AIRPORTS COUNCIL INTERNATIONAL

ATFM Views - ACI

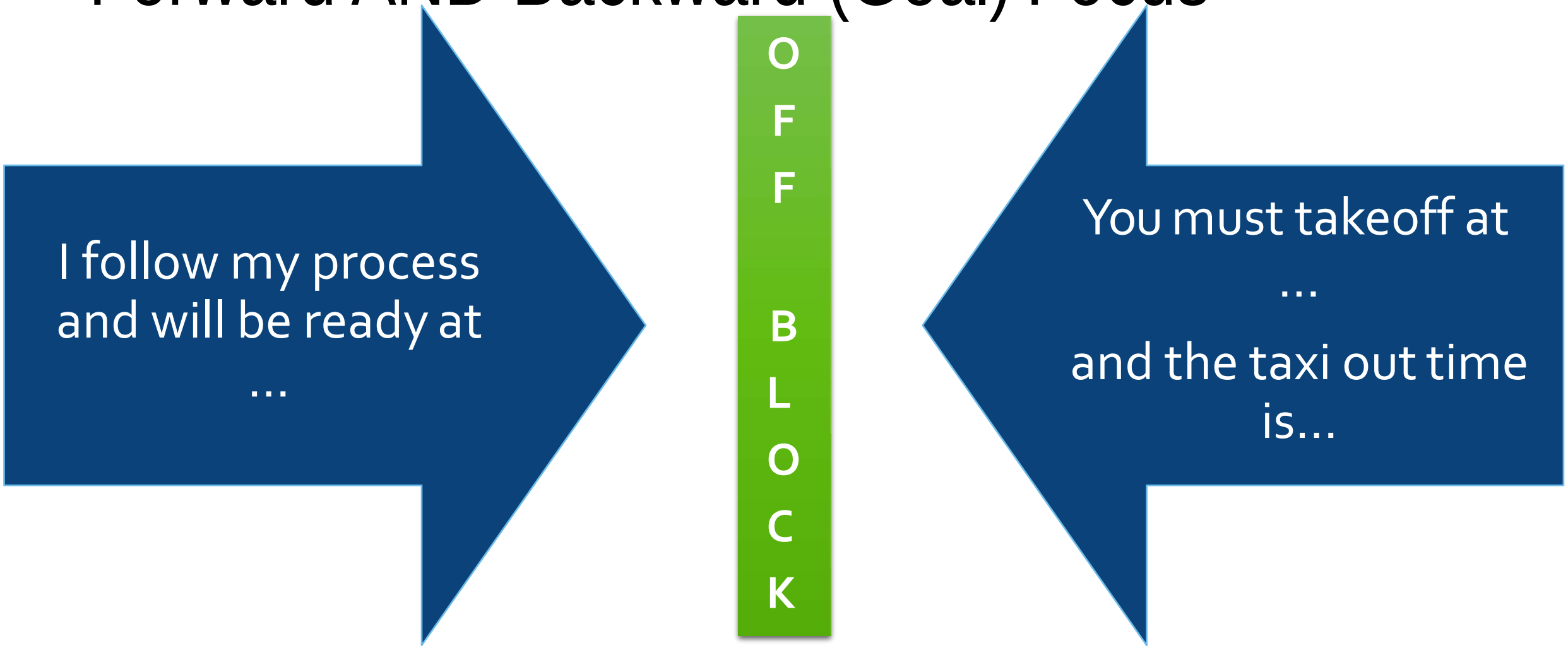
September, 2019 | Mexico City, Mexico

Agenda Item 5: Challenges for ATFM Implementation: Link with other ATS Systems

ATFM linkages with A-CDM

As we have seen in the A-CDM workshop, there is mutual benefit to ATM (mainly ATFM) in having accurate departure demand and timing as provided by A-CDM

