



A-CDM AT HONG KONG INTERNATIONAL AIRPORT (HKIA)

PRESENTATION TOPICS

- Introduction to A-CDM at HKIA
- From Procedures → Information → Systems
- A-CDM Portal – tailored to each user group
- Training and Trails
- Measure your way to success
- Recommendations in short

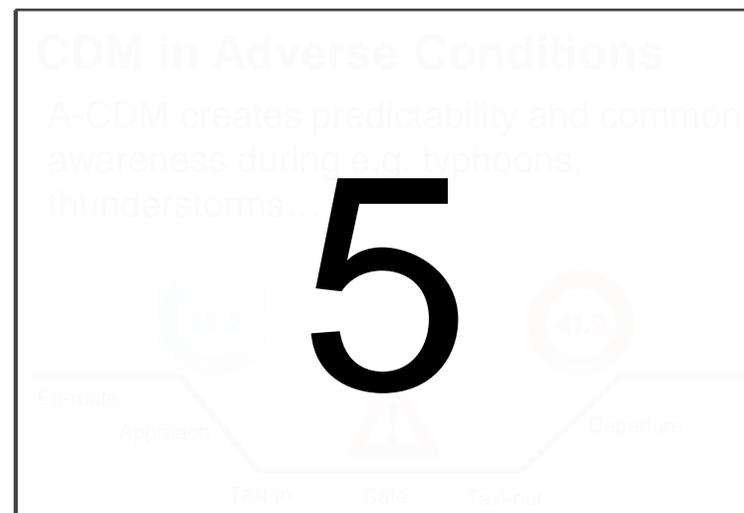
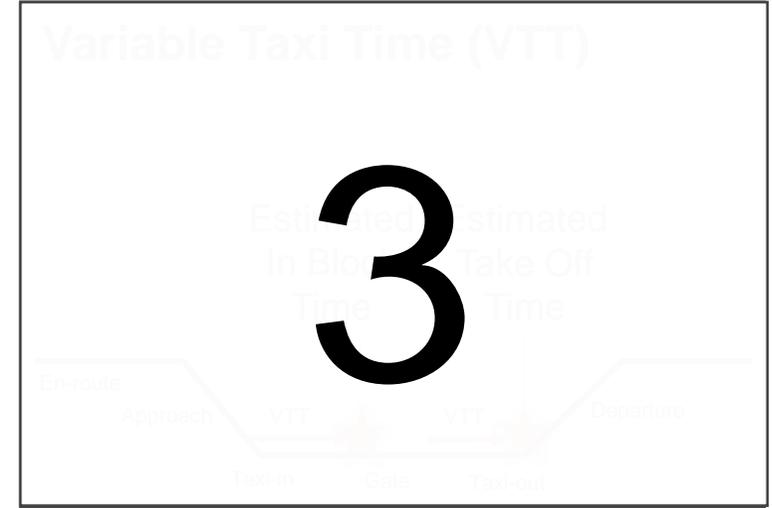


INTRODUCTION TO HKIA & THE A-CDM PROJECT

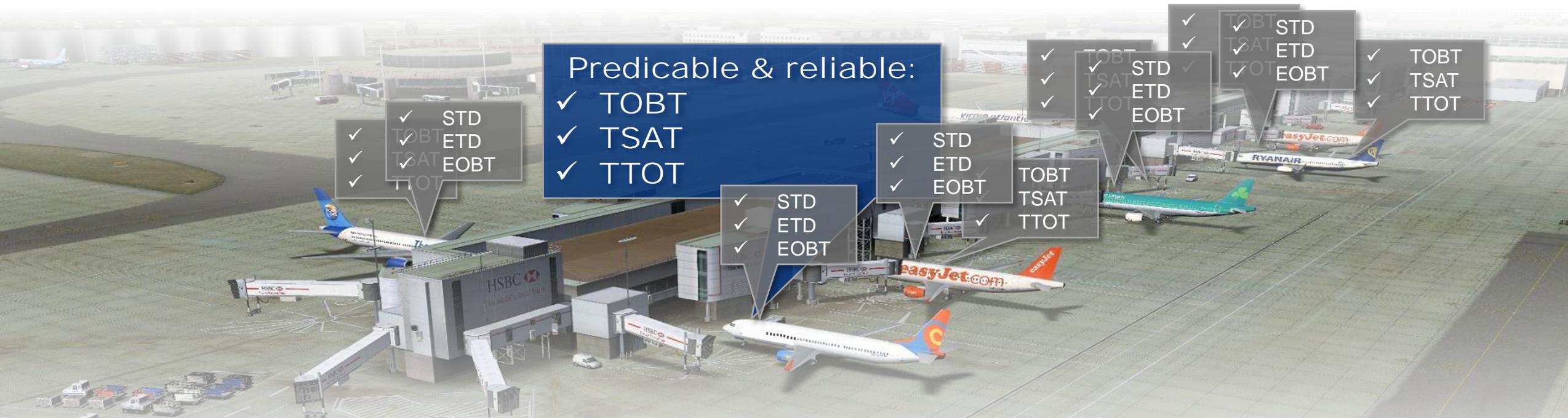
- **Objectives:**
 - Increase information sharing, predictability, capacity, and utilization of resources
 - Lowering fuel consumption and costs
- **Scope:**
 - Implement A-CDM procedures and supporting system to facilitate all stakeholder at the airport
- **Stakeholders:**
 - Airport Authority of Hong Kong
 - Civil Aviation Department
 - All airlines & ground handling agents
 - The solution provider
- **Time plan:**
 - Start Q1 2016
 - Implementation with trials Q3 2017



SCOPE THE HKIA A-CDM IMPLEMENTATION



CHALLENGE #1 – CHANGE IN PROCEDURES



Predicable & reliable:

- ✓ TOBT
- ✓ TSAT
- ✓ TTOT

- ✓ STD
- ✓ ETD
- ✓ EOBT

- ✓ STD
- ✓ ETD
- ✓ EOBT

- ✓ STD
- ✓ ETD
- ✓ EOBT

- ✓ TOBT
- ✓ TSAT
- ✓ TTOT

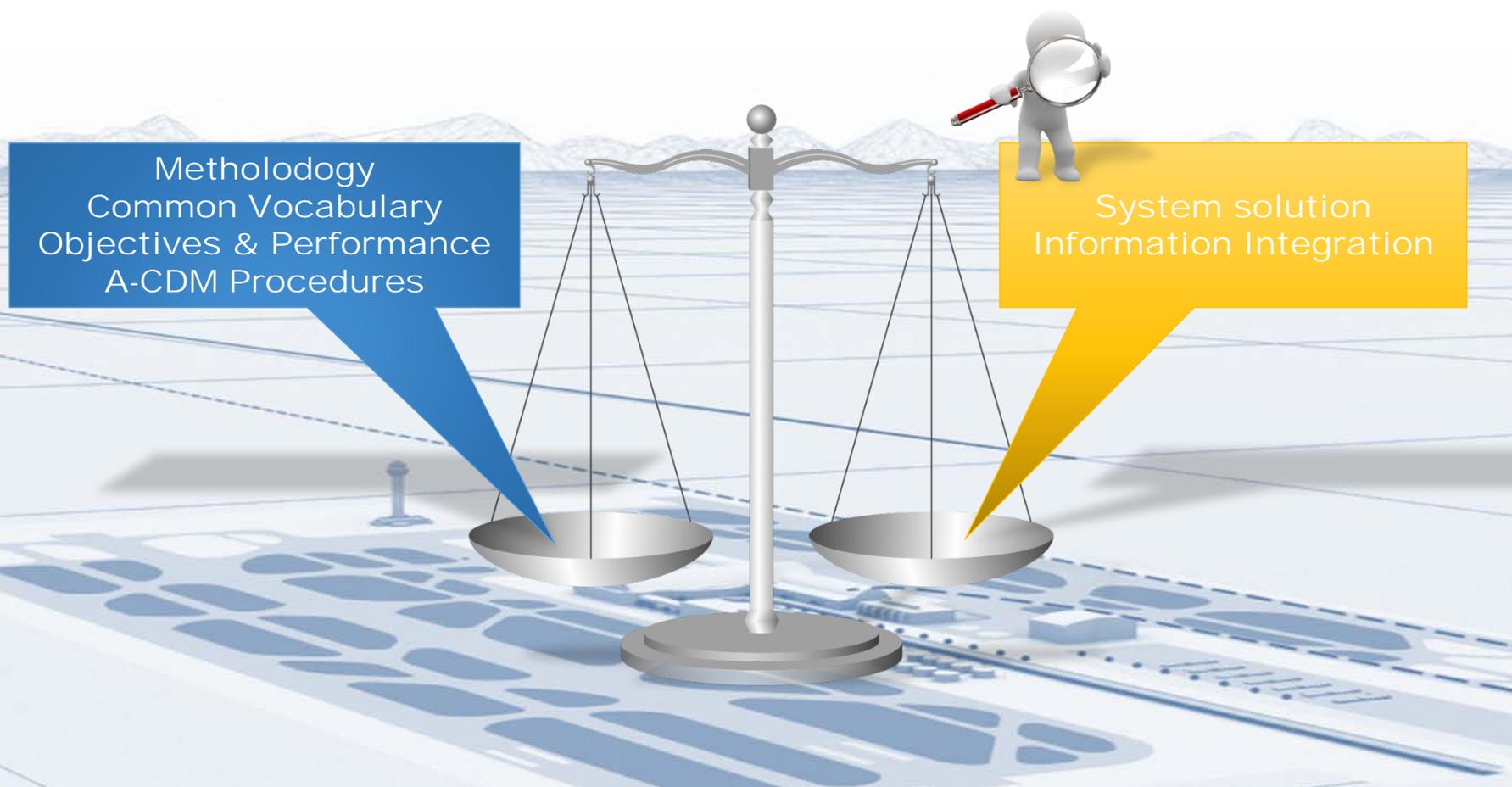
- ✓ STD
- ✓ ETD
- ✓ EOBT

- ✓ STD
- ✓ ETD
- ✓ EOBT

- ✓ TOBT
- ✓ TSAT
- ✓ TTOT

- ✓ Move away from the "FIRST COME FIRST SERVED" to "BEST PLANNED BEST SERVED" = Adherence to TOBT and TSAT
- ✓ Integration with ATFM = Better airport information for better capacity balancing

