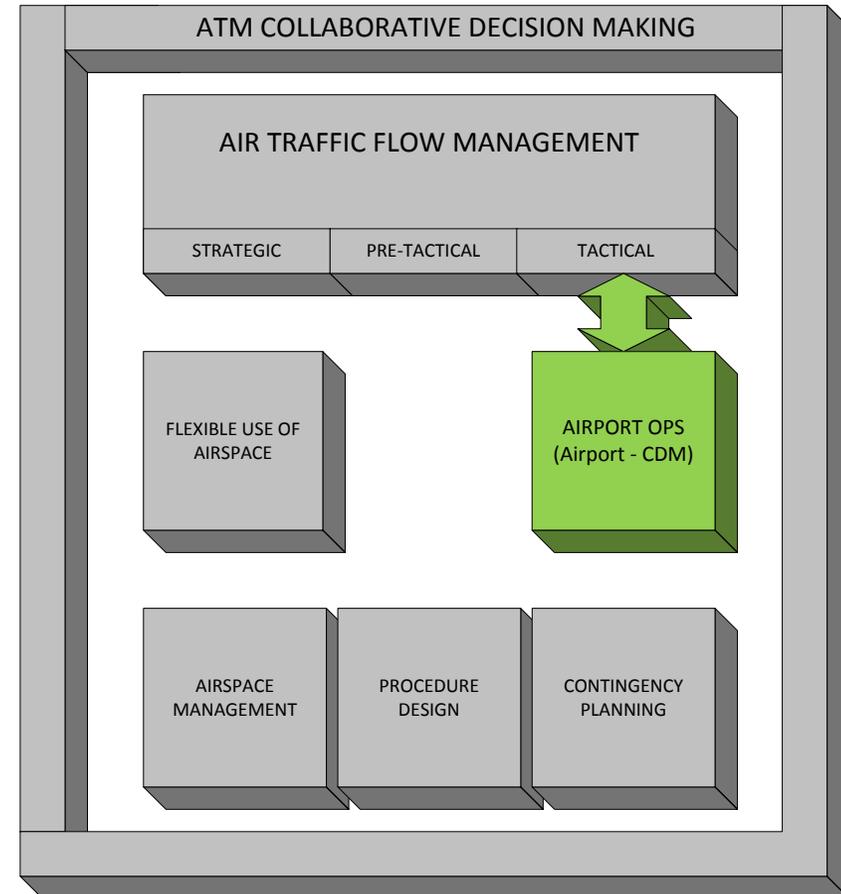


Seen through an IATA lens

A-CDM Globally

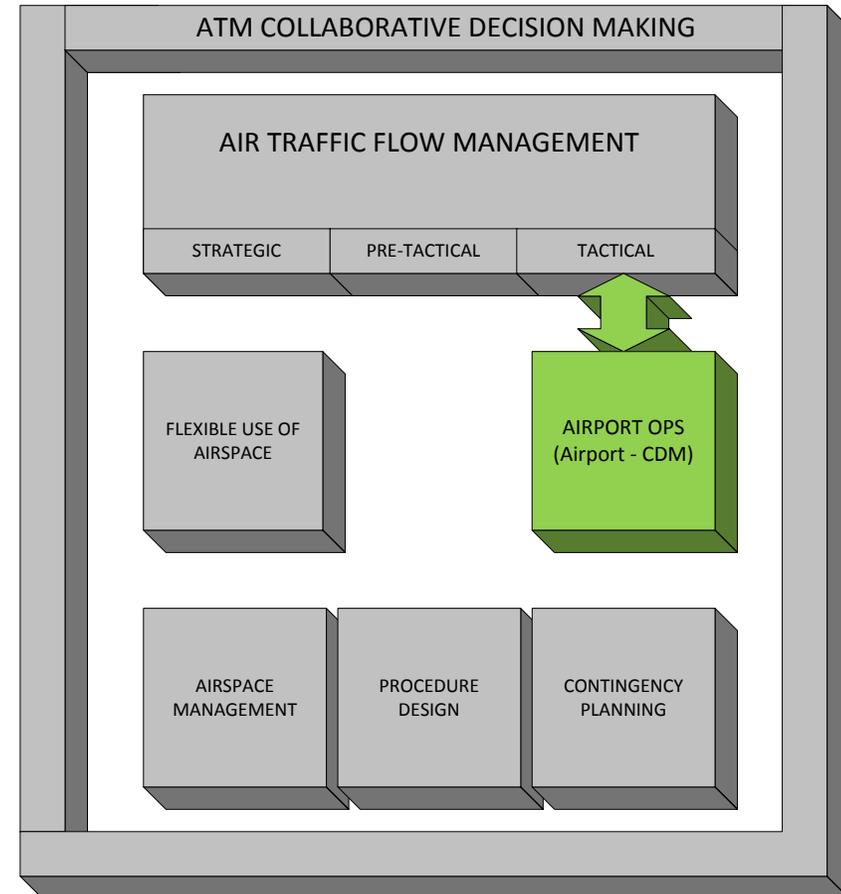
A-CDM Basics – ATM Perspective

- Airport CDM is a part of the broader Collaborative Decision Making
- Focus:
 - managing the turnaround of the aircraft
 - fully transparent way
 - Provides service improvements in all related domains
- Airlines & Airports can leverage benefits beyond the ATM domain



A-CDM Basics – ATM Perspective

**NO ONE HAS ALL THE ANSWERS
OR EVEN ALL THE QUESTIONS**



Situation

- Europe started the ball rolling.
 - Solution from 2004 -- not current globally applicable
 - Need better airline central involvement at some airports with ATFM (ATM network management) for fleet level management
- FAA has its own similar concept
 - With different interface points (milestones)
- ICAO adopted the concept and broadened it
 - Global Air Navigation Plan and Aviation System Block Upgrades (ASBUs)
 - largely based on the EUROCONTROL model

