

Regional Focus



CANSO/ACI Asia-Pacific ATFM/A-CDM Integration Workshop

Wednesday 02 June 2021, 06:00-09:30 UTC

Thursday 03 June 2021, 06:00-09:00 UTC

Welcome Remarks



Mr. Hai Eng Chiang

Director Asia Pacific Affairs

CANSO

Welcome Remarks



Mr. Stefano Baronci

Director General

ACI Asia-Pacific

Regional Focus



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Wednesday 02 June 2021, 06:00-09:30 UTC

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Setting the Scene for ATFM Section



**Mr. Sugoon (Kin)
Fucharoen**

Co-Chair CANSO ATFM/A-CDM
Workgroup

AEROTHAI



Mr. Stuart Ratcliffe

CANSO ATFM/A-CDM
Workgroup Co-Chair
Metron Aviation



Mr. Simon Cheoh

Senior ATC Manager (ATM
Development)
CAAS



Mr. Shane Sumner

Regional Officer (ATM)
ICAO Asia Pacific Office



Mr. Stuart Ratcliffe

Co-Chair CANSO ATFM/A-CDM
Workgroup

Principal SME: ATFM/CDM
Metron Aviation

Regional Focus

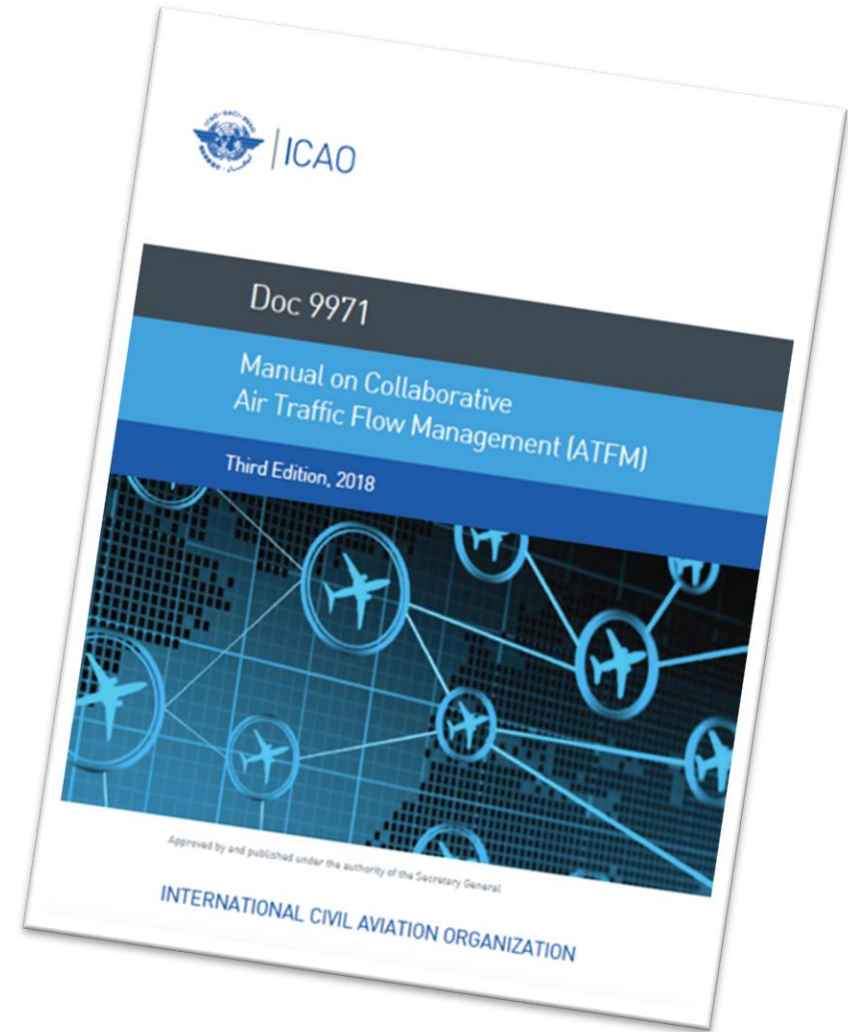


Summary of ATFM

What Is ATFM?

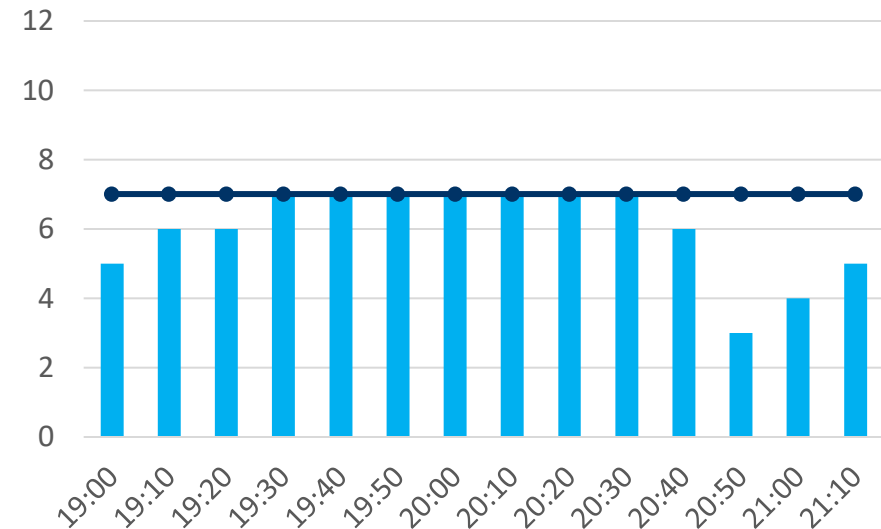
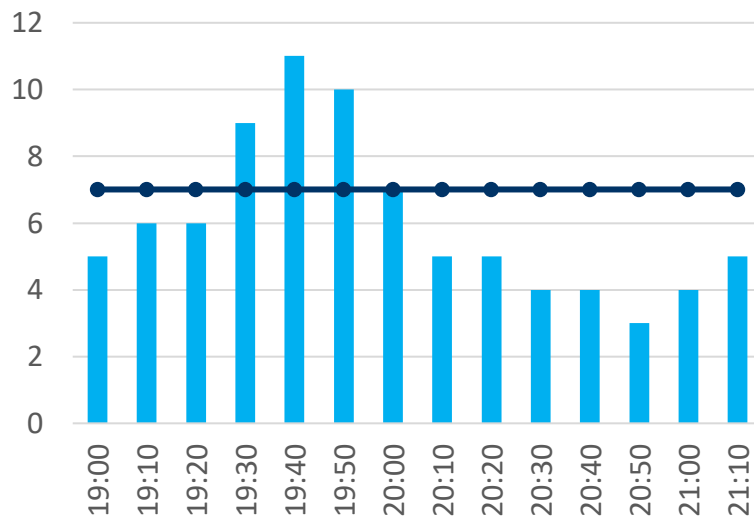
A service to facilitate the safe, orderly and expeditious flow of air traffic by not only ensuring that **ATC capacity is optimized** and utilized to the maximum extent possible, but also allowing the **traffic demand to be compatible with ATC capacity**