Forward AND Backward (Goal) Focus



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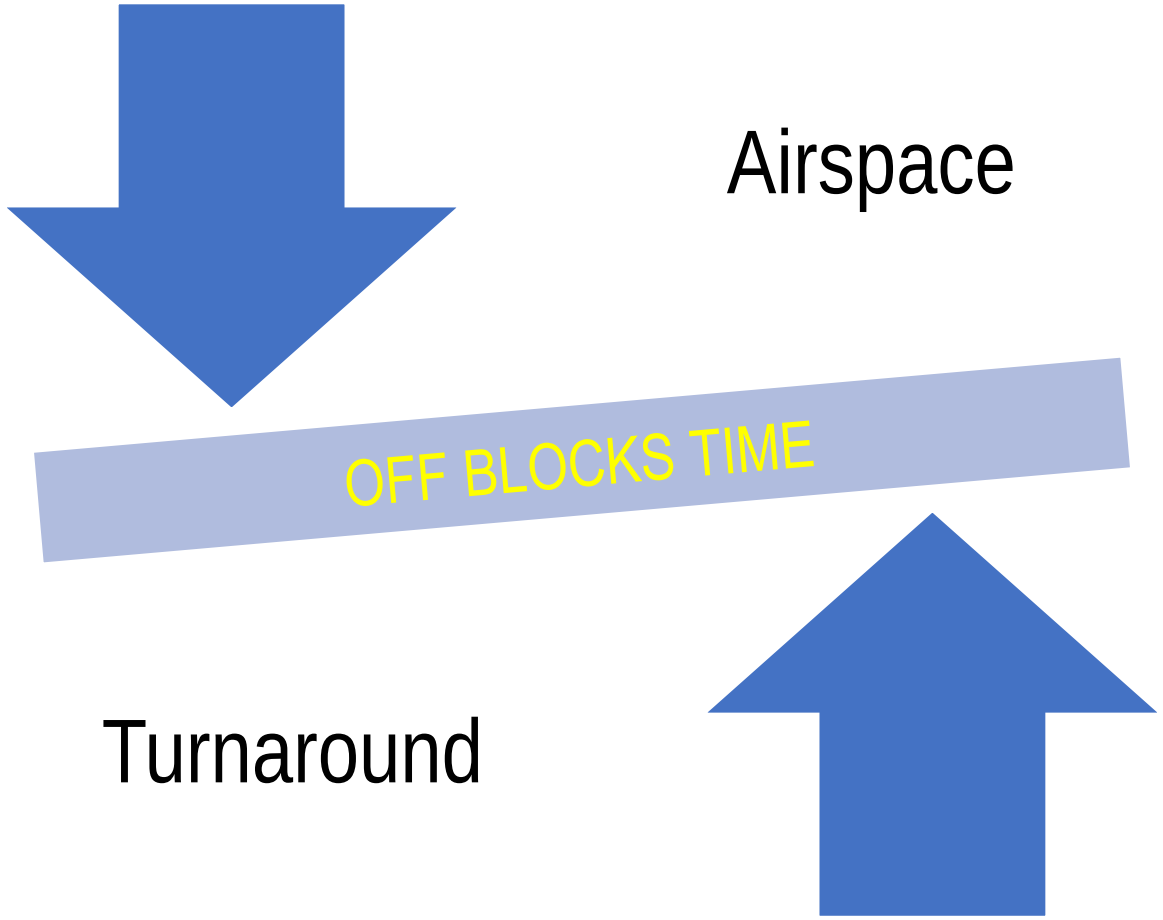
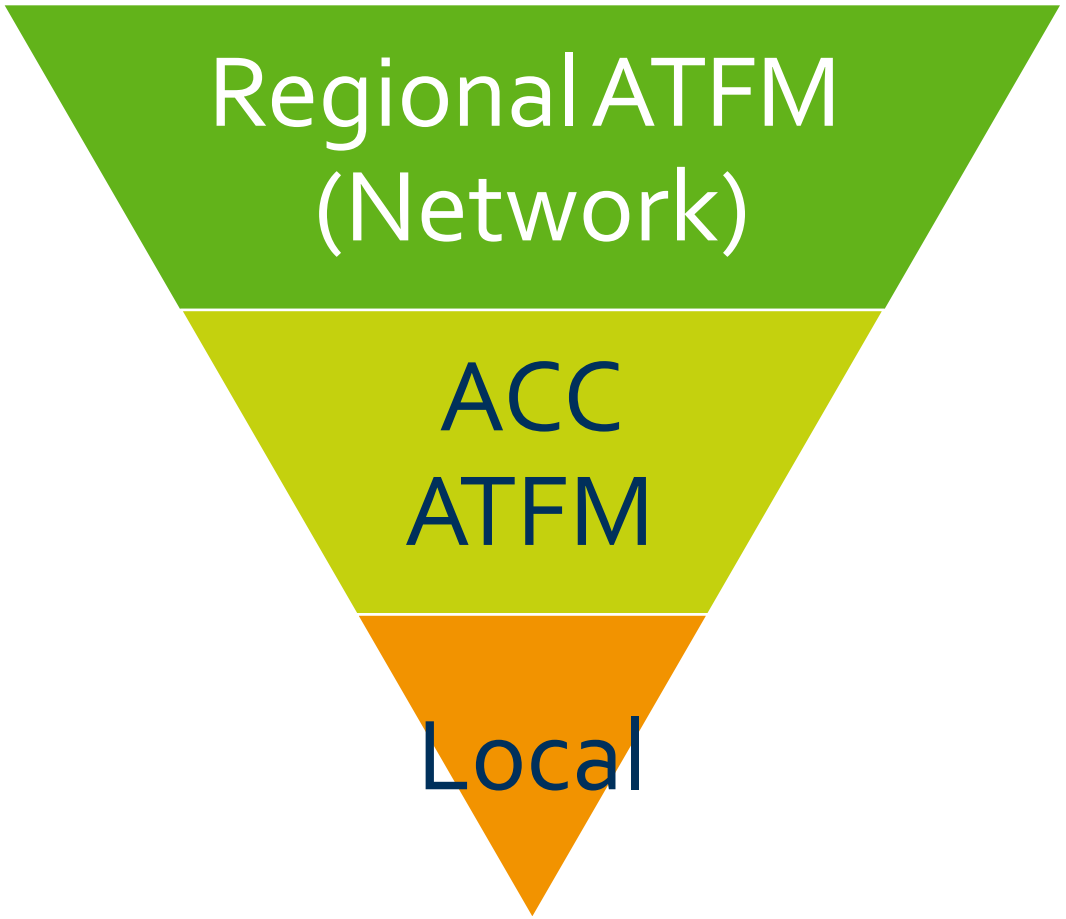