A-CDM is about

- enabling collaborative situational awareness between ATM, Airlines and airport ops (and their related agents)
- planning operations based on 'real' times rather than schedules and planned ETDs
- Managing resources and priorities based on the missions
- Helping airports manage their resources (e.g. gates) in full awareness of circumstances
- Helping airlines and airports better manage customer experiences (information sharing, managing expectations)

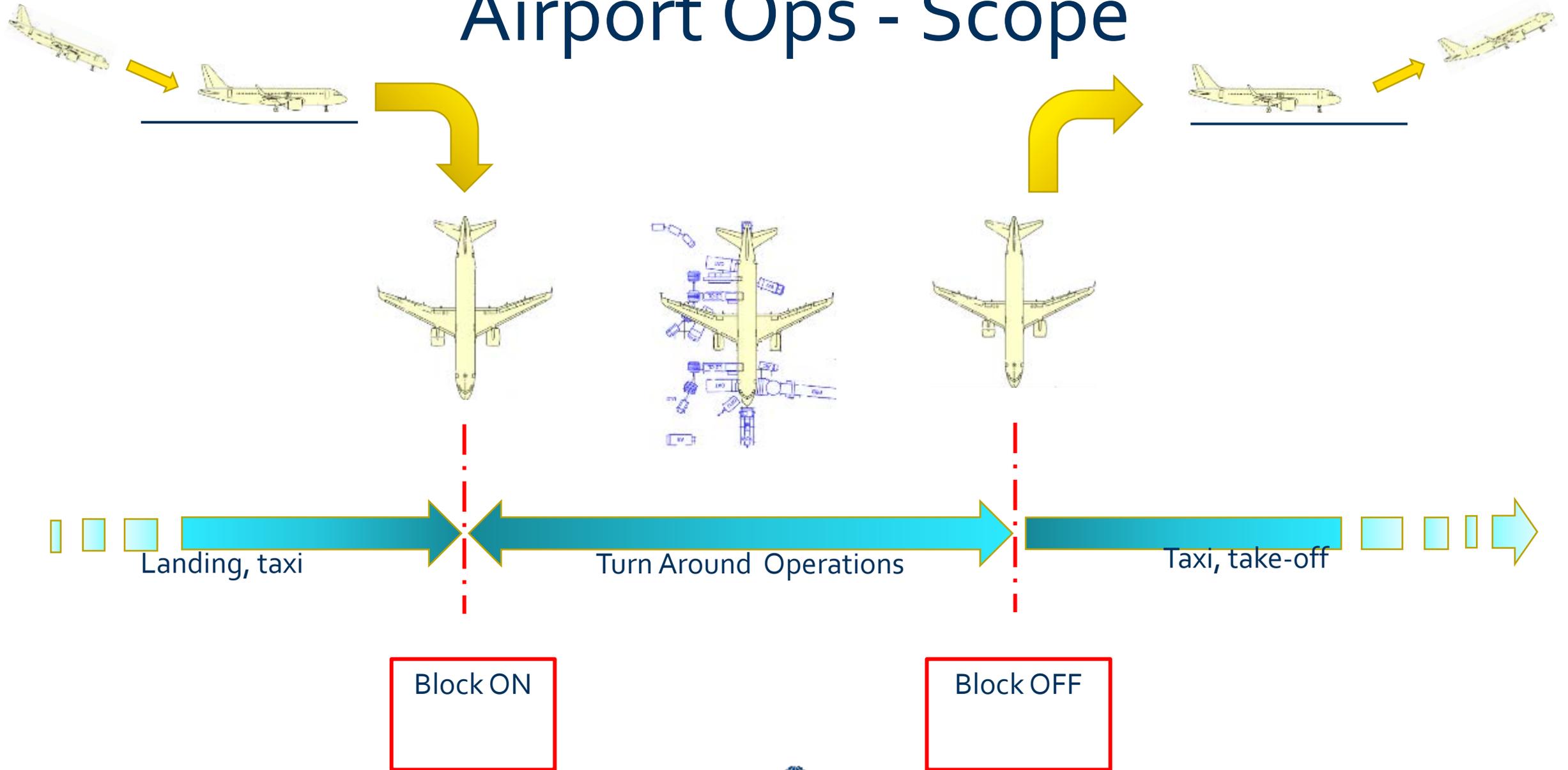
IATA on A-CDM

- Global situation is chaotic and we are all paying the price
- ALL interfaces between A-CDMs and airlines/ANSPs, need to be Harmonized and Inter-operable
- A-CDM is about the Turnaround Process – Period. Do not try and do too much
- A-CDM functionality needs to be adapted to the needs
- A-CDM should be integrated with DMAN and ATFM to offer seamless continuum of service
- Airlines need to understand what the airport is doing with their flights
- Everyone's efficiency will improve if the parties collaborate: A-CDM, Network Operations/ATM, Airport resources