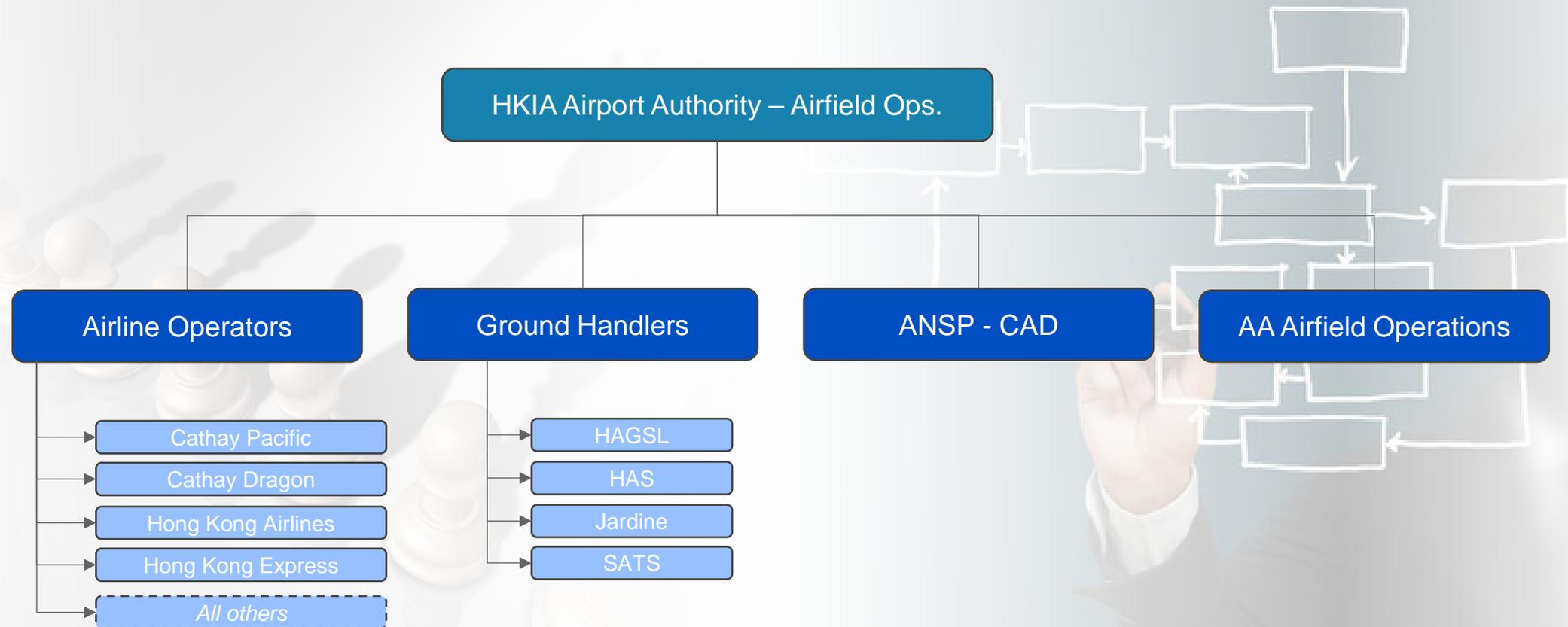
CHALLENGE #2 - BALANCED APPROACH TO A-CDM



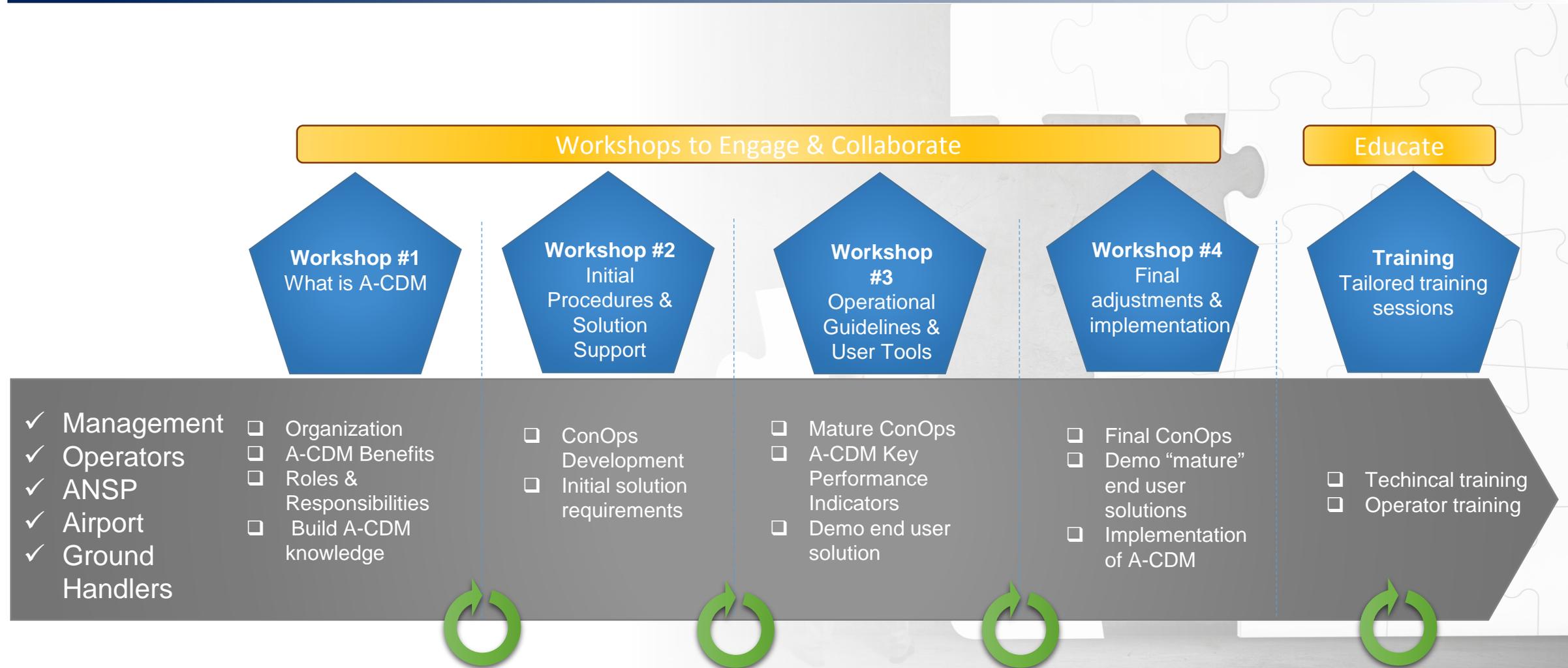
Methology
Common Vocabulary
Objectives & Performance
A-CDM Procedures