Not a Single A-CDM



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

- 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)

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

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 where)

Outbound

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

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

ATM manages the departure sequence, the taxi out and beyond

ATM provides the next station with Estimated landing Time

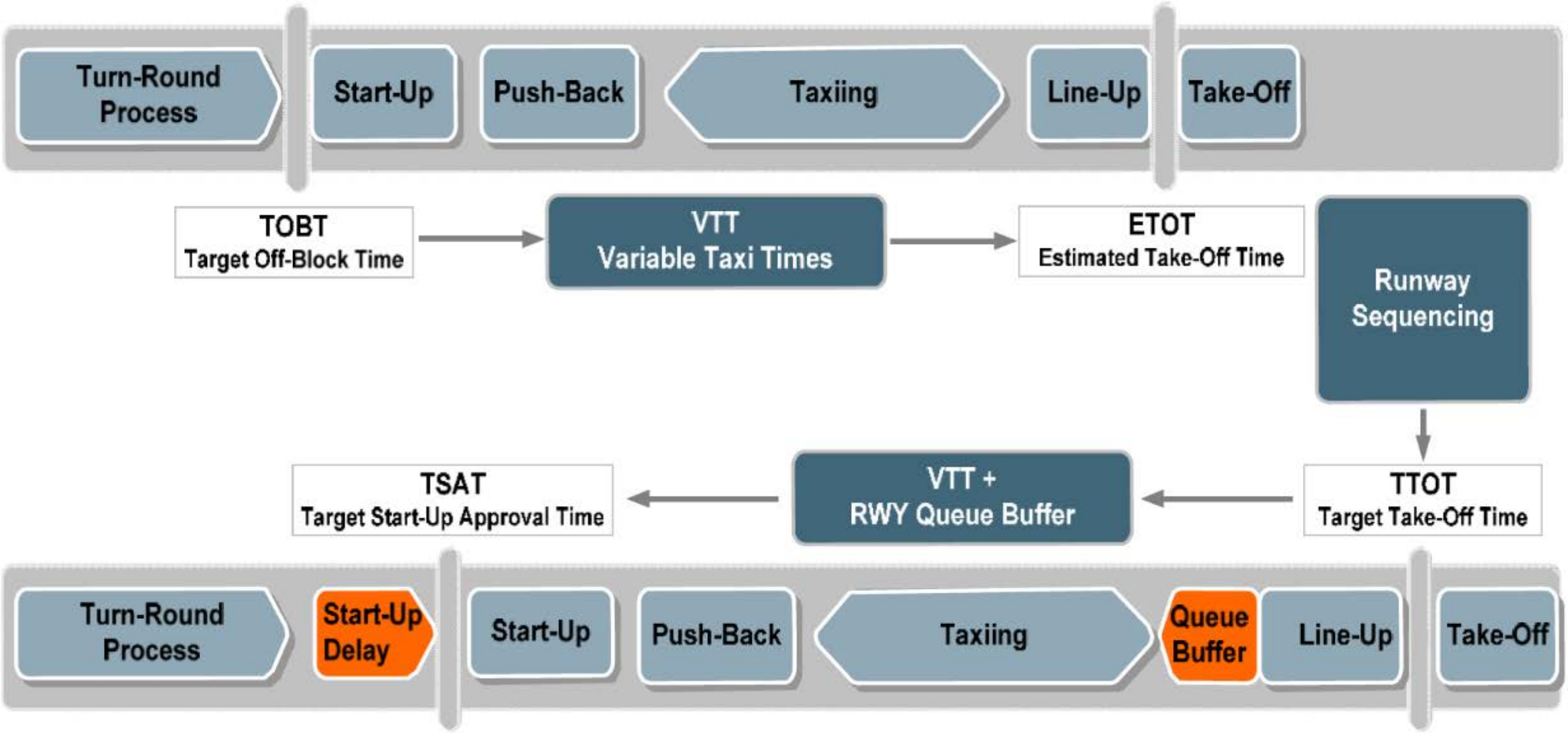
Flight Events vs Milestones & Status

Flight Event Times	Scheduled	Planned	ATFM measure	ATM system estimate	Actual
Off-block Time (OBT)	SOBT	EOBT	COBT		AOBT
Take-Off Time (TOT)			CTOT	ETOT	ATOT
Landing Time (LDT)			CLDT	ELDT	ALDT
In-Block Time (IBT)	SIBT	EIBT			AIBT
Taxi In Time					
Taxi Out Time					