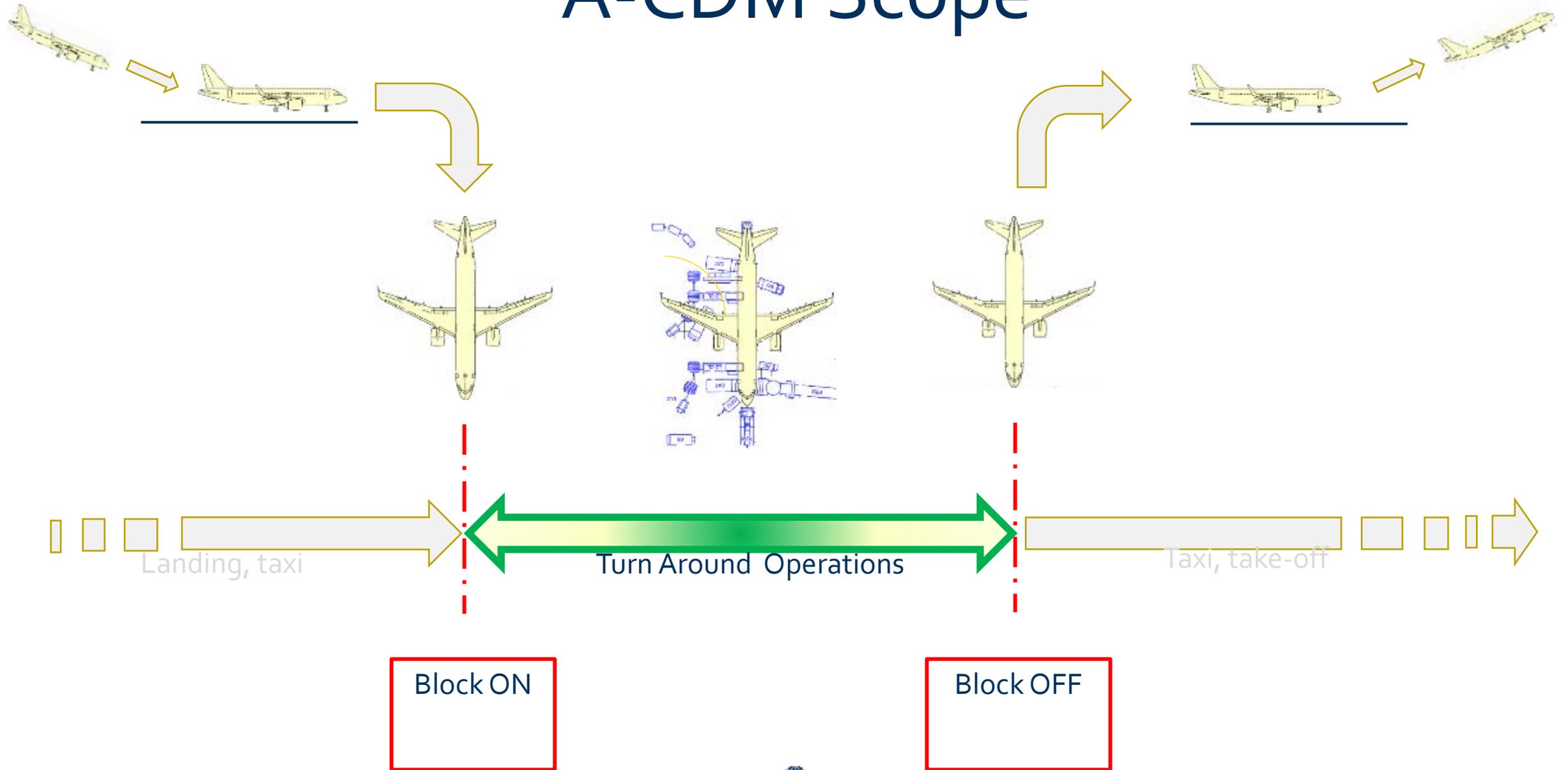
Challenges

- Data interchange
 - ATM is or will be SWIM. Legacy is ASCII message-based
 - Airline / airports use the IATA/ACI standard (AIDX) or proprietary
 - Work has begun to enable interconnection of the information exchange domains
- Disparate A-CDM solutions
 - Need to harmonize / standardize those aspects we need in common
 - Airline systems (automation, common situational awareness)
 - Standardize Pilot information, procedures and roles