System solution
Information Integration

PART OF THE SOLUTION ORGANISATION AND LEADERSHIP



PART OF THE SOLUTION - AGILE METHODOLOGY

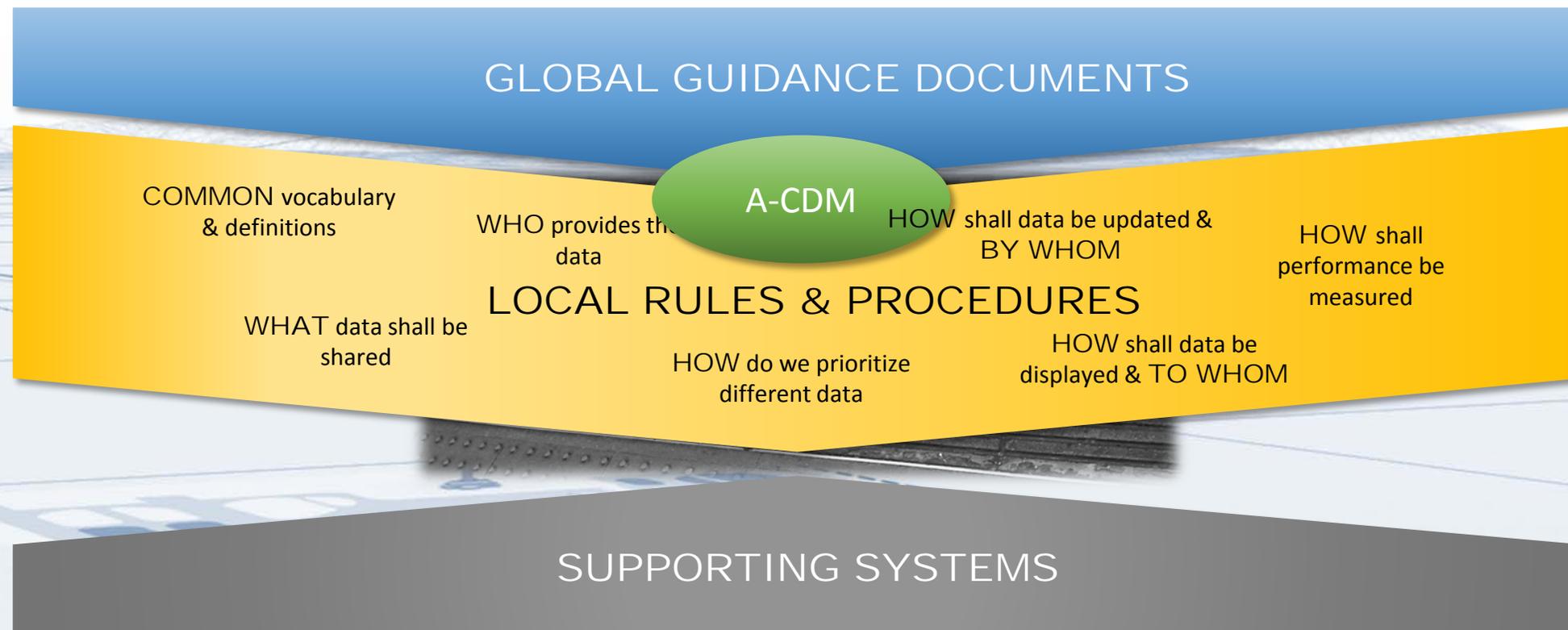


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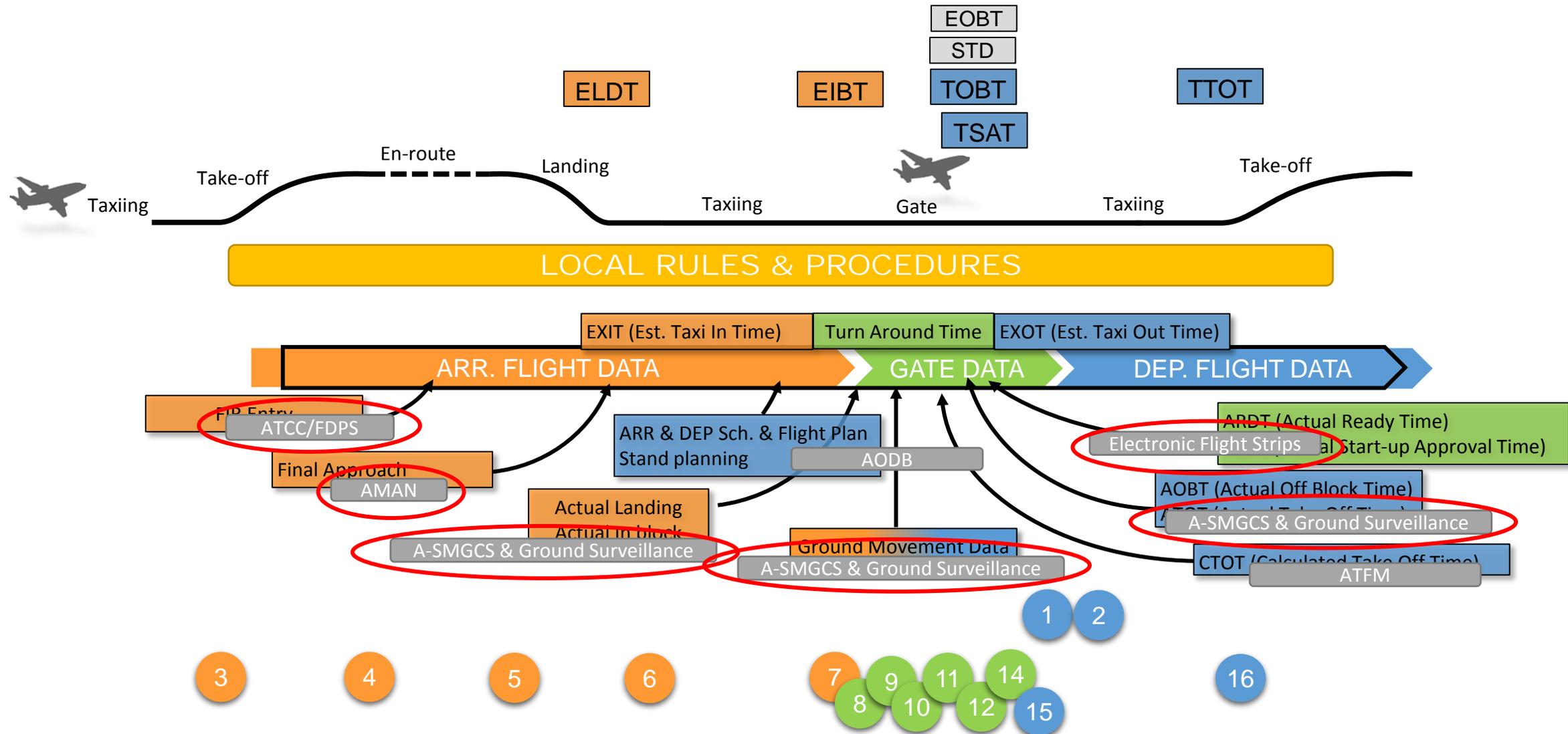
PROCEDURES – THE DEVIL IS IN THE DETAILS



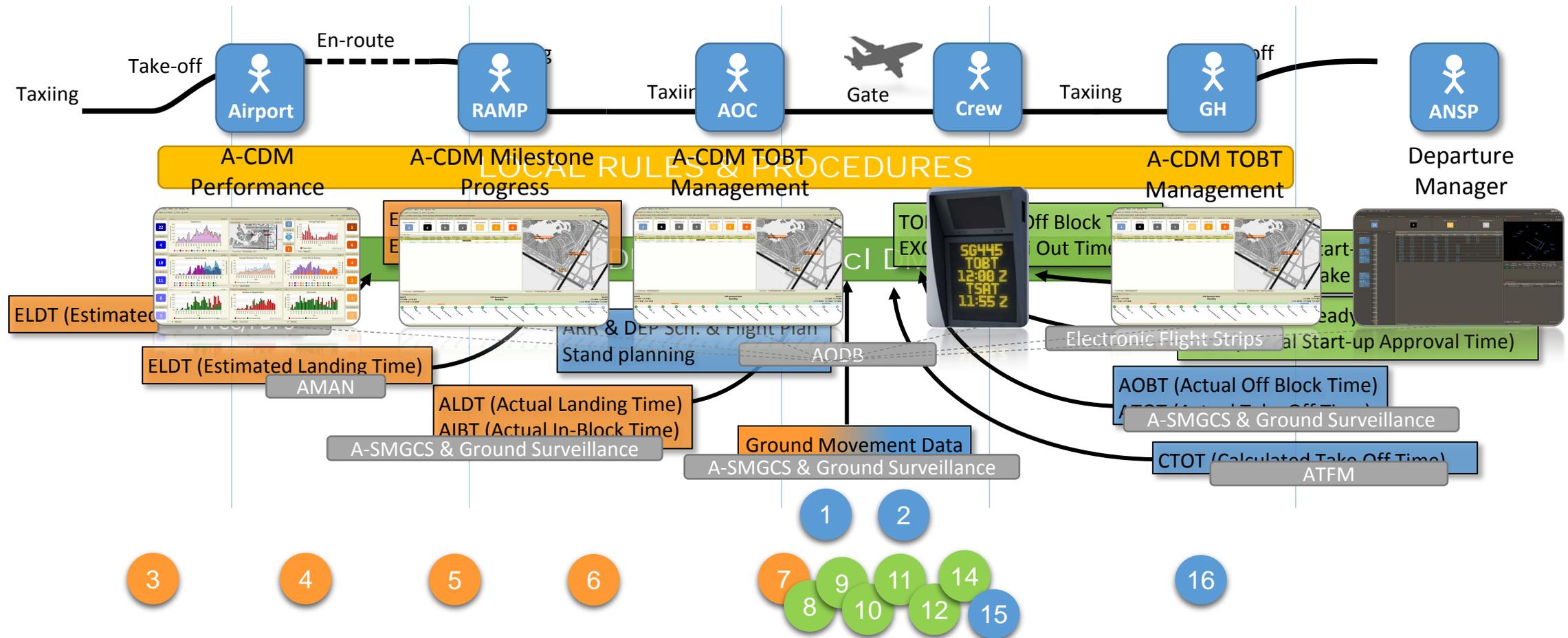
PROCEDURES → INFORMATION → USER TOOLS



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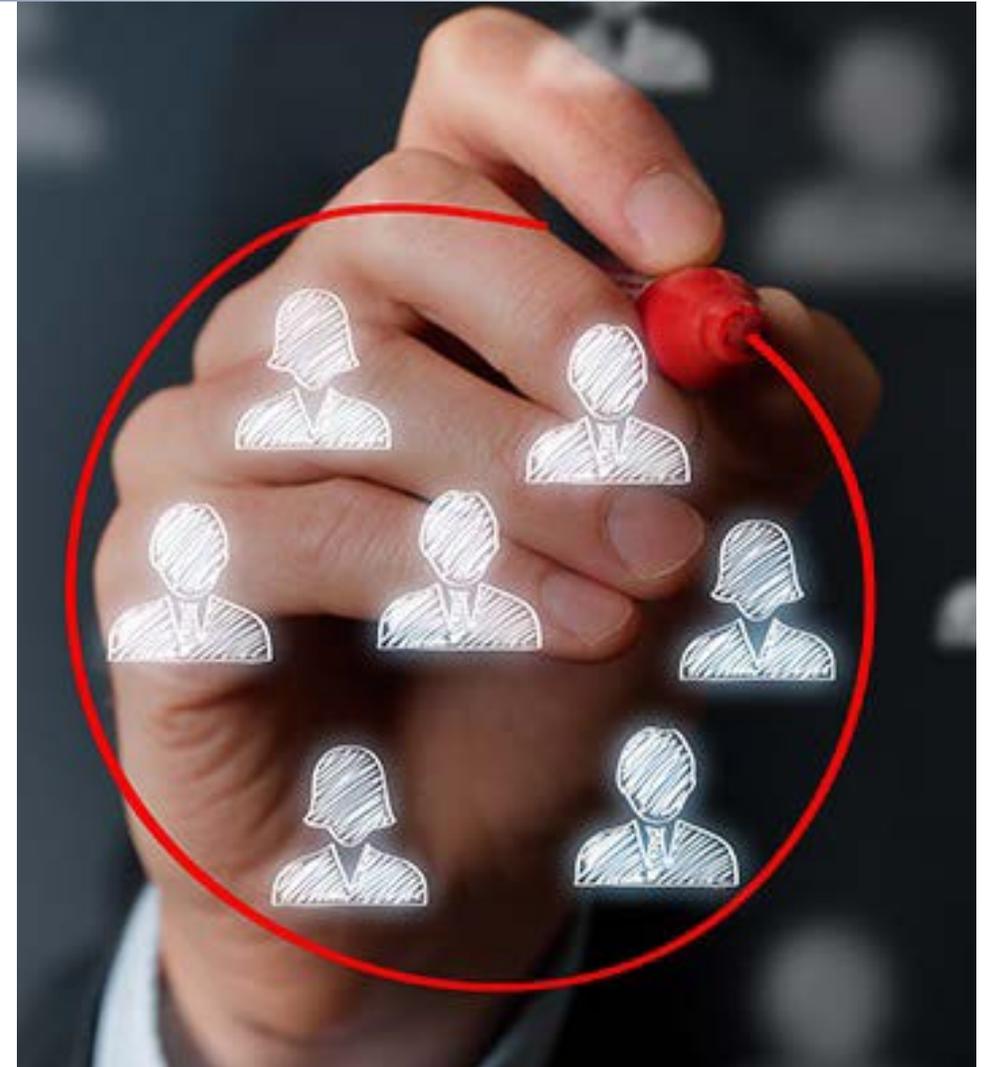
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PROCEDURES → INFORMATION → USER TOOLS

- Airport Authority
 - To monitor the overall A-CDM process and analyze the KPIs defined for the A-CDM implementation
- CAD
 - TWR/Watch supervisor
 - Set the PDS configuration parameters
 - Monitor the departure flow
 - Clearance Delivery
 - Manage the “Ready” and TSAT communications with pilot prior to the hand over to the Ground Controller
 - Ground
 - Manage startup and pushback approvals based upon TSAT
- Airline or Ground Handlers
 - Manage TOBTs
 - To monitor the overall A-CDM process



FLEXIBLE USER INTERFACE

- Tools for presenting information and collaborating:

- Lists

- Counters

- Timeline

- Flight Details

- Milestone presentation

- Graphs (real time and statistics)