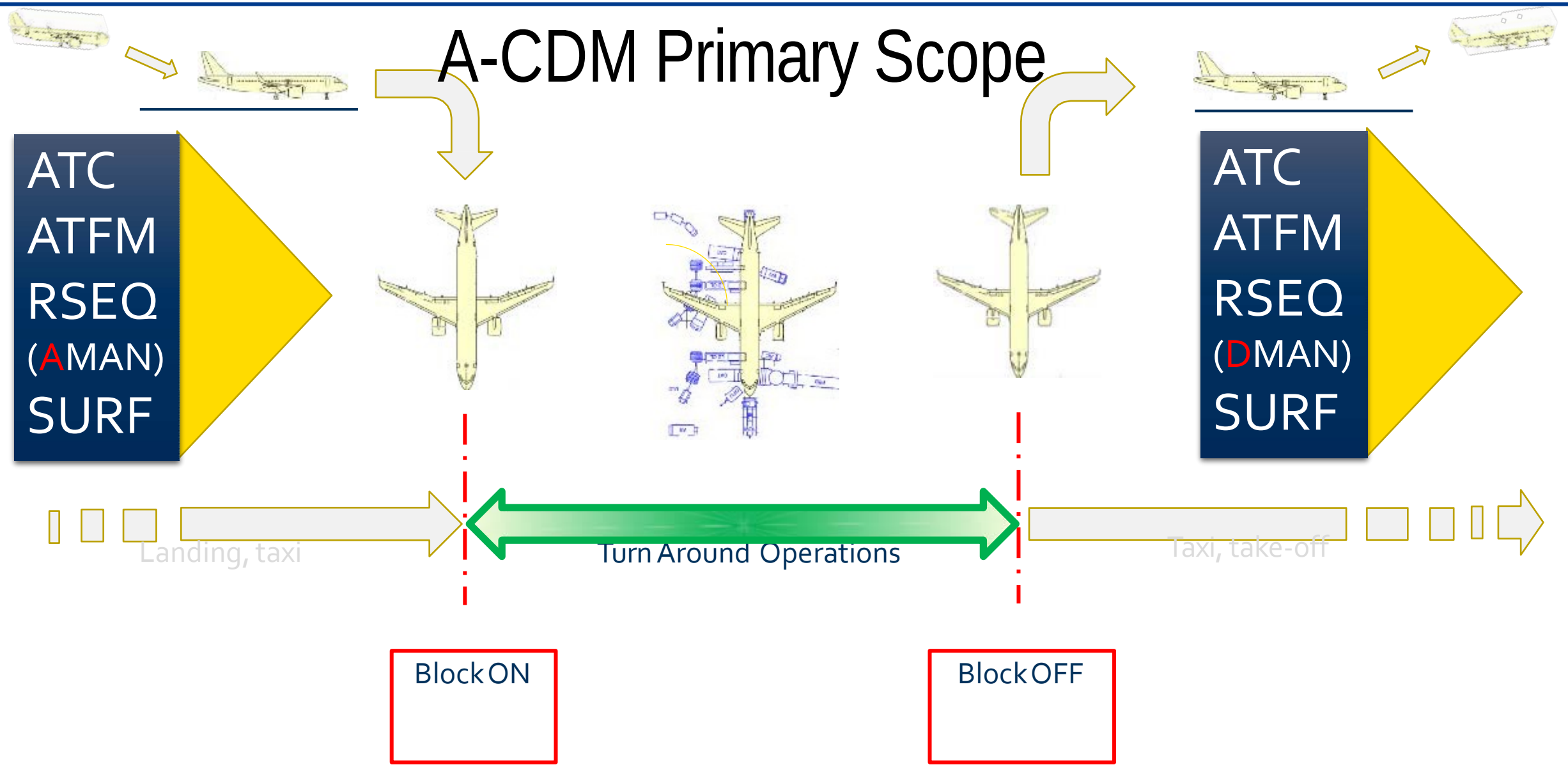
value derived from A-CDM Milestones

Flight Event Times
Off-block Time (OBT)
Take-Off Time (TOT)
Landing Time (LDT)
In-Block Time (IBT)
Taxi In Time
Taxi Out Time

- TOT – OBT can be used to calibrate taxi times and tools
- IBT – LDT, same thing
- CTOT / TSAT ensures delivery of aircraft at appropriate time into maneuvering area
- Early LDT information passed to A-CDM ensures timely turnaround and accurate OBTs
- Etc…


Turn-Round Process
Start-Up
Push-Back
Taxiing
Line-Up
Take-Off
TOBT
Target Off-Block Time
VTT
Variable Taxi Times
ETOT
Estimated Take-Off Time
Runway Sequencing
TTOT
Target Take-Off Time
VTT +
RWY Queue Buffer
TSAT
Target Start-Up Approval Time
Turn-Round Process
Start-Up Delay
Start-Up
Push-Back
Taxiing
Queue Buffer
Line-Up
Take-Off