Airport Ops - Scope



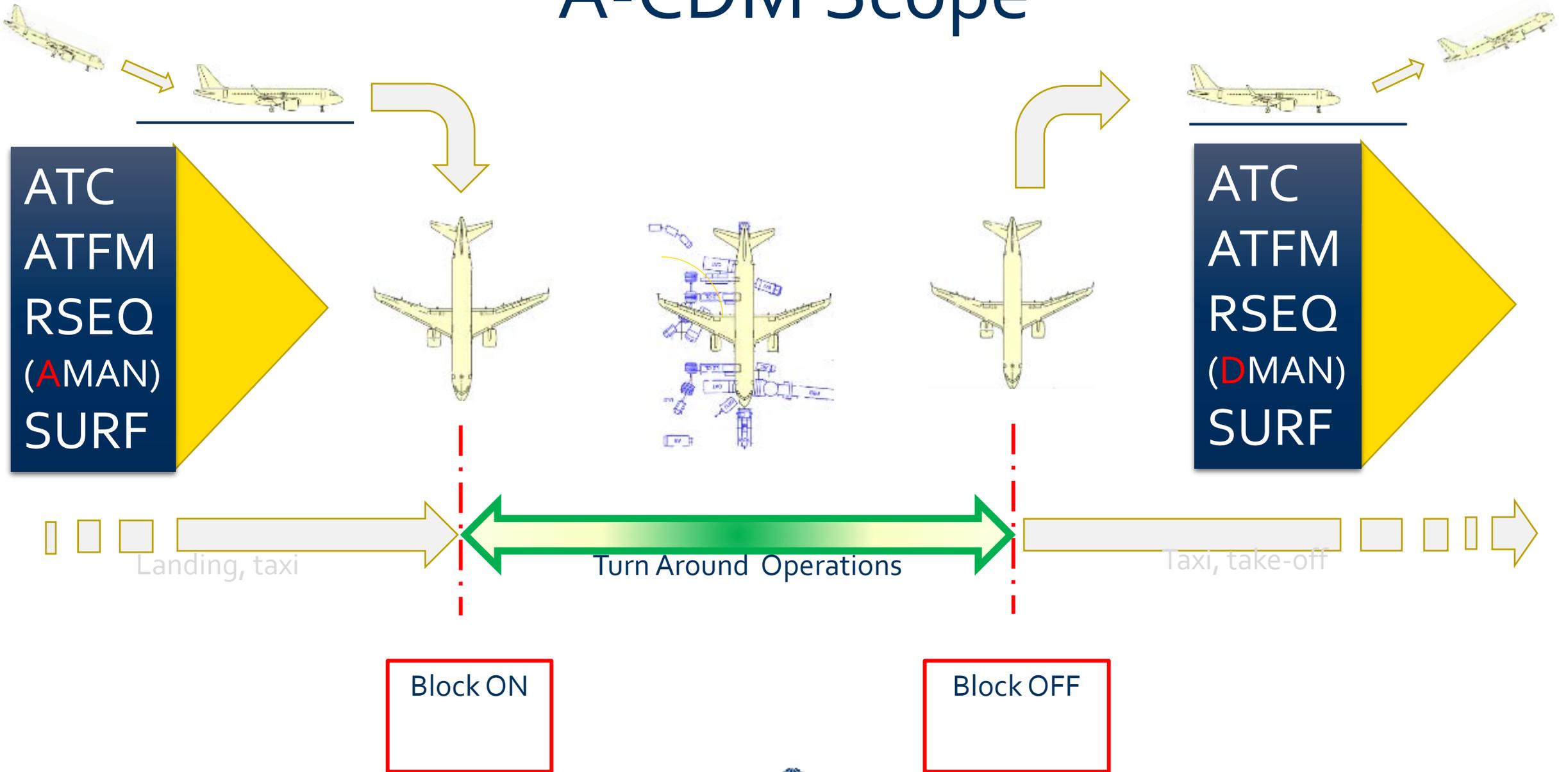
A-CDM Scope



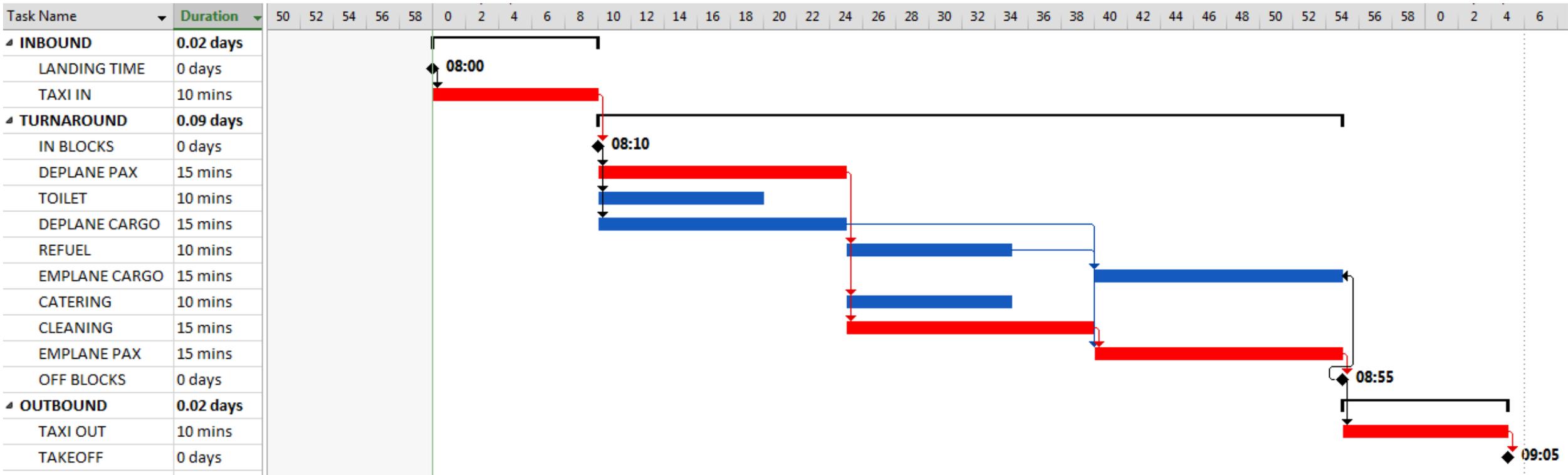
Block ON

Block OFF

A-CDM Scope



TIMELINE OF A TURNAROUND



Process Ownerships

Inbound

ATM informs A-CDM of when to expect the aircraft

ATM owns the aircraft until:

- Handover to Apron Control; or,
- It stops moving

Turnaround

A-CDM owns the aircraft for the turn

- Communicates anticipated results of turnaround to ATM
- May adjust priorities / processes in knowledge of required time objective

A-CDM hands over the aircraft at off-block OR taxiway entry (depending on State)

Outbound

ATM owns the aircraft when it starts moving or enters the TWY system

ATM gives target times to A-CDM to meet (TSAT or TMAAT)

ATM manages the departure sequence, the taxi out and beyond

ATM provides the next station with Estimated landing Time

ATM – A-CDM Information Exchange

- **ATM → A-CDM: Landing Time & Taxi in time**
- A-CDM calculates turnaround, and
- **A-CDM → ATM: Target Off-Block Time**
- ATM calculates Target Takeoff Time
 - Optionally assesses impact on ATFM network demand
 - ATFM may require CTOT which gets translated into A-CDM target time
- **ATM → A-CDM: Target Time**
- A-CDM evaluates and adjusts. Further coordination may occur