- Multi purpose Map Display

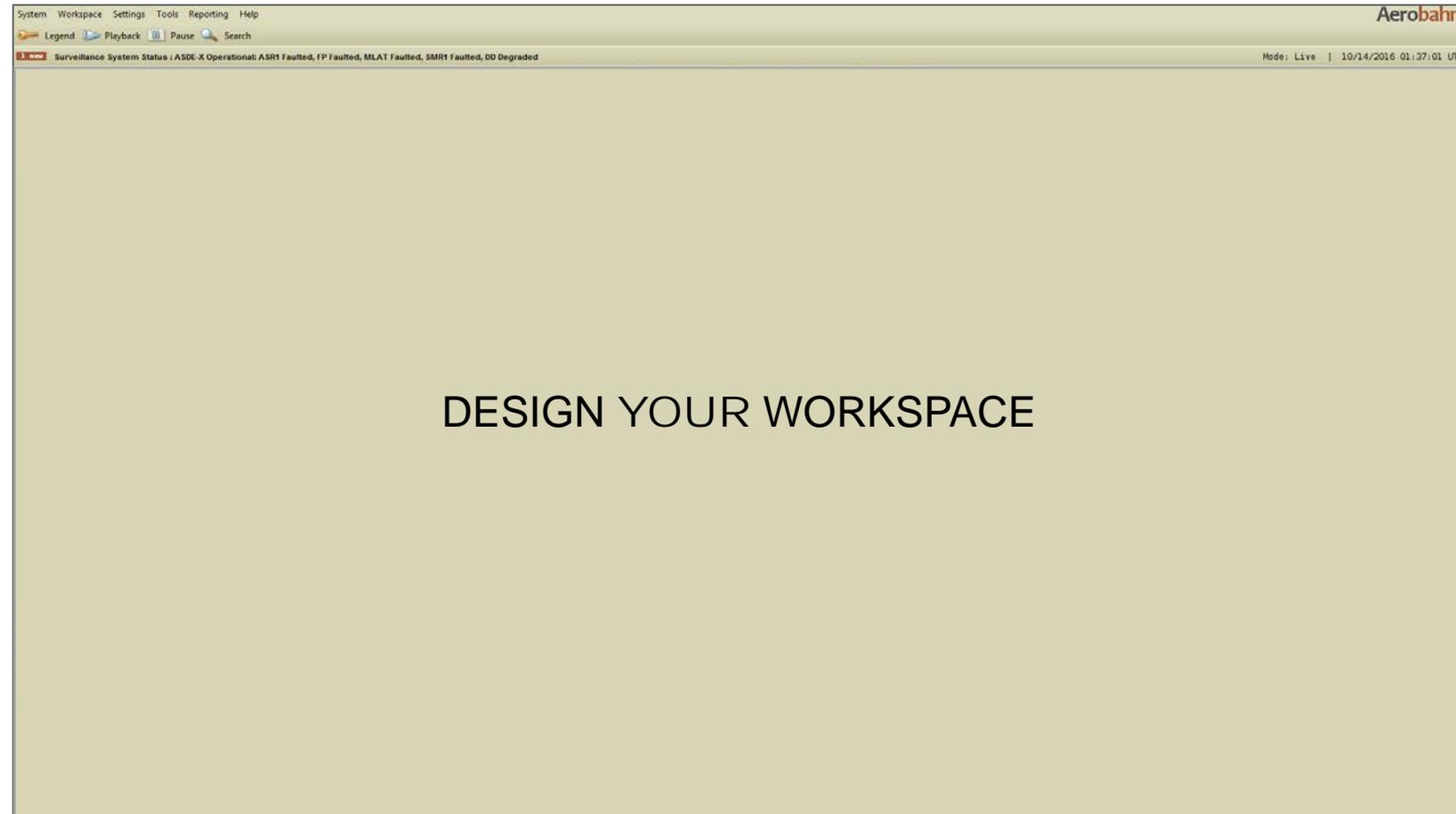
- Configuration parameters

- Web page display

- Chat tool

- Integration with ATC Voice

- ...and more



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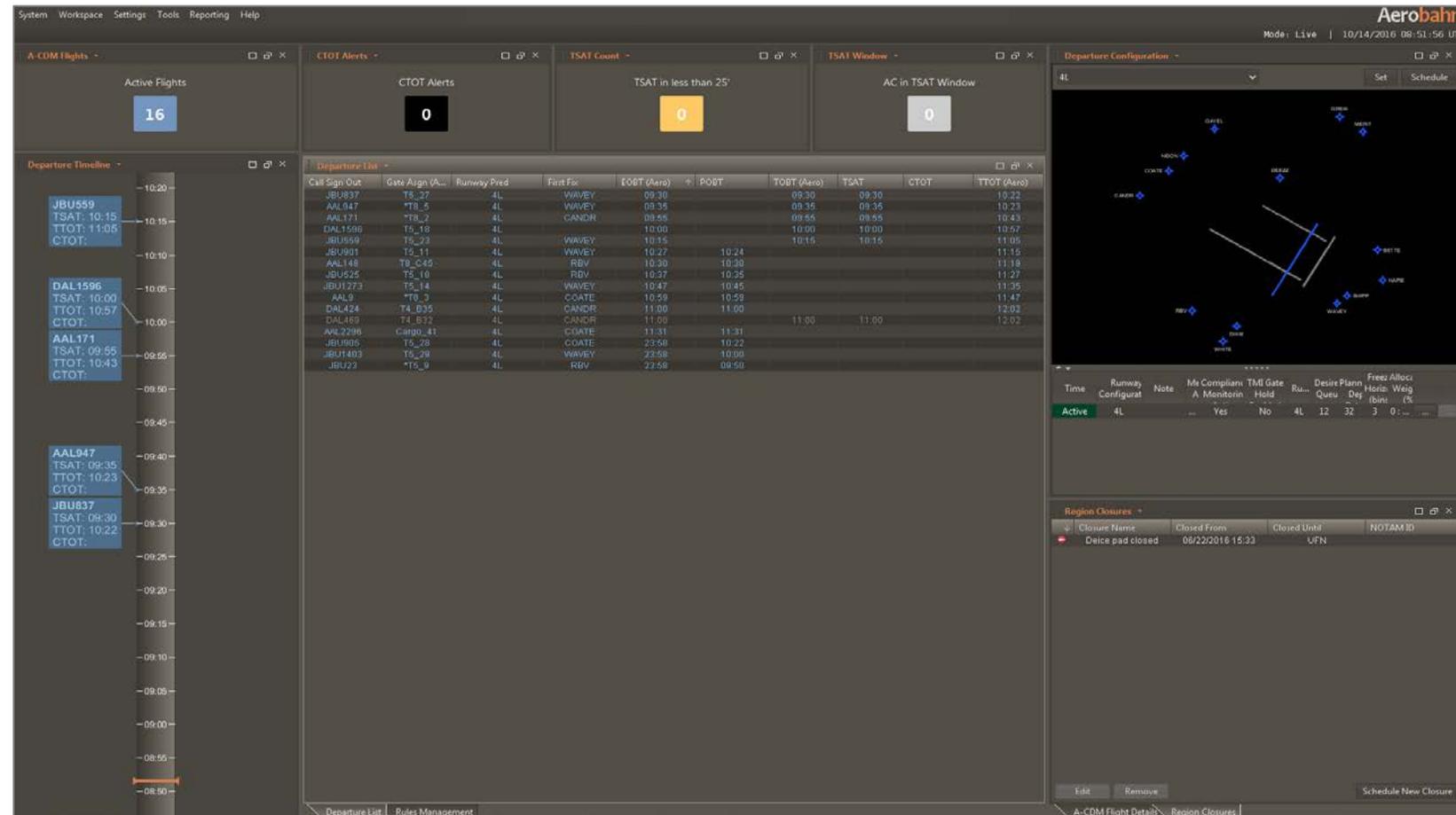
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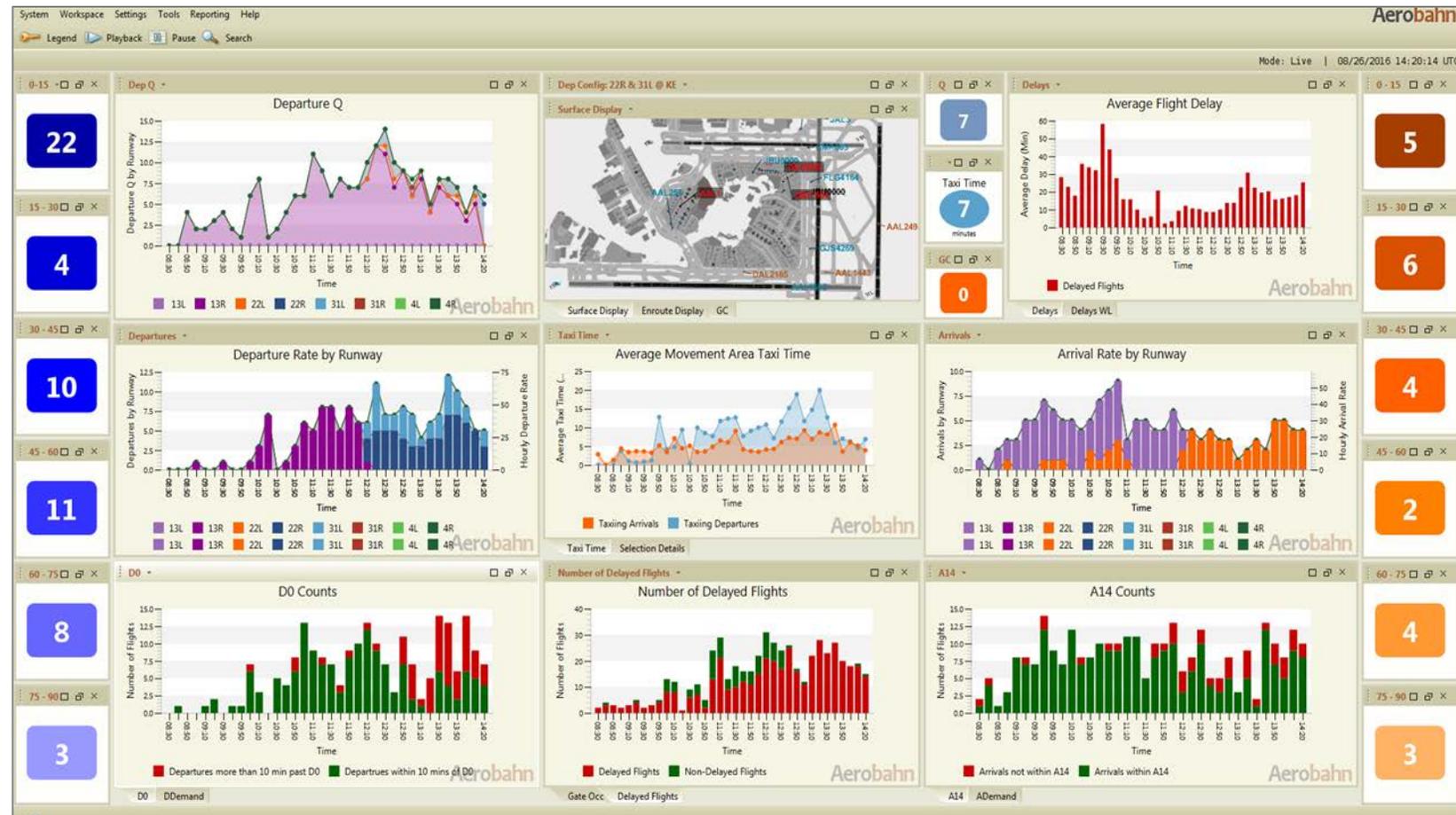
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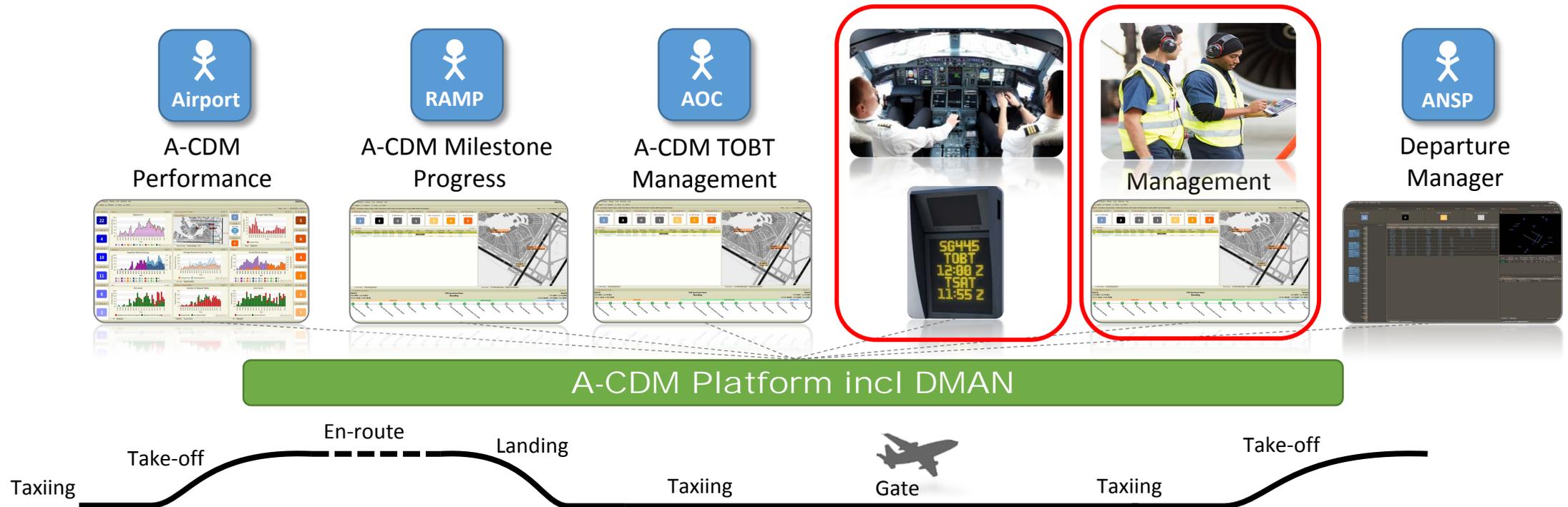
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PROCEDURES → INFORMATION → USER TOOLS