*ICAO Doc 9971, 3rd Ed.
Part II, Chapter 1, Para. 1.2.3, Pg. II-1-1*



What Is ATFM?

ATFM is used to **manage traffic flow** in ways that **minimizes delays** **and maximizes airports and airspace use**. ATFM works by managing times, flow rates, routes, or flight profiles to address disruptions or capacity overflows.



ATFM Objectives



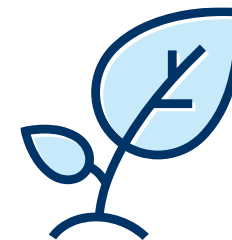
Balance air traffic capacity and demand



Increase ATM efficiency & effectiveness



Improve situational awareness, predictability, and cost-efficiency



Enhance environmental sustainability

**Air Traffic
Flow
Management
(ATFM)**

CDM and ATFM

Collaborative Decision Making



Open exchange of operational information
among stakeholders



Common & accurate view of demand and
system constraints



**Improved ATM performance, while
balancing the needs of ATM members**



When: ATFM Phases

	Strategic ATFM	Pre-Tactical ATFM	Tactical ATFM	Post-Ops Analysis
Why	To forecast situation and create long-term plan	To update traffic demand and update ATFM plan	To balance traffic demand and capacity with ATFM measures	To measure, investigate, and report on ATFM activities
When	Months before operations	Greater than 1 day(s) before operations	Day of operations	Post-operations
What	Strategic / Initial ATFM Plan	ATFM Daily Plan (ADP)	Executed ATFM measures and balanced demand/capacity	Quantitative and qualitative analysis of operational results based on ADP

How: ATFM Functional Flow

ATFM Stakeholders



ANSP



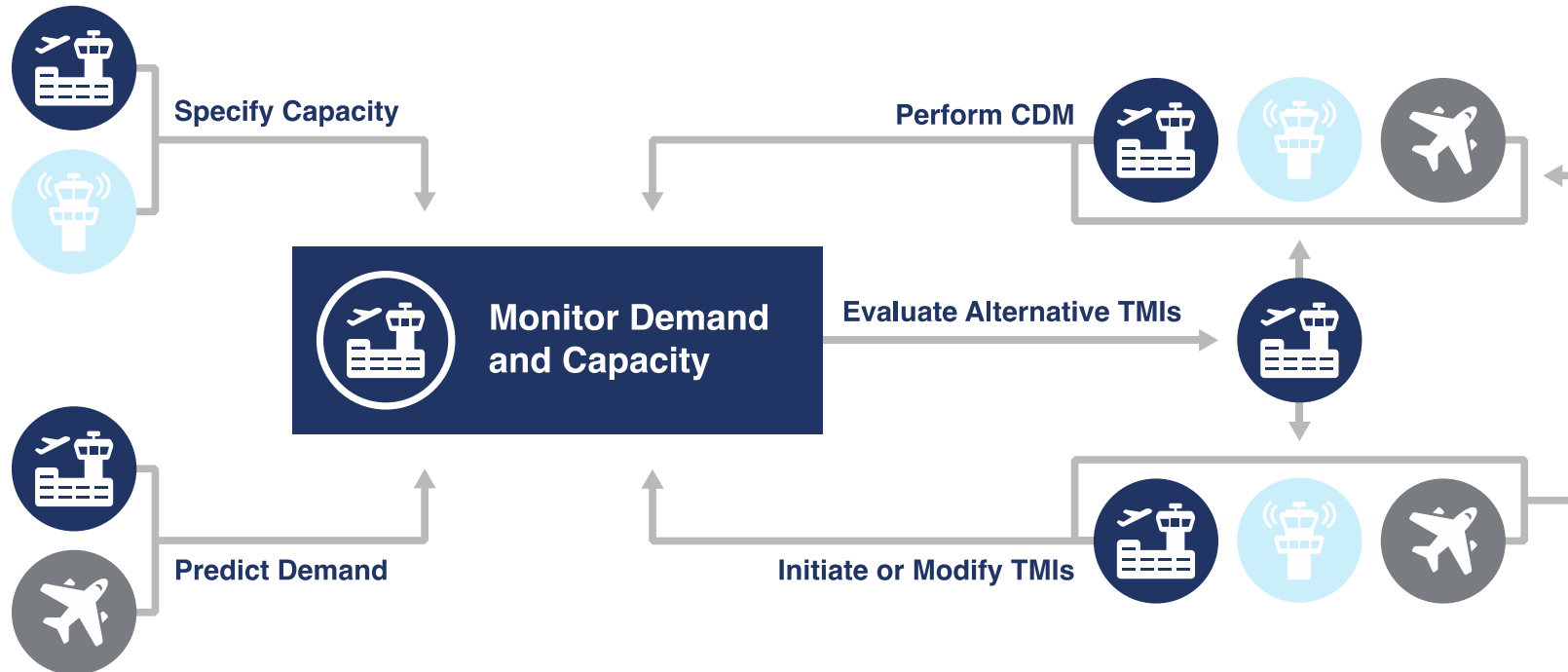
Airports



Aircraft Operator



Common Situational Awareness



Report Metrics and Analyze Performance

(Real-Time and Post-Events)



Roles & Responsibilities: ATFMU/FMP



Information Gathering

- Gather information from:
 - ATC Units
 - Domestic/Regional
 - AUs
 - Weather
 - Military
 - Airport Authorities