A-CDM Actors



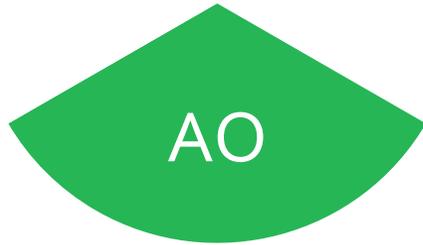
- Improved fleet-wide operations / Timely performance
- System-level decisions and priorities implemented locally
- Services and agents managed with full and transparent awareness of the missions and each actor's roles and objectives
- Optimized taxi time based on common awareness
- Improved customer experience
 - Avoid excessive on-board waiting and ramp delays (and penalties!)
 - Avoid surprises and minimize stress – customer retention / attraction

A-CDM Actors



- Improved demand predictability
- ATM receives the Target Off Block Time (same as flight plan departure time) and calculates a Takeoff Time
- If constraint exists, may issue CTOT resulting in TSAT or entry into Taxiway System
- Opportunity for negotiation
 - Slot Swapping
 - Turnaround compression

A-CDM Actors



AO includes Ground Handlers
in this example

- More predictable gate / stand management
 - Especially if ATC provides Estimated Landing Time in timely manner
- More efficient – mission oriented – Ground Handling
- Opportunity for better analytics – integrated with ATM information
- Airport CDM does not pass times to next airport – that is via ATM

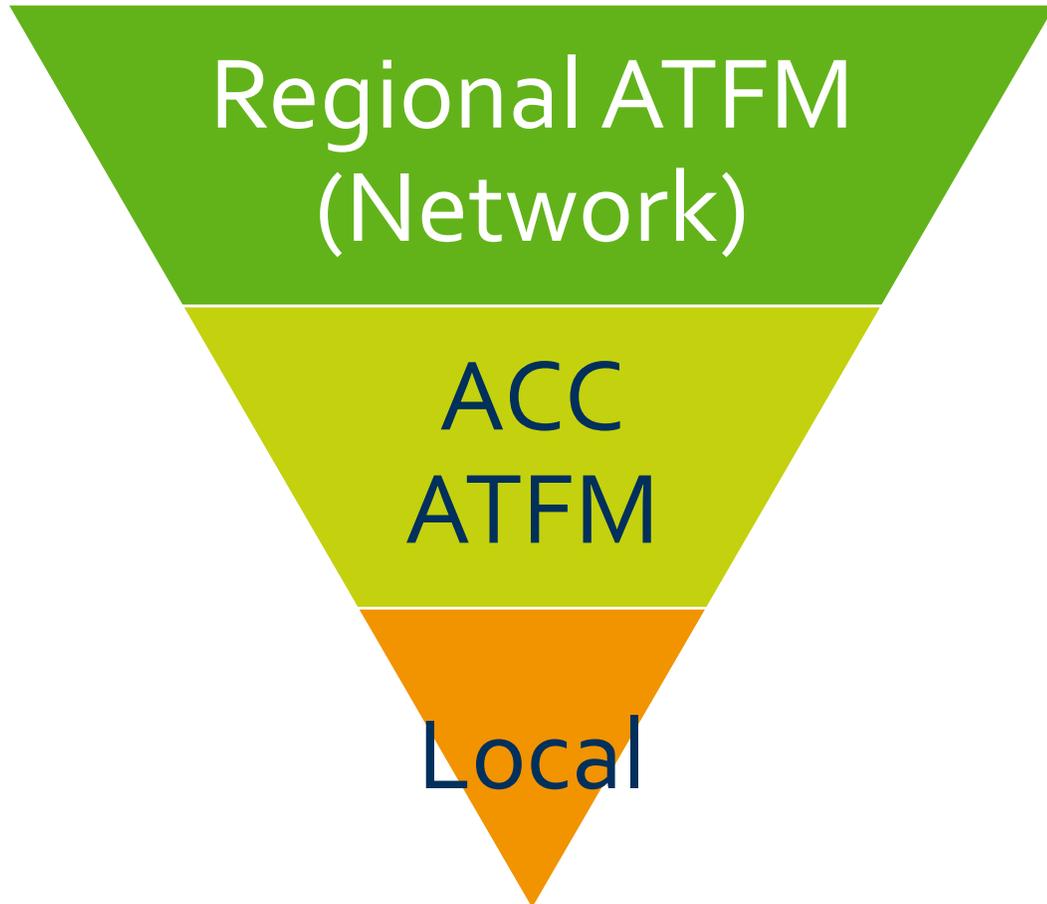
Forward AND Backward (Goal) Focus

I follow my process
and will be ready at
...

O
F
F
B
L
O
C
K

You must takeoff at
...
and the taxi out time
is...

Not a Single A-CDM



A-CDM implementations must be tailored to the requirement ...

... and to the ATM environment

One Size does NOT fit all

The European Approach fits...
Europe!

Not a Single A-CDM

Local airport operations efficiency opportunity:

- Resource management
- Improved taxi queue lengths

Bonus: ATM provides _LDT and receives updated "ETD"



Local

Not a Single A-CDM



ACC
ATFM

- ATFM Function present in ACC, TWR interfaced
- No regional ATFM collaboration in place
- ATM provides and receives movement times
- ATM issues departure constraints if required
- Airport ops / turnaround processes adapt to the constraints

Not a Single A-CDM

Regional ATFM (Network)

- ACC's ATFM collaborates with others in a multi-FIR, regional or multi-regional context

Network Ops

- Opportunity for complex Slot Swapping and coordination
- Improved opportunity for Airline Operations Centre involvement
(example – Europe)

IATA on A-CDM Information Sharing

- A-CDM & ICAO (&SWIM) time names to be identical
- A-CDM / ATM only need to share **some** times
 - xLDT, xOBT, TSAT, ...
- Responsibility boundaries need to be respected and common
- Interaction between airlines and A-CDM must be globally harmonized
- Airlines must have the option to involve their Airline Operations Centre to decide TOBT

A-CDM Implementation

- Airport CDM Implementation Manual – EUROCONTROL/IATA/ACI
- ICAO Doc. 9971
- IATA Position Paper

Basis for A-CDM Implementation

- A-CDM must be based on assessment of current operational constraints, and the value an A-CDM implementation will generate to mitigate such constraints and / or improve current operations.
- A-CDM works on the premise of best planned best served, with more accurate and timely Target Off Block Times (TOBT)

When should A-CDM Implementation be considered?