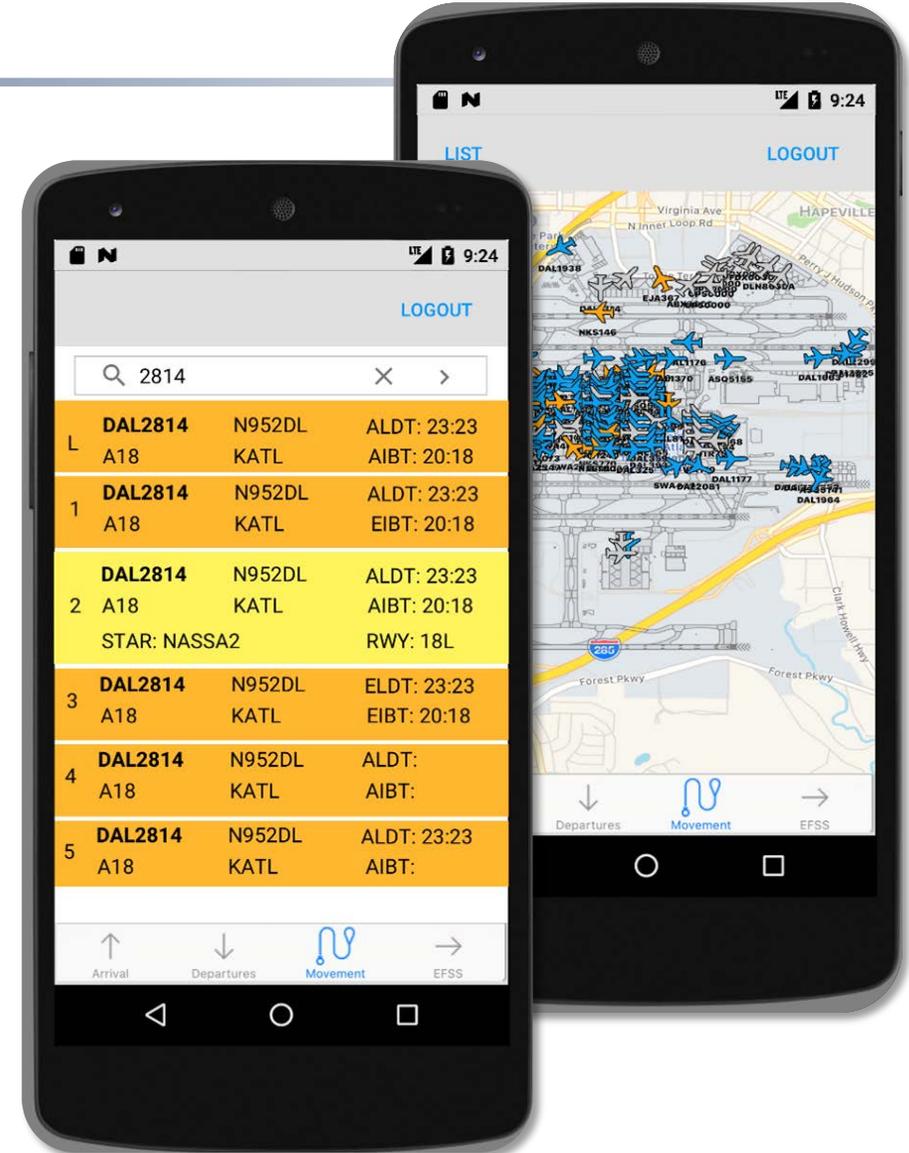
MOBILE APPS



Manage TOBT inputs



A-CDM Information



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TRAINING & TRIALS

- A-CDM = changes in procedures = impact on the airlines, ground handlers, ANSP, and the airport operator
- At Hong Kong the approach was:

Workshops during the development of the ConOps and system

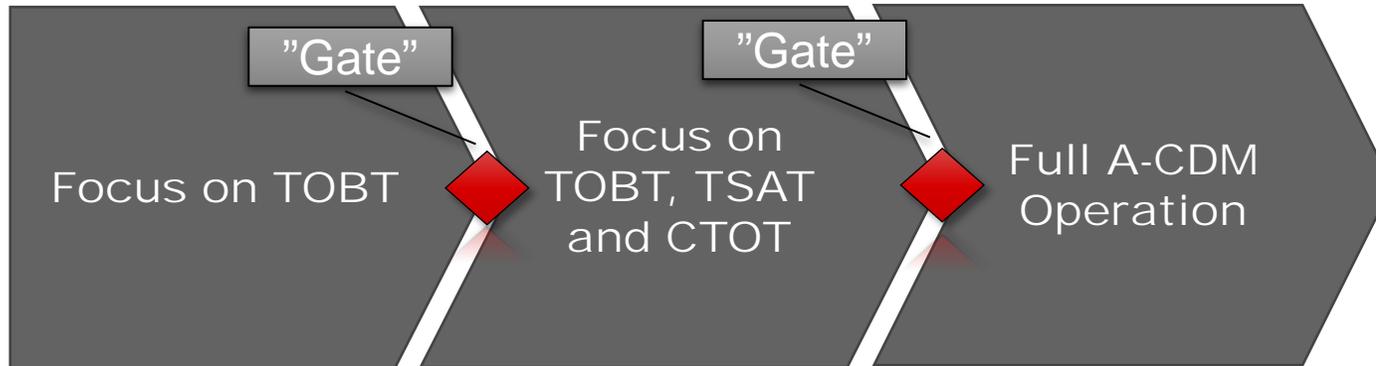
Training for all stakeholders – Training sessions for over 500 users