A-CDM Primary Scope



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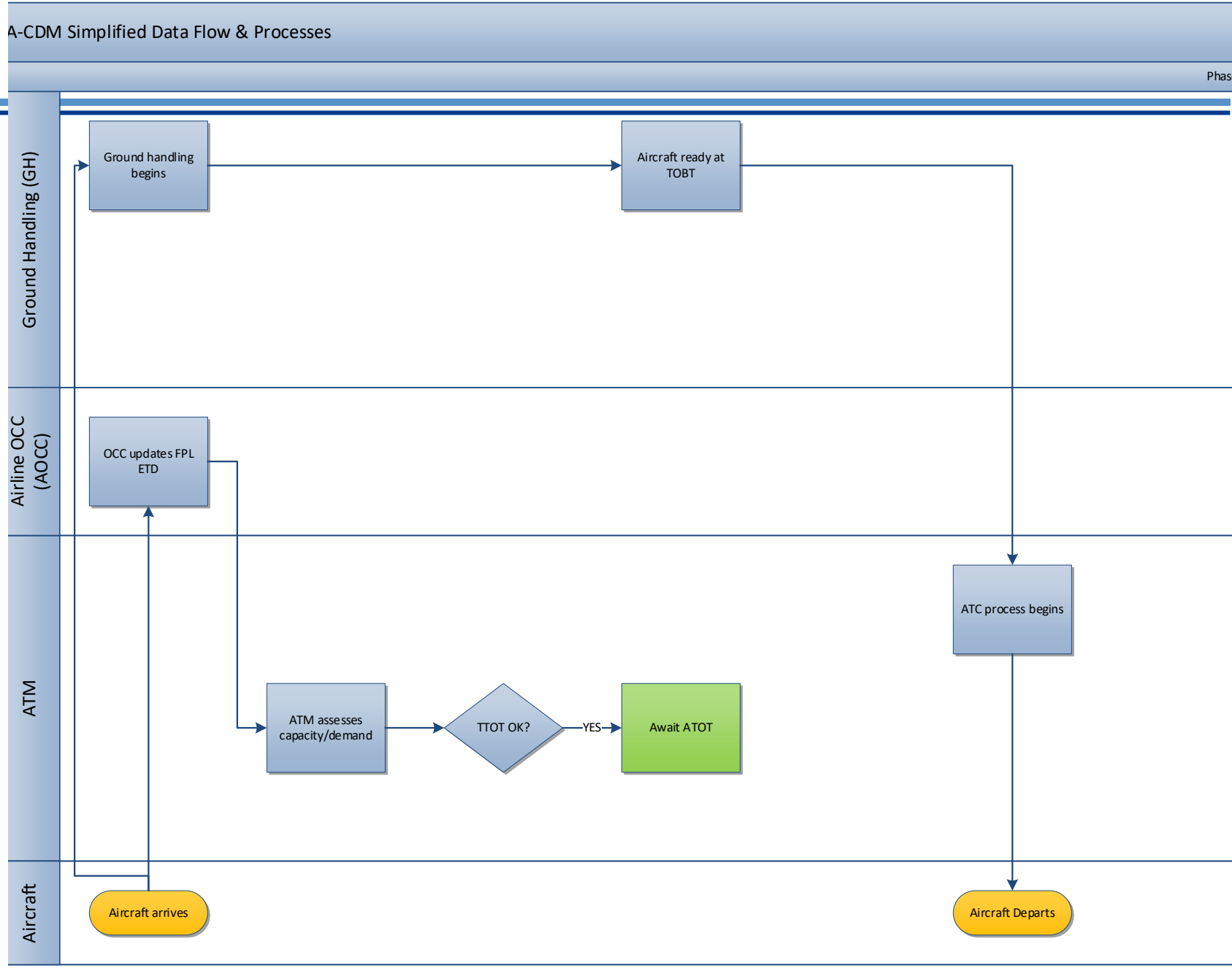
ACDM integrated with ATFM

- This process chart integrates decisions by many stakeholders:
  - Local Airport (GH)
  - The airline Ops Centre
  - Air Traffic Flow Management (ATFM)