- **Inefficiency** on the airport due to non-optimised turnaround and sequencing performance
- Poor punctuality and performance (such as airport start delays)
- Poor compliance to Estimated Off Block Time (EOBT) and non-compliant ICAO Filed Flight Plans (FPL)
- Lack of transparency on overall airport plan, or lack of a 'single version of the truth'
- First come first served principles for start-up which specifically lead to poor sequencing that adversely impacts airport throughput
- Poor data into network (where existing) resulting in high regulation to airport
- Poor recovery of airport after disruption.
- Start-up delay due to false demand
- Poor interface with handling agents where airlines do not have access to real time systems on turnaround and delay status.

What are the evaluation steps to be considered?

- Stakeholder coordination group established including an Airline Steering Group
- Clear roadmap produced for 'what does success look like' which is clear and accepted to all stakeholders
- Clear, agreed performance metrics with airlines, airport and ATC provider, handling agents and Network Manager where applicable.
- Comprehensive communications plan for all stakeholders before, during and after implementation
- Meaningful consultation with airlines on investment costs and agreed benefits
- Information technology systems are proven robust, but not the only focus of project, as the majority of effort is concentrated on human factors and behavioural change.
- Appropriate A-CDM Data will be available to airlines (such as TOBT, TSAT, TTOT, TT)

What are the evaluation steps to be considered?

- Any portal that is designed has airline and Ground Handlers input
- Messages and communications reach appropriate levels of stakeholder organisations
- Implementation plan is not rushed as failure will create no confidence, but is based on a phased approach across the airport schedule
- Ensure that the TSAT algorithm considers equity, performance and stability
- Detailed plan to work with airlines and ground handlers to increase TOBT and EOBT compliance to work at optimum critical mass for A-CDM to be effective

Main IATA Recommendations

- The introduction of any major change to an airport operation, and its relevant ATM procedures, should not be underestimated in terms of the impact to the operation of each airline and its need to optimize aircraft fleet operations.
- Whilst variations may be required to adapt A-CDM to individual airports, the overall roles and responsibilities should conform to generally accepted goals for A-CDM.
- Airlines operate globally, between multiple airports. Airline network operations require access to A-CDM data, where airports have implemented A-CDM to optimize their networks. Airlines and/or their contracted ground handlers also need to be able to update data in an airport ACISP, and receive the corresponding appropriate alerts, as part of their role in implementing timely data exchange.

Main IATA Recommendations

- **Standardization** of the A-CDM turnaround process should be introduced, incorporating **all stakeholders and services**.
- After A-CDM implementation it is important that **focus still remains** on **continuous improvement** and developing the overall A-CDM system, to ensure **optimization and utilization of airport infrastructure**.
- A-CDM can offer benefits at a **local and a network level**. A-CDM is expanding and reaching many parts of the globe, so the need to **standardize A-CDM** procedures and documentation to **drive efficiency and improve overall performance is necessary**, as global aviation demand continues to grow.
- IATA supports **common objectives and performance metrics** between all A-CDM stakeholders, based on **mutually agreed targets**

Main IATA Recommendations

- Wherever possible, airports and ANSPs implementing A-CDM should maintain consistency with respect to procedures required of the pilots.
- IATA recognizes that there may be a need for local variations, however these should be kept to a minimum to avoid confusion and distraction.
- A-CDM procedures should be listed using a consistent order and text, such that pilots can recognize any “local differences” more quickly and easily.