Over-the-Shoulder” support/training during the roll out

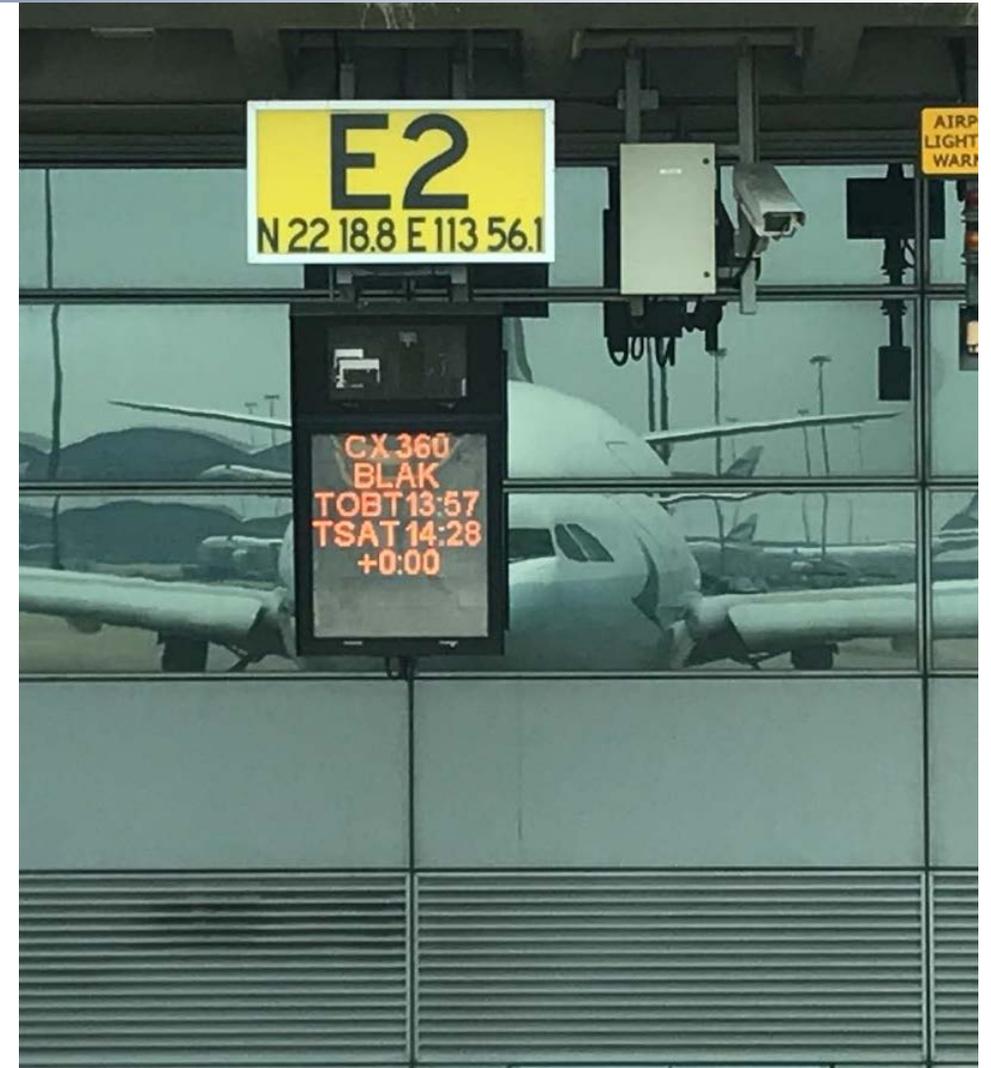


TRAINING & TRIALS

- Trials are a vital part of the A-CDM implementation
 - Getting used to managing TOBTs and TSAT will take time!
- Phased approach at HKIA



- Let the trials take the time needed!

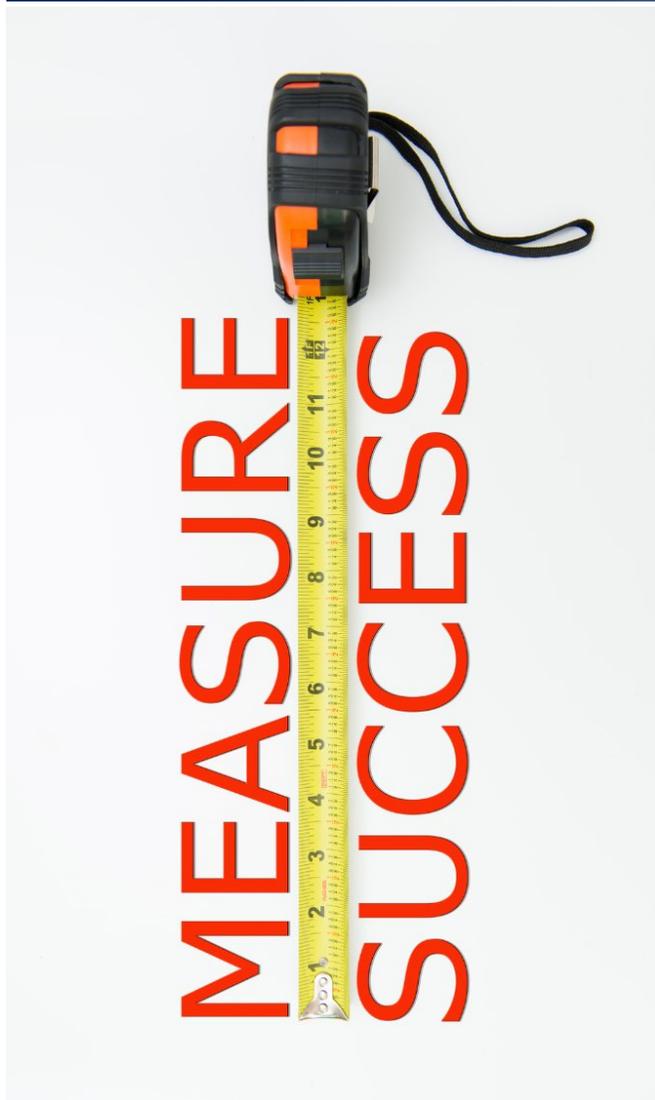


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MEASURE YOUR WAY TO SUCCESS



- The result of an A-CDM implementation cannot be evaluated without a **framework** for measuring Key Performance Indicators

PERFORMANCE FRAMEWORK	Strategic objective <i>What we want to achieve</i>		
	Key Performance Indicators <i>The means of achieving the strategic objective</i>		
	Performance driver <i>How we can achieve our objective</i>	Performance indicator <i>What we get from the measurement</i>	Performance measurement <i>How we measure each indicator</i>

- HKIA has a collaborative approach to:
 - Establishing **STRATEGIC OBJECTIVES** that A-CDM shall contribute to
 - Establishing related **KEY PERFORMANCE INDICATORS**
 - **Disseminating and evaluating results and assess how to improve!**

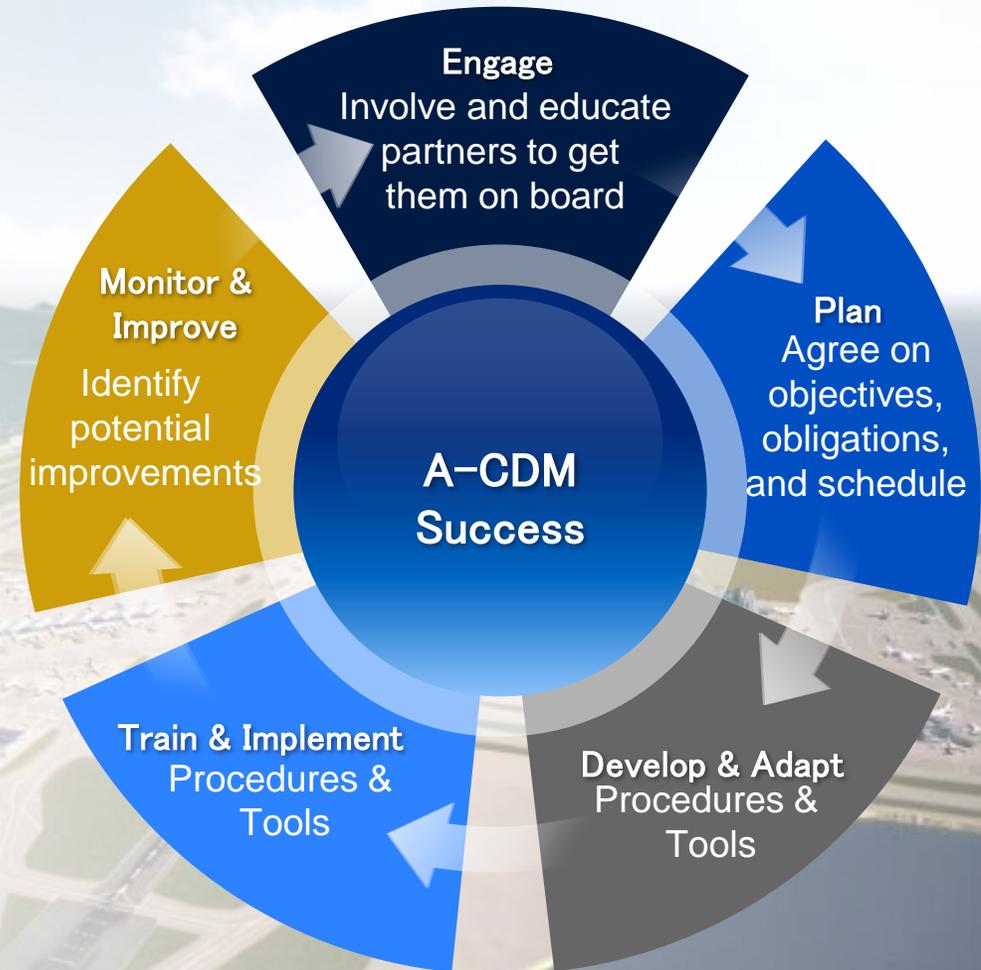
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ROAD TO SUCCESS

- Work collectively with all stakeholder from the start
- Define the operational concept through collaboration and how they impact the overall airport system as well as the stakeholders.
- Do benchmarking of “as-is” and define clear objectives of what shall be achieved collectively and by each participant
- Allow for agile development of tools that involves the users
- Training, training, training!!!
- Do trials during implementation and validate the results!
- A-CDM success is an on-going process



THANK YOU FOR
YOUR ATTENTION!