ATFM Daily Plan

- Collaborate
- Create
- Distribute
- Execute
- Amend

Demand and Capacity Balancing

- Monitor demand & capacity
- Collaborate with stakeholders
- Implement ATFM Solutions
- Lead CDM teleconferences
- Conduct post-ops analysis

Roles & Responsibilities: Airspace User



Airlines	Military	Business	Sport
<ul style="list-style-type: none">• Update airport slots• File RPLs / FPLs• Send updates to FPL• Participate in CDM teleconferences• Swap CTOTs• Participate in post-ops analysis	<ul style="list-style-type: none">• Communicate military exercises• Participate in CDM FUA• Coordinate VIP movement (as appropriate)	<ul style="list-style-type: none">• File FPLs• Update FPL• Participate in teleconferences• Participate in CDM	<ul style="list-style-type: none">• Coordinate airshows FUA CDM

Roles & Responsibilities: ATC



ATC

- Participate in CDM teleconferences
- Declare airspace and airport capacity
 - Nominal
 - Dynamic
- Monitor resources
- Comply with ADP
- Participate in post-ops analysis

Roles & Responsibilities: Airport Authority



Airport Authority

- Participate in CDM teleconferences to inform:
 - Maintenance
 - Snow clearing
 - RWY inspections
 - Unusual operational conditions
- Participate in post-ops analysis (as necessary)

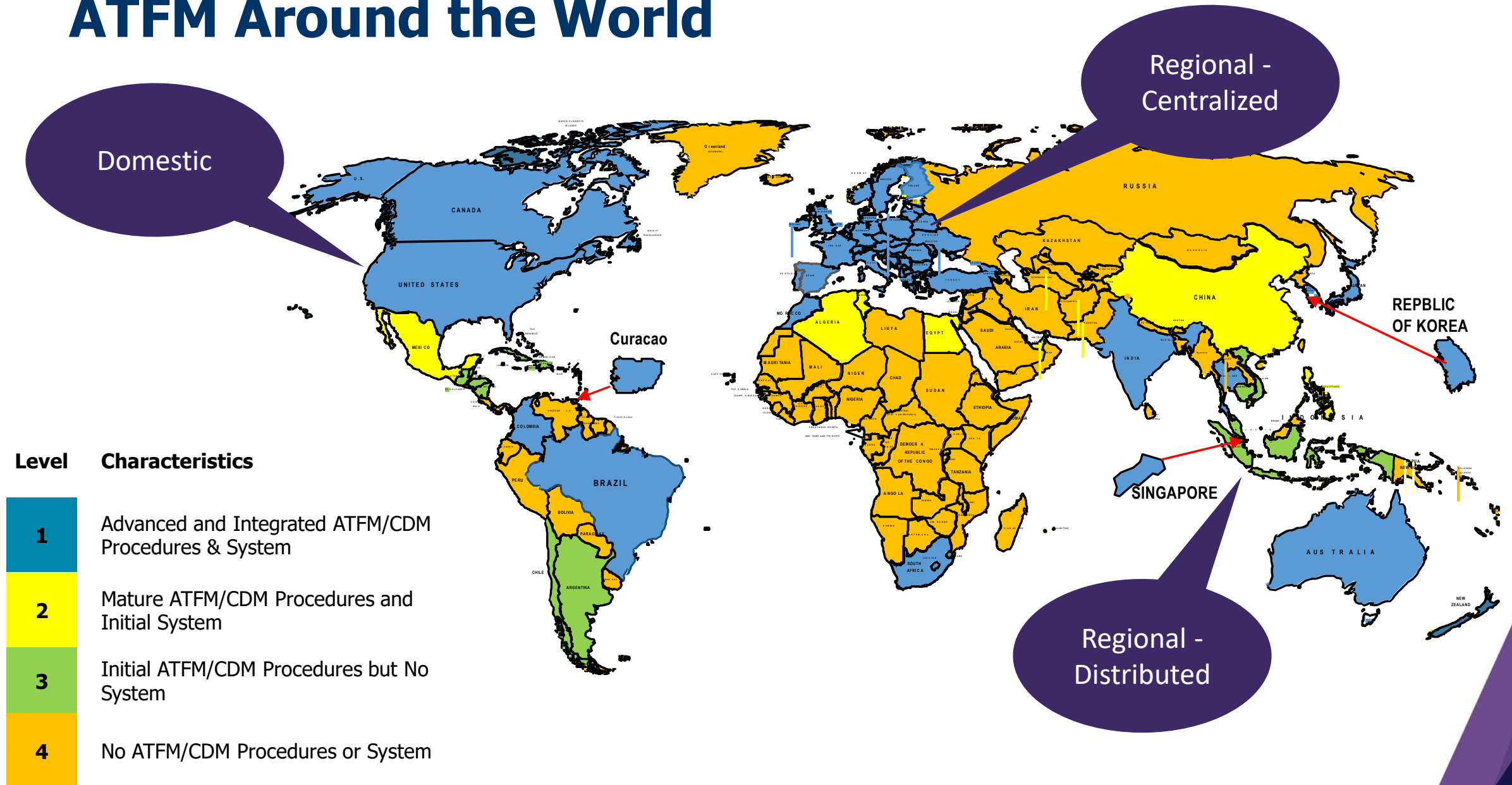
Roles & Responsibilities: Weather Services



Weather Services

- Participate in CDM teleconferences to inform:
 - Terminal Airspace Forecasts
 - METARS
 - Long Range Forecasts
 - Volcanic activity
- Participate in post-ops analysis (as necessary)