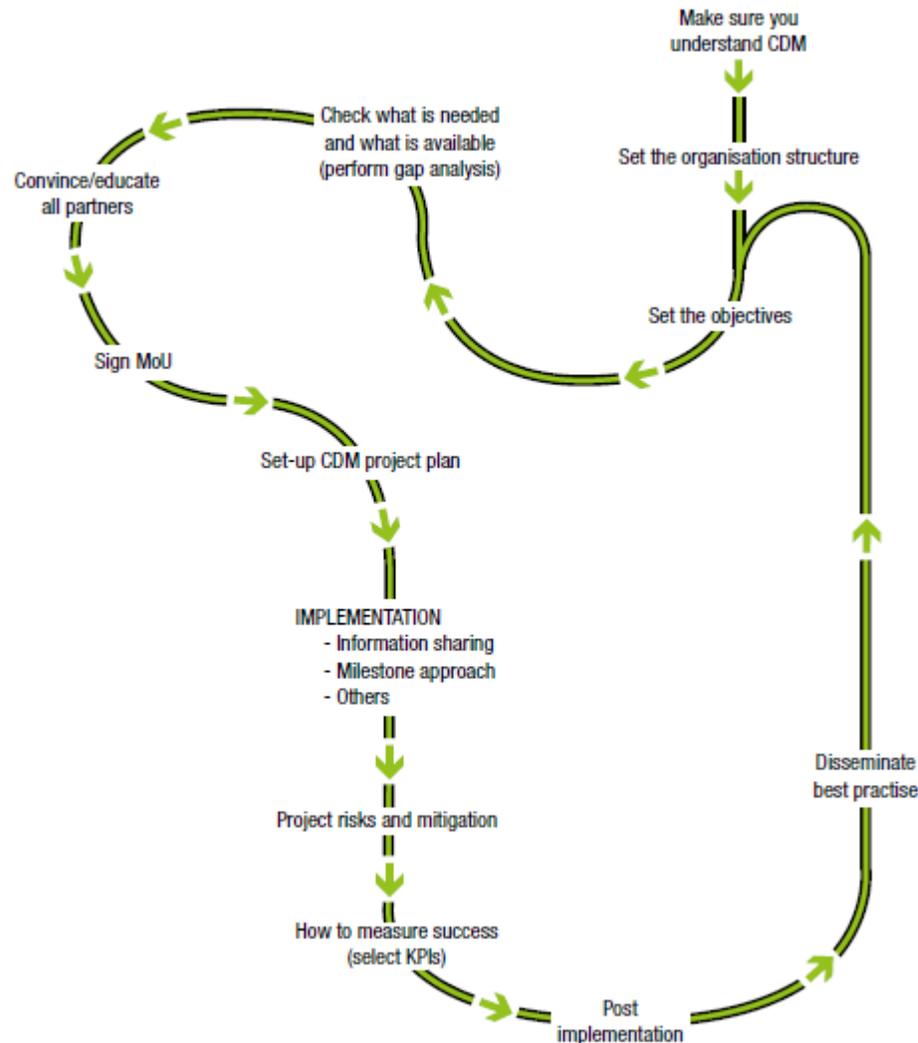
Key enablers for success

- As A-CDM is a cultural change - demonstrating the rationale for change showing the wider benefits to ensure all parties are aligned and understand the reason for change, is of paramount importance.
- Through the collaborative approach, airlines and airports must agree on objectives, trade-offs and the measurements for performance which will govern the A-CDM implementation.
- An airline steering group should be set up before any implementation, with the responsibility to agree on the A-CDM processes, procedures and measurement targets with the airport.

Key enablers for success

- Implementation should be in a phased approach with a minimum of disturbance to operations, and agreed with the airline steering group.
- A framework of reviews to track progress should be created between the airport, the airline steering group and other airport stakeholders.
- After implementation is complete, it is important for focus to remain on continuous improvement of systems and processes to ensure best practice, procedural discipline and optimization of ATC procedures and runway utilization.
- Any A-CDM implementation decision should be subject to comprehensive consultation with all airline customers at the airport.

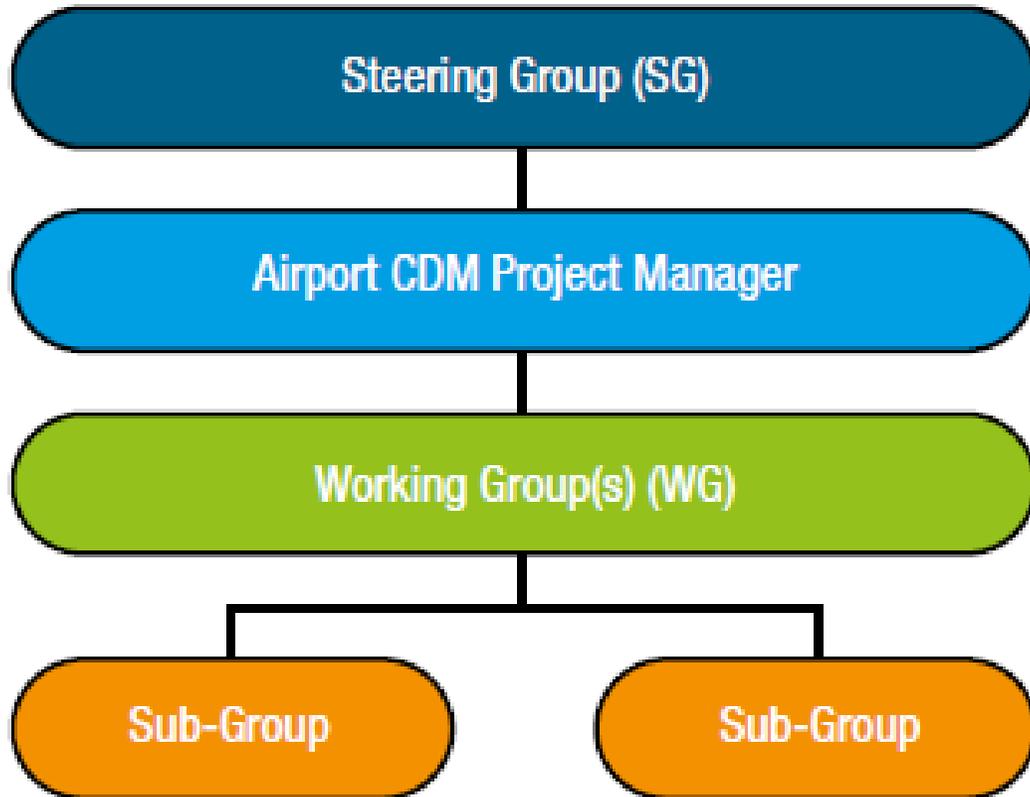
Beginning the process - MoU



- “Nevertheless, in order to ensure reliable and consistent operation, the roles and responsibilities of all partners need to be formalized in a comprehensive Memorandum of Understanding and, where applicable, Service Level Agreements. The latter is of particular significance in respect of those partners undertaking certain services on behalf of others”.

ACDM Manual

Beginning the process – MoU ACDM Manual



- “The Steering Group will consist of representatives from the Contracting Partners. (EUROCONTROL may be invited to participate in the Steering Group and should be invited to participate in the Working Group.)
- The Steering Group will appoint the Airport CDM Project Manager.”