香港國際機場 | HONG KONG INTERNATIONAL AIRPORT

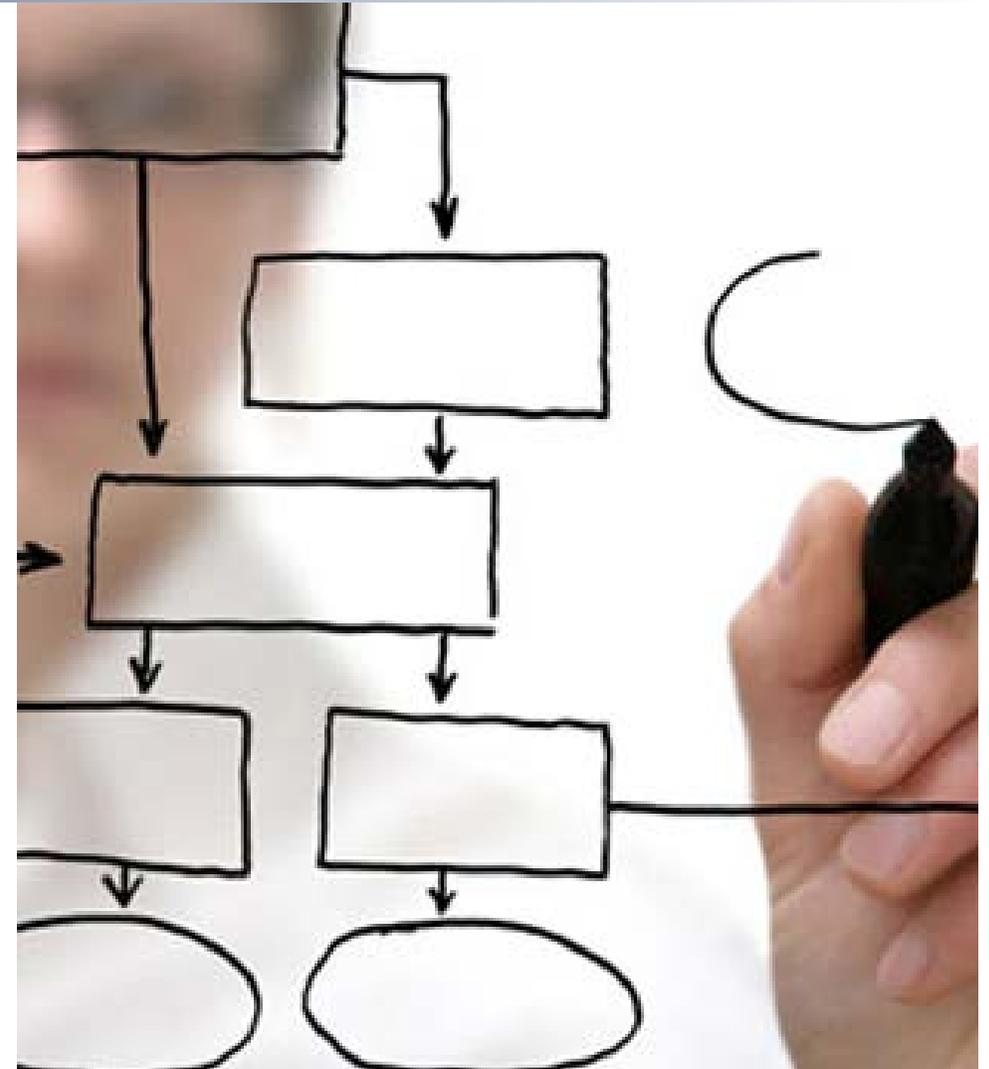
AIRPORT
CDM 

- Performance by collaboration

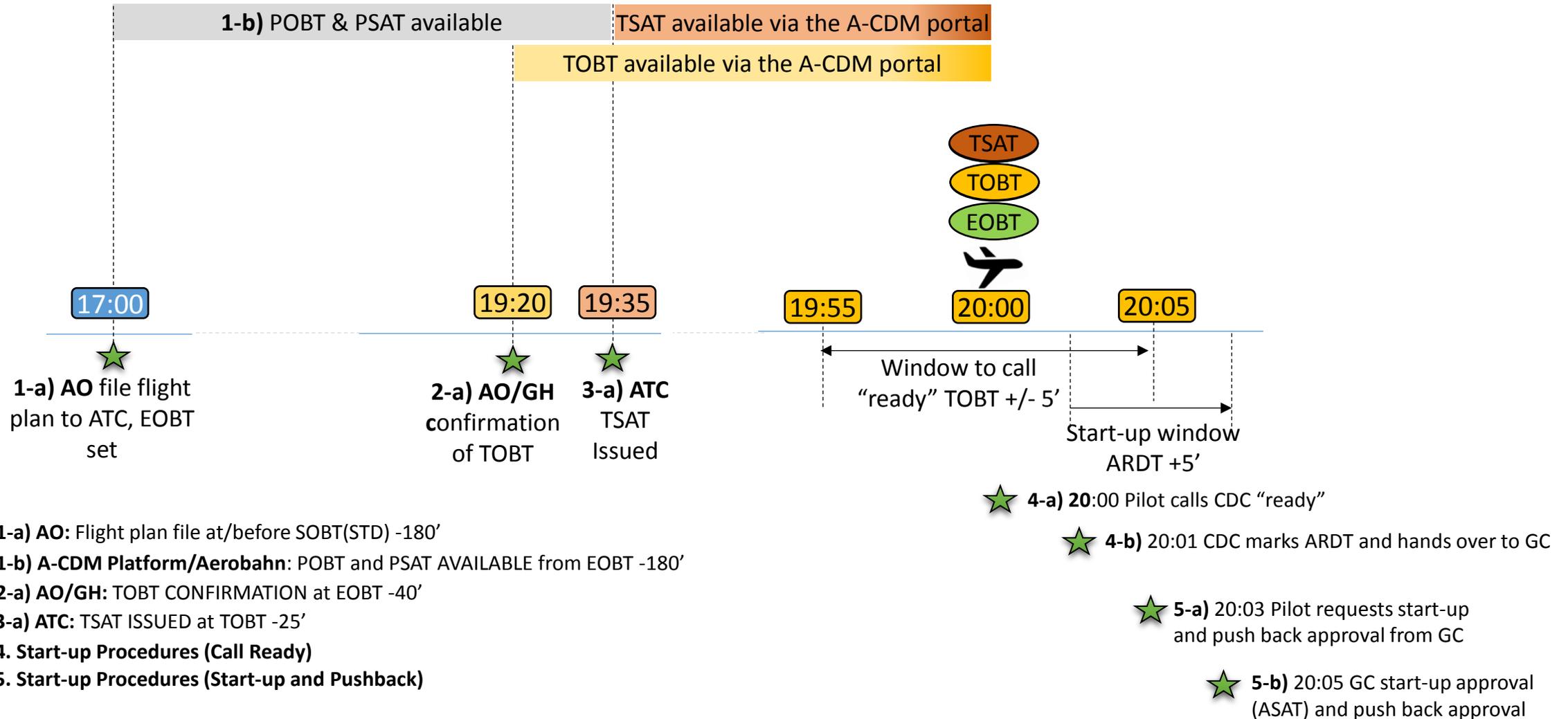
OPERATIONS GUIDELINES - USE CASES

To better understand the Operations Guidelines we will discuss the following use cases:

- NORMAL CASE
- DELAY CASE due to other reasons
 - In the scenario we use a “passenger delay” as the example but this can be applied to any delay reason like mechanical etc.
- FLOW CONTROL (CTOT ALLOCATION)
 - Alternative 1 - No adjustment of TOBT
 - Alternative 2 - Adjusting TOBT to delay turn around procedures e.g., boarding



TOBT AND TSAT EXAMPLE (NORMAL CASE)



1-a) AO: Flight plan file at/before SOBT(STD) -180'

1-b) A-CDM Platform/Aerobahn: POBT and PSAT AVAILABLE from EOBT -180'

2-a) AO/GH: TOBT CONFIRMATION at EOBT -40'

3-a) ATC: TSAT ISSUED at TOBT -25'

4. Start-up Procedures (Call Ready)

5. Start-up Procedures (Start-up and Pushback)

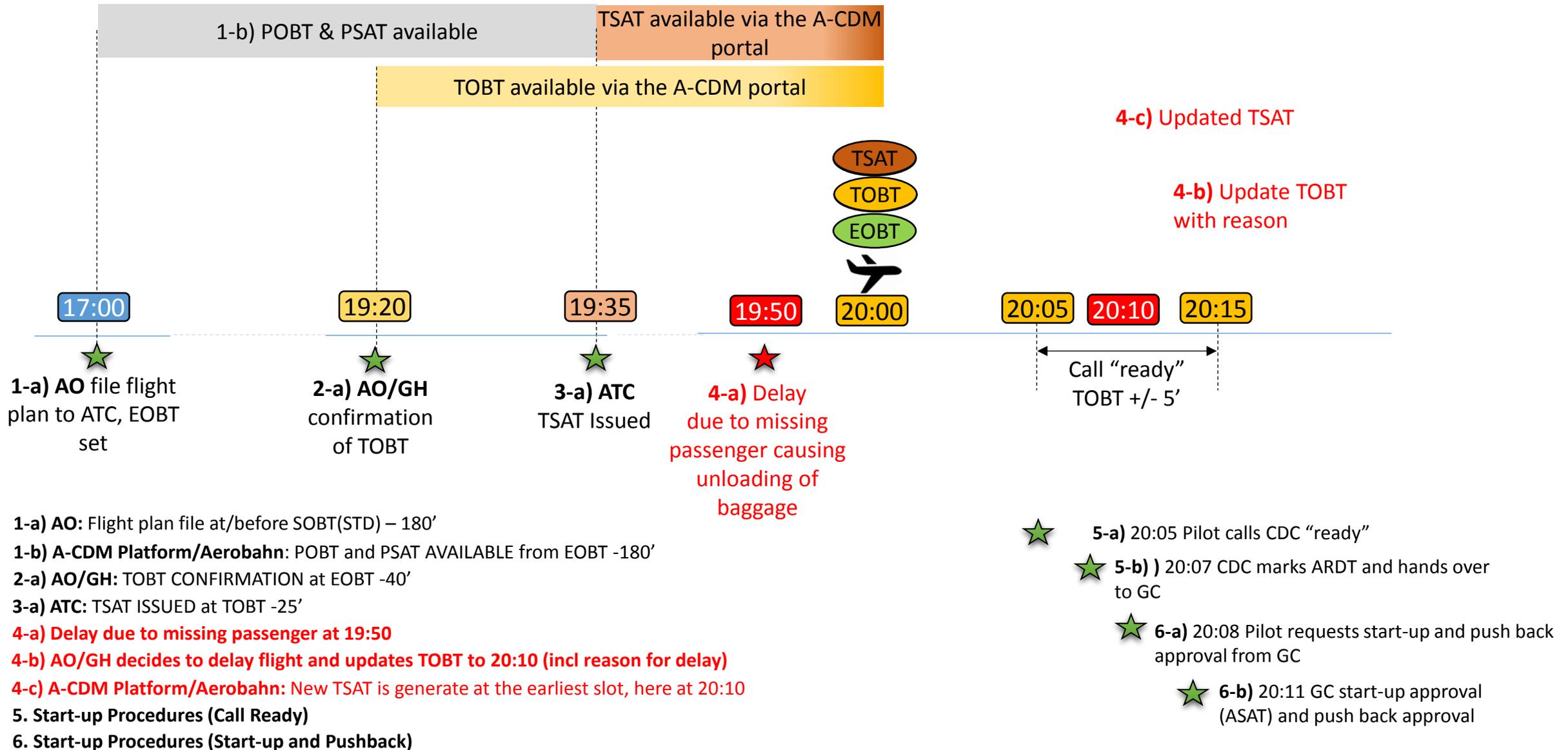
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- REGULATED FLIGHT (CTOT ALLOCATION)
 - Alternative 1 - No adjustment of TOBT
 - Alternative 2 - Adjusting TOBT to delay turn around procedures e.g., boarding