ATFM Around the World



Thank you



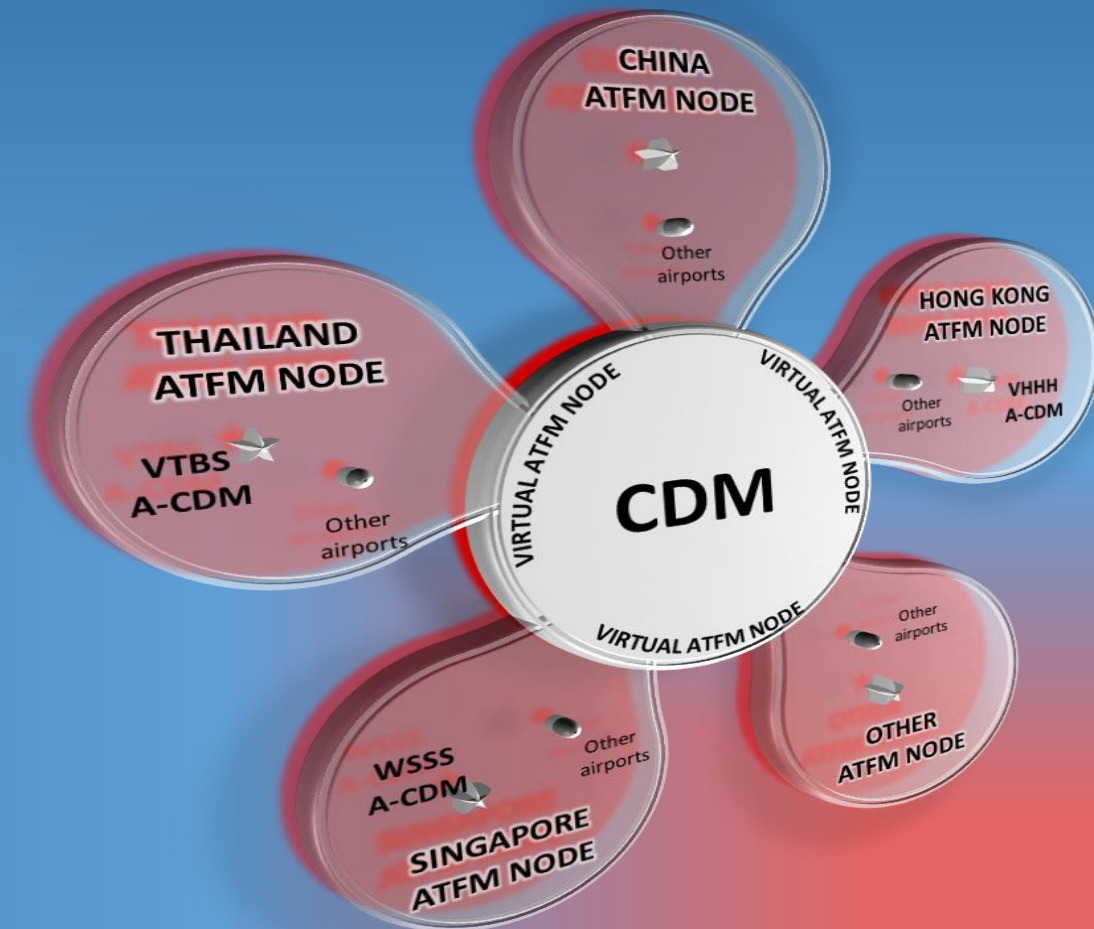


Mr. Simon Cheoh

Senior ATC Manager
(ATM Development)

CAAS

ATFM in Practice: Asia-Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC)



APAC region- Distributed Multi Nodal ATFM Concept

- Each ANSP as the node leader, manages air traffic flow within their area of responsibility to provide ANS, and may initiate an ATFM measure when the need arises
- All the node leaders are interconnected across the region to form a Regional ATFM Network
- Individual node leader facilitates ATFM measure initiated by other members of the Regional ATFM Network
- The node leader is designated as point of contact and is also in-charge for their local nodes such as Airport Operators (AOs) and Airspace Users (AUs)
- Collaborative decision making is enabled through an information exchange framework between the node leaders at the local and regional level



DISTRIBUTED MULTI-NODAL ATFM NETWORK



AMNAC nomenclature

- Renamed from “Distributed Multi-Nodal ATFM network collaboration”
 - To recognise the project’s achievements and collaborative efforts
 - To update and accurately reflect current state of the group

Nomenclature	Significance
APAC	Identifies with the region this group operates in
Cross-border	Signifies the area of ATFM operation the group is focusing on
Multi-Nodal ATFM	Signifies the mode of ATFM operation that has been adopted
Collaboration	Emphasises the necessity and importance of active participation and cooperation by member States/Administrations



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Stakeholders in AMNAC

- 12 ANSPs and their encompassing stakeholders
 - i.e. Airport and Airlines Partners
- Adopted a tiered-approach to cater for the varying levels of readiness
- Total Airports in the Multi-Nodal ATFM Network

38



Level 3 ATFM Nodes

Generate, Distribute, Comply to CTOT

- CAAC China
- SSCA Cambodia
- CAD Hong Kong China
- CAA Singapore
- AEROTHAI Thailand

Level 2 ATFM Nodes

Receive and Comply to CTOT

- AIRNAV Indonesia
- CAA Malaysia
- DCA Myanmar
- CAA Philippines
- VATM Viet Nam