NORMAL OPERATION



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ACDM integrated with ATFM

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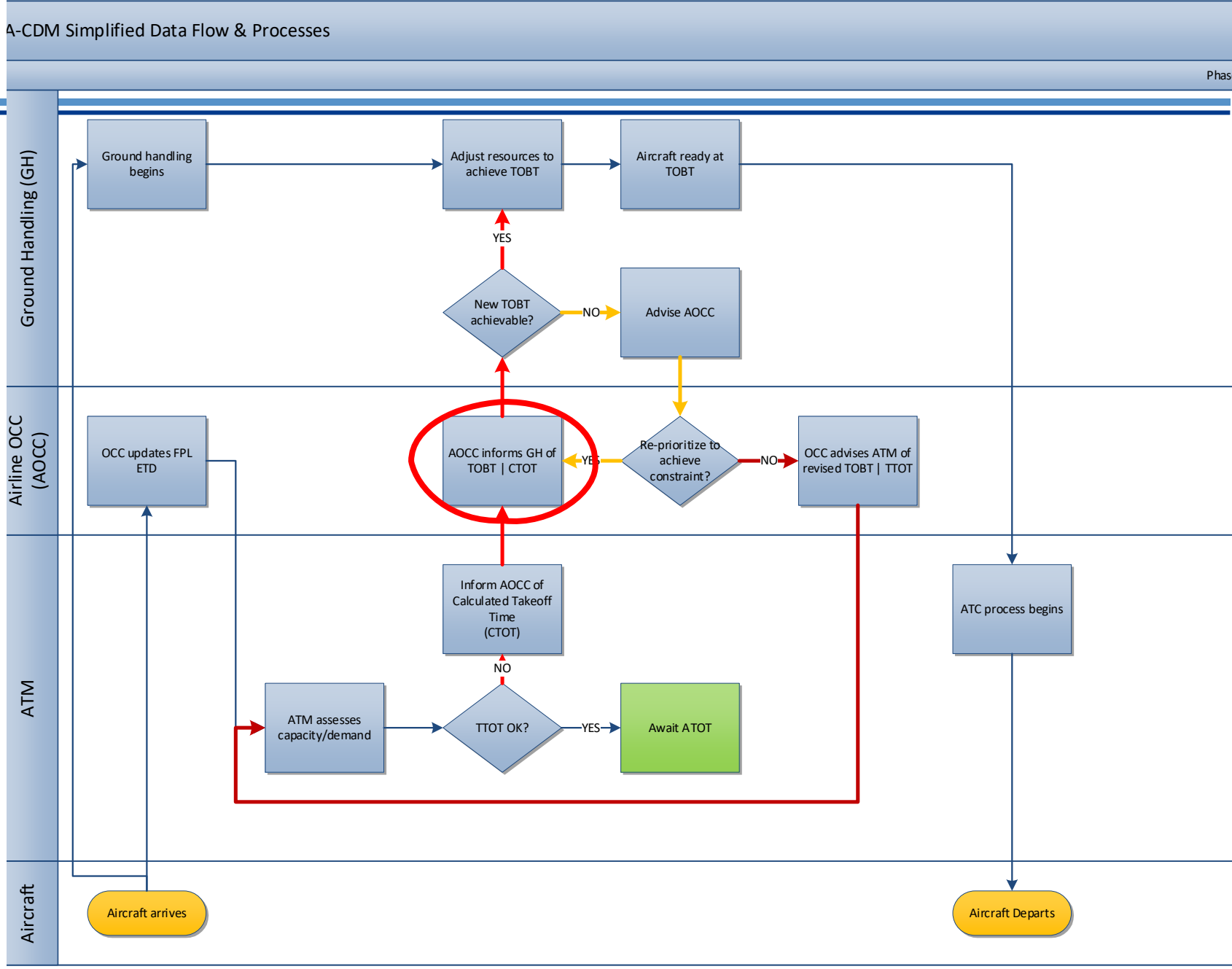
GROUND DELAY



ATM Systems adaptations

- In order to connect the various systems that perform the related functions:
  - ATFM
    - Demand assessment
    - Ground Delay assignments
  - Departure Management
  - Runway Sequencing
  - Flight Data Processing
  - A-CDM
- Systems will need to implement appropriate Data Interchange methodologies
- SWIM (mainly AIXM, FIXM) contains the data definitions that are required to exchange information.
- Best practice: ATM systems to implement SWIM for external exchanges. A-CDM systems to become SWIM-compatible. Airline flight planning systems to become SWIM compatible