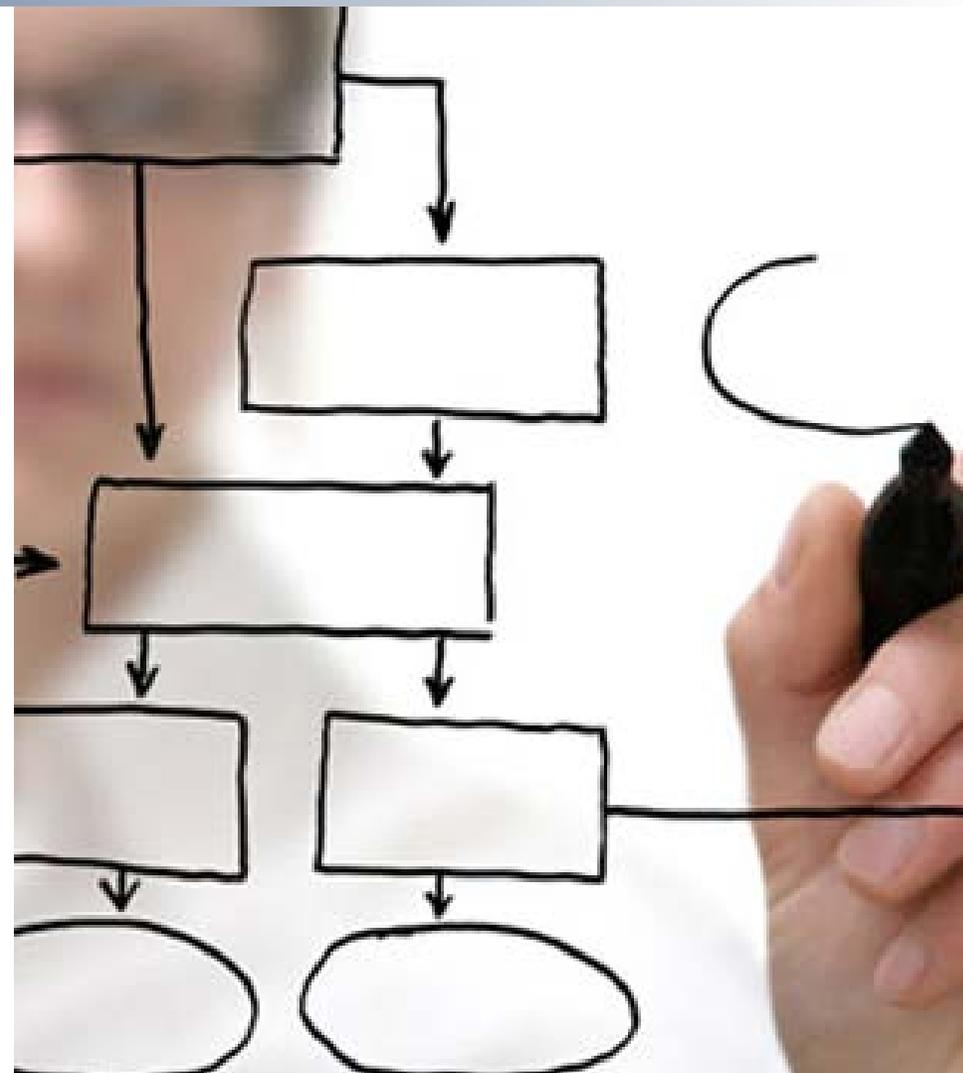
AD-HOC DELAY (IN THIS SCENARIO, DUE TO MISSING PASSENGER)



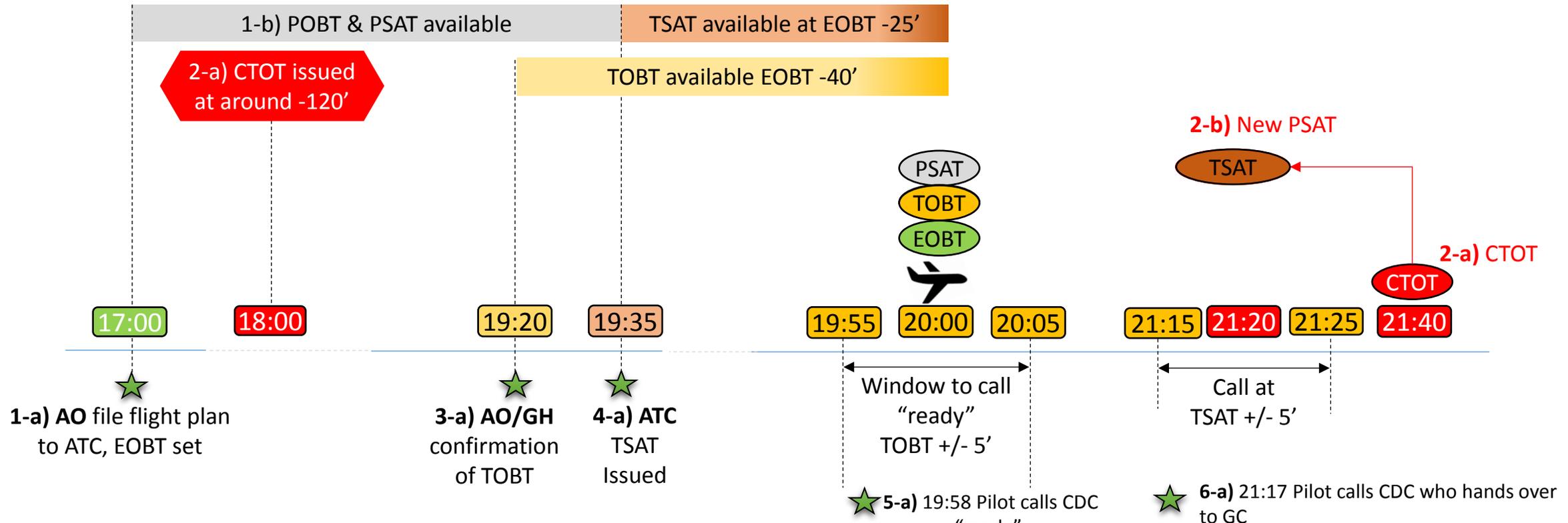
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FLOW CONTROL (CTOT ALLOCATION) – ALTERNATIVE 1



1-a) AO: Flight plan file at/before SOBT(STD) – 180'

1-b) A-CDM Platform/Aerobahn: POBT and PSAT AVAILABLE from EOBT -180'

2-a) ATC: CTOT ISSUED at around EOBT -120'

2-b) A-CDM Platform/Aerobahn: New PSAT that is PSAT = [CTOT – EXOT –5'] (@21:20)

3-a) AO/GH: TOBT CONFIRMATION at EOBT -40'

4-a) ATC: TSAT ISSUED at TOBT -25'

5. Start-up Procedures (Call Ready)

6. Start-up Procedures (Start-up and Pushback)

5-a) 19:58 Pilot calls CDC "ready"

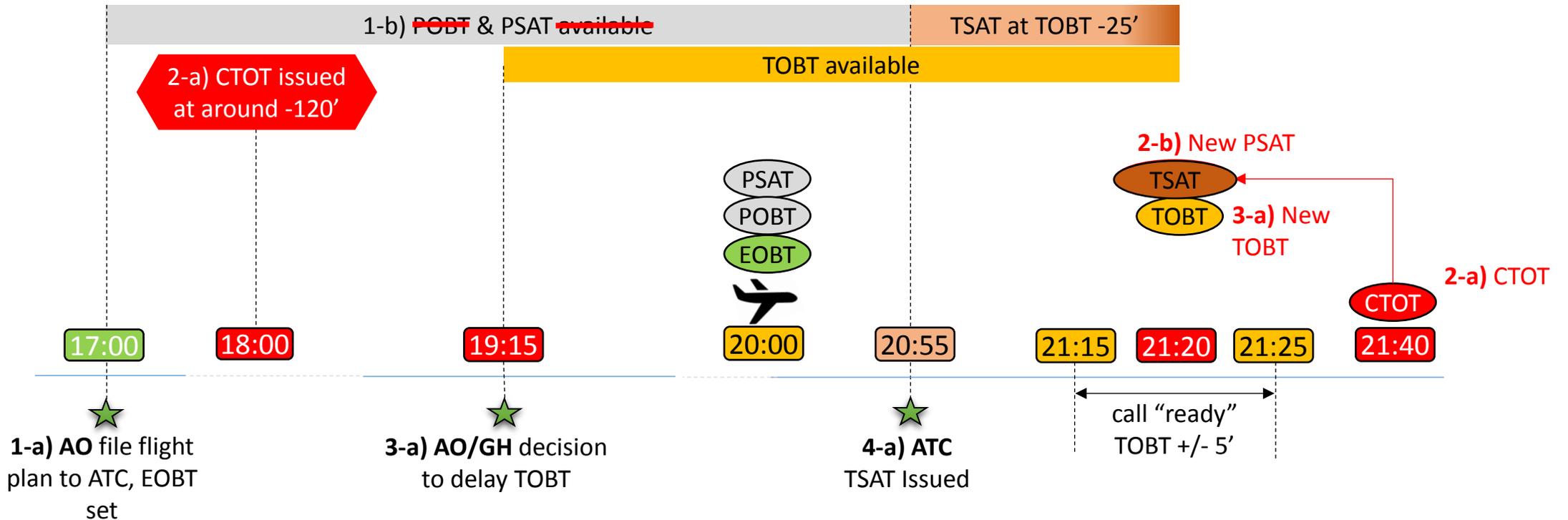
5-b) CDC marks ARDT and instructs pilot to call back at TSAT time.

6-a) 21:17 Pilot calls CDC who hands over to GC

6-b) 21:20 Pilot requests start-up and push back approval from GC

6-c) 21:20 GC start-up approval (ASAT) and push back approval

FLOW CONTROL (CTOT ALLOCATION) – ALTERNATIVE 2



1-a) AO: Flight plan file at/before SOBT(STD) – 180'

1-b) A-CDM Platform/Aerobahn: POBT and PSAT AVAILABLE from EOBT -180'

2-a) ATC: CTOT ISSUED at around EOBT -120'

2-b) A-CDM Platform/Aerobahn: New PSAT that is $PSAT = [CTOT - EXOT - 5']$ (@21:20)

3-a) AO/GH: Decision to delay by inputting TOBT at 19:15. The POBT is deleted

4-a) ATC: TSAT ISSUED at TOBT -25'

5. Start-up Procedures (Call Ready)

6. Start-up Procedures (Start-up and Pushback)

★ 5-a) 21:15 Pilot calls CDC "ready"

★ 5-b) 21:16 CDC marks ARDT and hands over to GC

★ 6-a) 21:18 Pilot requests start-up and push back approval from GC

★ 6-b) 21:20 GC start-up approval (ASAT) and push back approval