Level 1 ATFM Nodes

Observers

- LAO PDR

Advisory ATFM Node

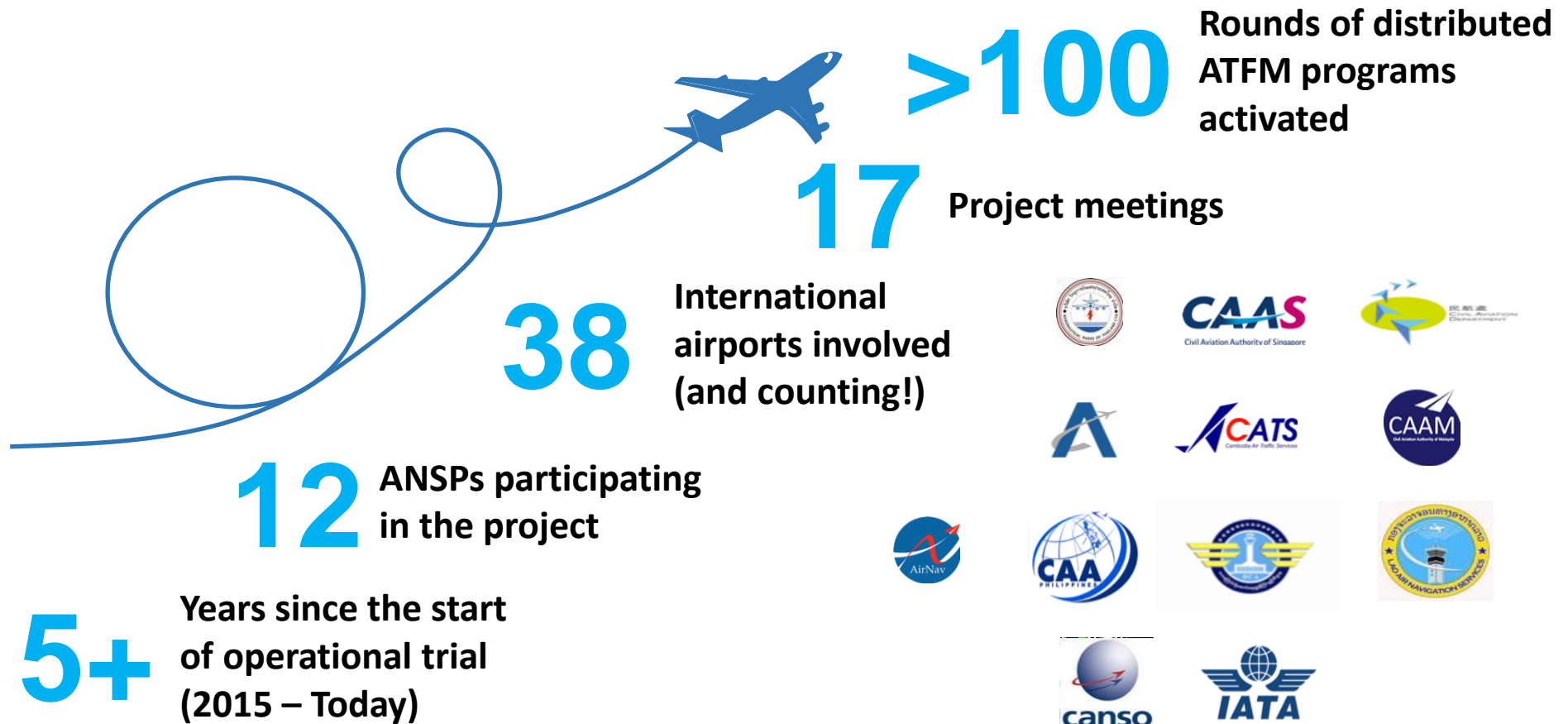
- Australia



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Stakeholders and Commitment



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Evolution of the Regional ATFM Concept



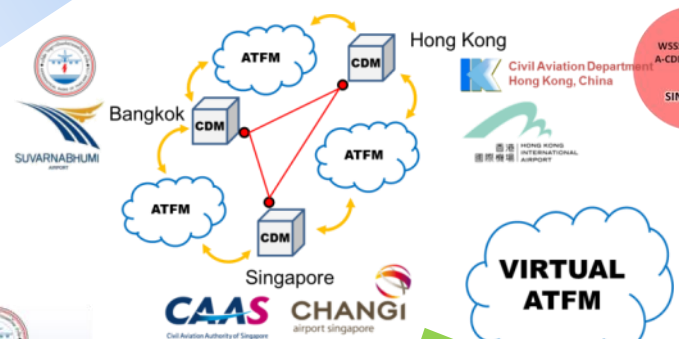
Research Collaboration on Regional ATFM Concept 2013

CANSO Whole of flight CDM Pilot Project between BKK-SIN 2011-2012

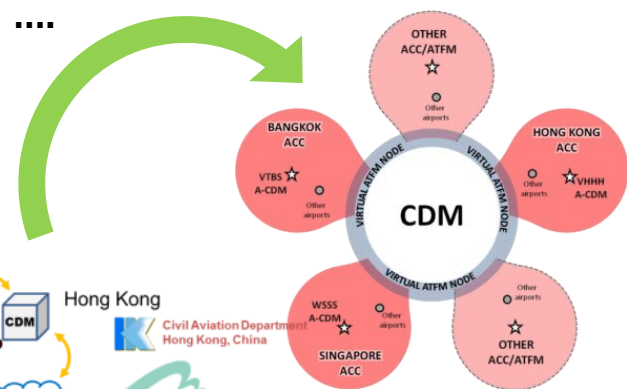


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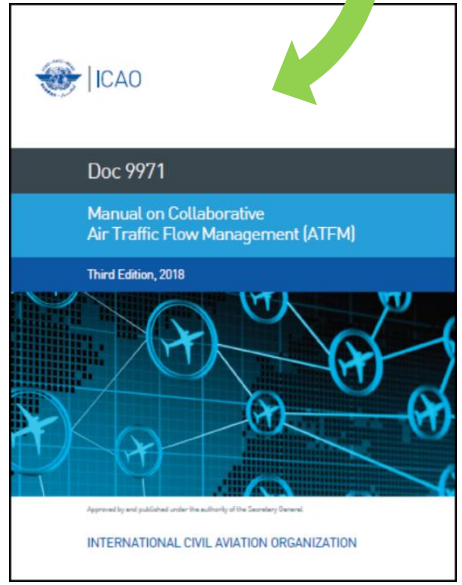