ACDM Manual



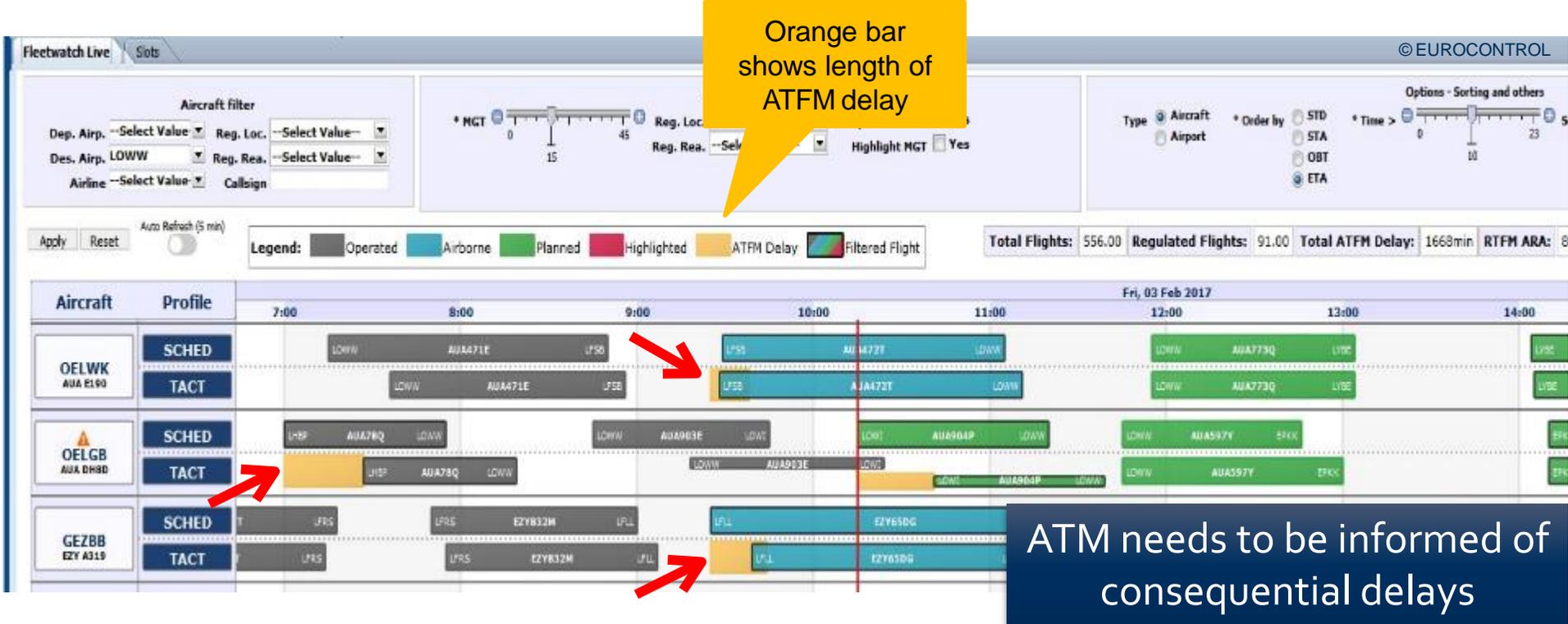
Reserve Slides



A-CDM is not

- Managing the arrival or departure sequencing
 - That's an ATM function
 - RSEQ ASBU
 - A-CDM function is a collaborator
- Managing the Surface routings on controlled surfaces
 - ATM function
 - SURF ASBU
- Managing the efficiency of the ATM environment
 - ATM function
 - NOPS (and beyond) ASBU

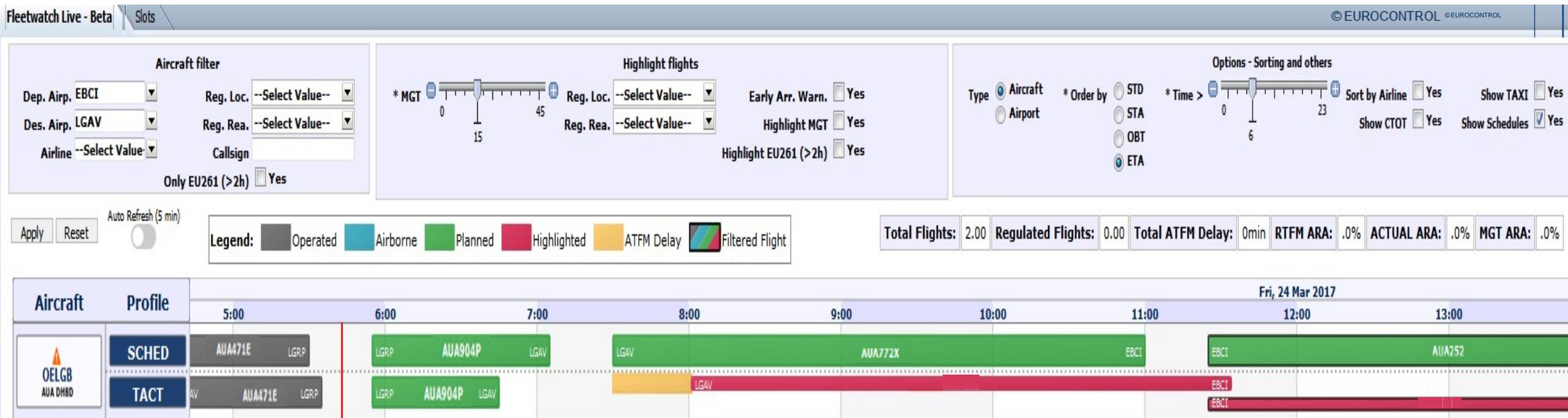
Airline Behaviour: Fleetwatch Live



Lessons:

- Schedule v. Flight Plan
- Take-off v. Off-block times
- Flight plan updating
- Absorbing ATFM delay

Airline Behaviour: Example: overlapping flight plans



Negative or too short
Turn Times
are not OK...