Distributed Multi Nodal Regional ATFM Concept 2014 -



Tripartite CDM Project between BKK-HKG-SIN 2012-2013

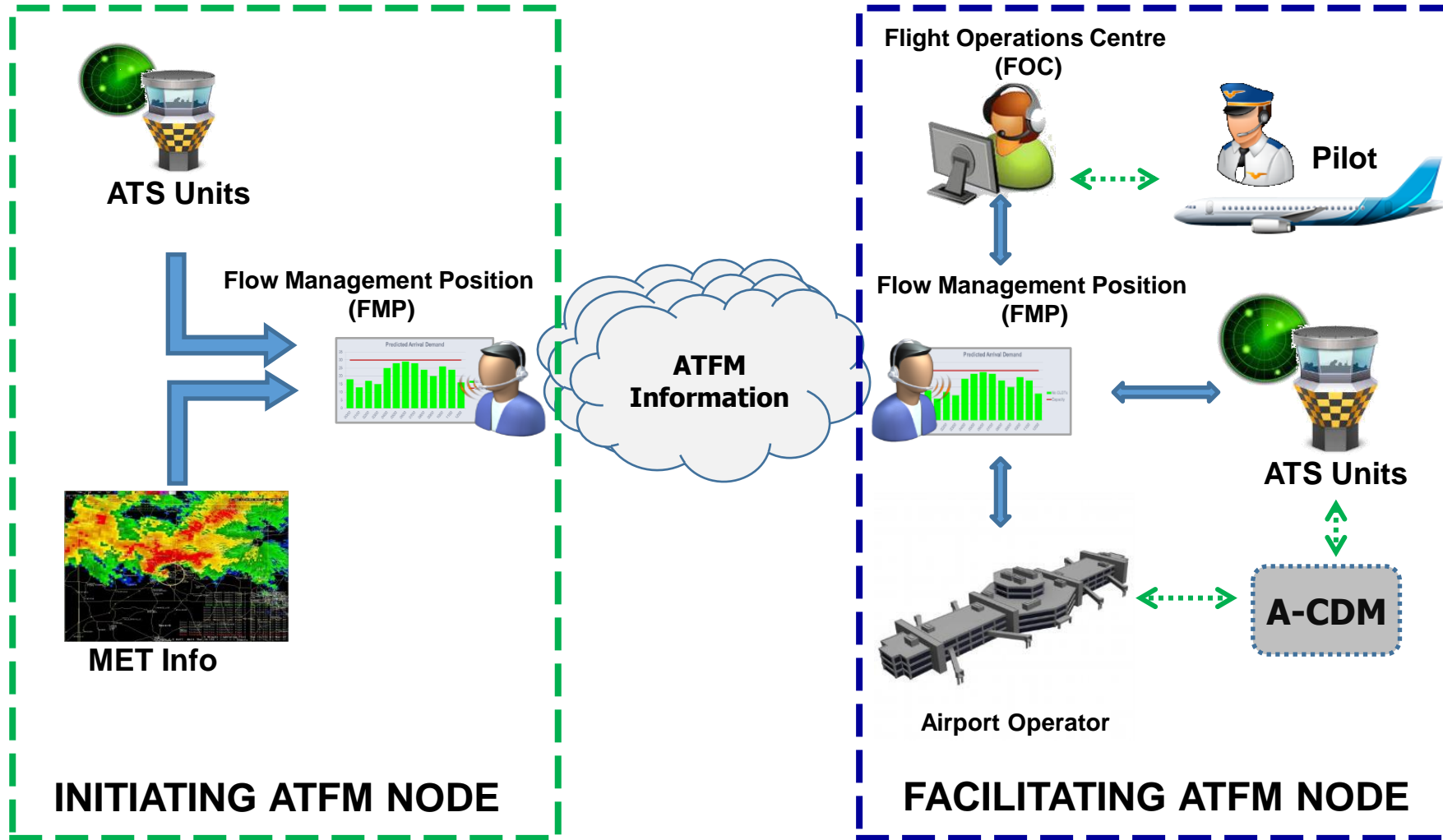




DISTRIBUTED MULTI-NODAL ATFM NETWORK



General Concept of Operation



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Work of Technical subgroup

- Technical Sub-Group established in December 2015
 - Challenges with the multiple ATFM systems within the distributed multi-nodal ATFM network concept
- Technical Sub-Group works with the Core Team
 - Drafted the technology requirement roadmap and Interface Control Document (ICD) for system-to-system linkage
 - Contributes towards the on-going work to harmonize the technical requirements for cross-border ATFM implementation in the APAC region
- Objectives
 - Harmonization of information
 - CTOT, flight plan data, resource data (airport and airspace capacity), ATFM measure data, CDM actions
 - Guides minimum user requirements
 - A set of requirements to be harmonized by the Core Team to ensure data accessibility
- Development of an Interface Control Document (ICD), detailing the content and format of data to be shared. This will enable an ATFM Node / ANSP to use the ICD as guideline in developing or procuring their ATFM system



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Common operating procedures to support Cross-border ATFM

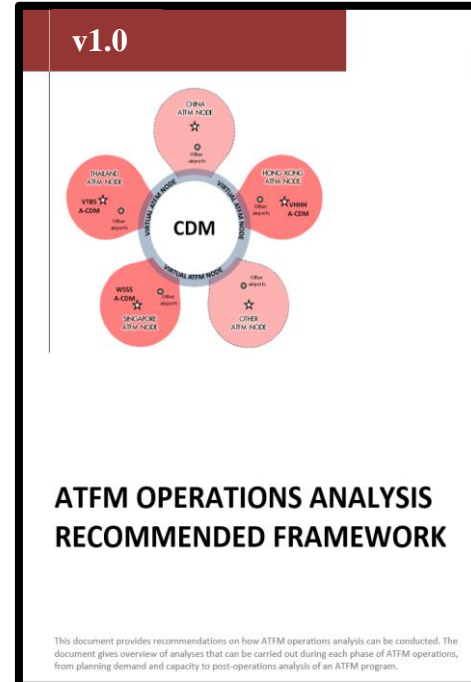
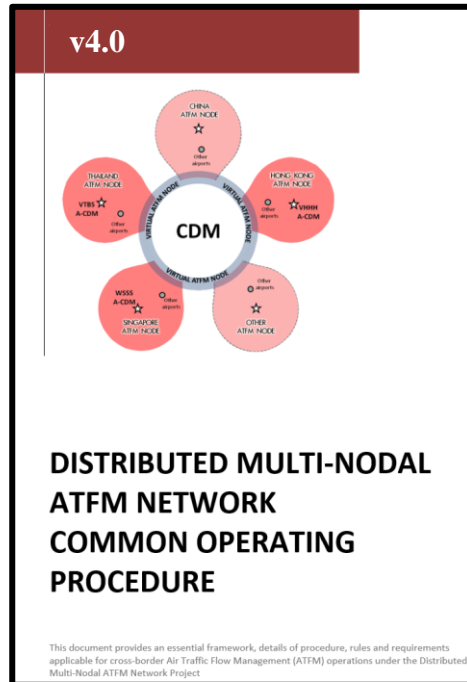
- Common Operating Procedures
 - Information dissemination and publication
 - CTOT delivery, ATFM Daily Plan exchanges
 - Standardization of information and procedures
 - ADP format, CTOT compliance window
 - CDM processes
 - Web platform login, actions on stakeholders
 - Coordination
 - CTOT management



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Project Documents (thus far)



- Common set of agreed ATFM measures and principles among participating stakeholders
- Supplement global documents, in POA techniques



DISTRIBUTED MULTI-NODAL ATFM NETWORK



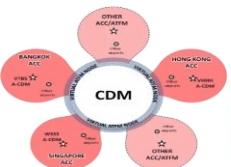
AMNAC processes to support COVID- ATM Planning

- AMNAC Bi-Weekly Web Conference
 - Initiative started in Jan 2019
 - A platform for AMNAC group members to provide a more timely update on upcoming ATFM measures and lessons learnt, instead of during the quarterly regional meetings
- COVID planning
 - Due to significant reduction in air traffic during this period, there is low chance of activating ATFM measures. The AMNAC group has included the COVID-19 ATM-ATFM Status Update discussion as an agenda for the web conference.
 - The ATM-ATFM Status Update provides information such as capacity, ATM service capability etc. during the pandemic and recovery period
 - CAAS, AEROTHAI and HKCAD take turns to host the web conference every alternate Thursday at 1600UTC

Singapore (Singapore FIR)

Information Updated	3 Dec 2020
Precis	Resumption of Dual Runway Ops
Traffic Demand Situation	Approximately 80% reduction in traffic demand compared to pre-COVID19
Significant Weather Outlook	FIR: <ul style="list-style-type: none"> • Nil TMA: <ul style="list-style-type: none"> • Low level winds forecasted to blow from the northwest or northeast. Short duration moderate to heavy thundery showers can be expected over parts of the island in the afternoon on most days, with the showers extending into the evening on a few days. On a few days, the thunderstorms could be intense and widespread due to large scale convergence of winds over Singapore and the surrounding vicinity.
ATM Status	1. Dual Runway Ops <ul style="list-style-type: none"> - AAR: 34ft/hr - ADR: 34 ft/hr - Airspace: All sectors fully operational (8/8 sectors)
ATFM Measure Outlook	1. No ATFM measure expected 2. M771 ZSPD Trial ongoing (if required) <ul style="list-style-type: none"> - Refer AIP Singapore ENR 1.9
COVID-19 Flight Restrictions	Nil
COVID-19 Entry Restrictions	Refer: <ol style="list-style-type: none"> 1. https://www.gov.sg/article/updates-to-border-measures-for-low-risk-countries-from-1-sep - https://www.gov.sg/article/updates-to-border-measures-for-travellers-entering-singapore
Other Related Information	Nil
Links	Refer: <ol style="list-style-type: none"> 1. https://www.gov.sg/features/covid-19 2. https://www.caas.gov.sg/e-services-forms/e-services/air-traffic-flow-management

Sample of ATM-ATFM status update

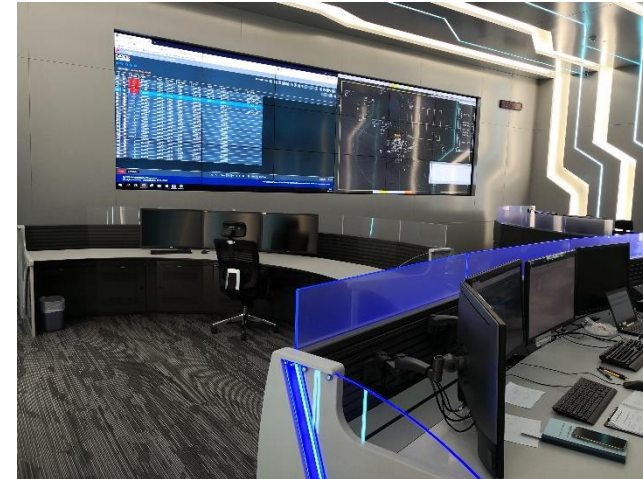


DISTRIBUTED MULTI-NODAL ATFM NETWORK



ATFM in Singapore

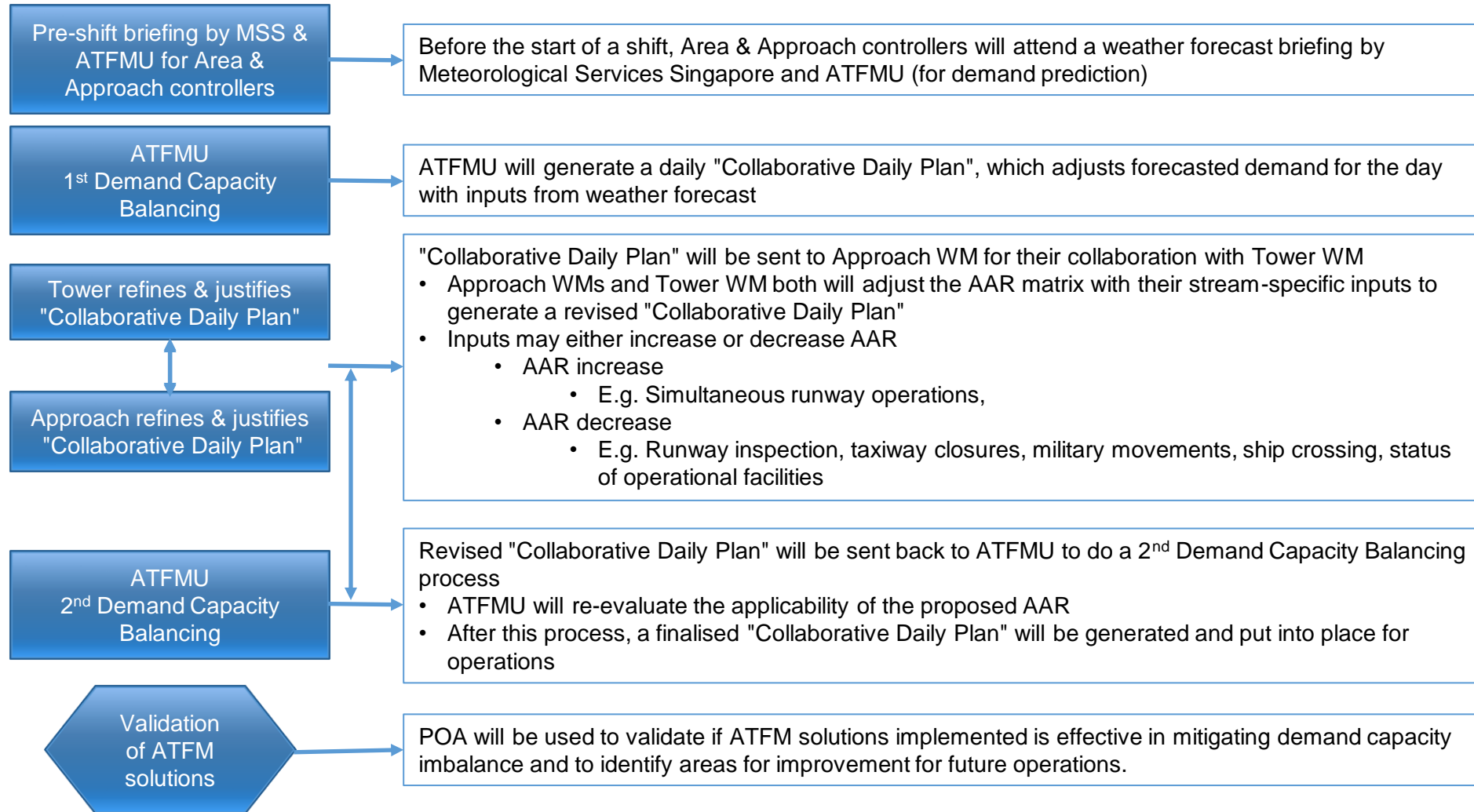
- Live operations in new ATFM centre since mid-December 2018
- Daily Operations
 - 2 x FMPs for AM & PM Shifts,
 - 1 x FMP for Night Shifts
 - During GDP, 3rd FMP will be deployed dependent on workload level in view of high workload



DISTRIBUTED MULTI-NODAL ATFM NETWORK



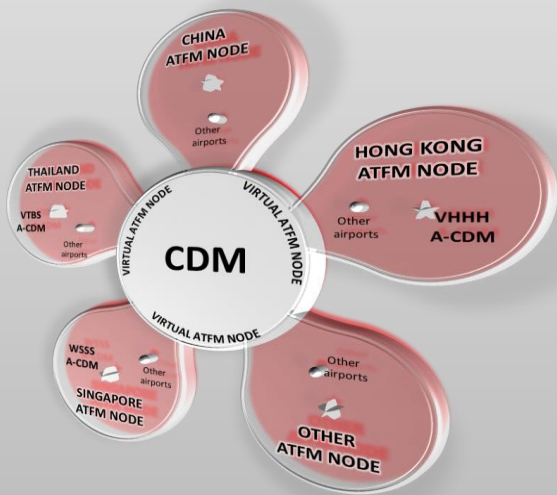
ATFM in Singapore- Daily Operations



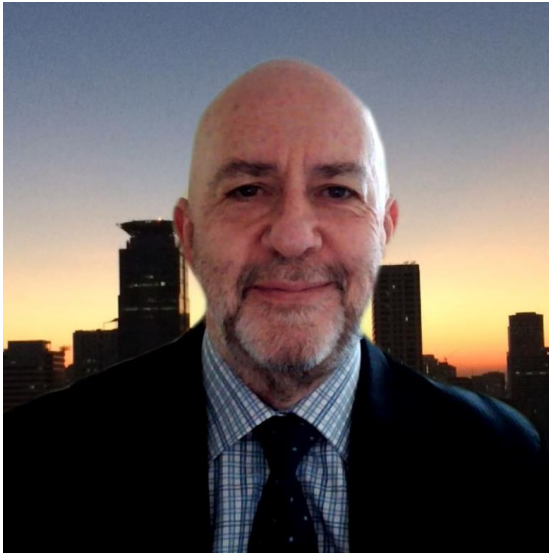
DISTRIBUTED MULTI-NODAL ATFM NETWORK



Thank You



DISTRIBUTED MULTI-NODAL AIR TRAFFIC FLOW MANAGEMENT



Mr. Shane Sumner

Regional Officer (ATM)

ICAO Asia Pacific Office



ICAO

UNITING AVIATION

ATFM Implementation in the ICAO Asia/Pacific Region

CANSO/ACI-APAC ATFM/A-CDM Integration
Workshop

02 – 03 June 2021

Shane Sumner

Regional Officer ATM/AIM

ICAO Asia/Pacific Regional Office

ssummer@icao.int





Topics

- ICAO Global and Regional Provisions
- Regional Framework for Collaborative ATFM
- Regional Implementation Monitoring





Convention on International Civil Aviation (Chicago Convention)

Annexes

Annex 11 – Air Traffic Services

PANS

ICAO Doc 4444 – PANS-ATM

Global Plans and Guidance

Global Air Navigation Plan (GANP)

ICAO Doc 9971 – Manual on Collaborative ATFM

Regional Plans and Guidance

.....





**Regional Plans
and Guidance**

Asia/Pacific Regional Air Navigation Plan Volume II ([link](#))



Asia/Pacific Seamless ANS Plan ([link](#))



Regional Framework for Collaborative ATFM ([link](#))



Performance Expectations for ATFM Implementation

**Regional ATFM
Capability
Phases**

Phase 1A – 12 November 2015

Phase 1B – 25 May 2017

Phase 2 – 08 November 2018



**Regional ATFM
Capability
Phases**

**General
Structure**

Performance Expectations for ATFM Implementation

ATFM Regulations

ATFM Systems

Strategic, Pre-Tactical or Tactical ATFM

Capacity and Demand Monitoring and Analysis

Capacity Improvement

ATFM Execution

ATFM Measures

Post-Operations Analysis

Regional ATFM Plan Monitoring and Reporting Form

www.icao.int/apac

Overview

About APAC

Information for Visitors

60th Anniversary of APAC Office

APAC Contracting States

COVID-19 & ACCRPG Sub-Groups

Environmental Protection

CORSIA

State Action Plans

Meetings

APAC Webinars

News

APAC Newsletters

APAC Souvenir for Purchase ****NEW****

Information on ...

APAC eDocuments

Asia and Pacific (APAC) Office



Welcome to the ICAO Asia and Pacific Office

The Asia and Pacific Office for the Far East & Pacific Region, renamed as the Asia and Pacific Regional Office (RSO) was inaugurated by the Administration of China (CAAC) on 15 October 2019.

The APAC Office is accredited by the ICAO Council. The Region covers vast airspace and is home to many of the world's busiest airports.

The primary role of the Office is to assist the States of the ICAO Region in the implementation of the Standards and Recommended Practices (SARPs), Procedures for the Regulation of International Air Navigation (PRIN), and the Manual of Air Navigation Planning (MANP).

Arun Mishra
Regional Director

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	REGIONAL ATFM PLAN MONITORING AND REPORTING FORM												
2	ATFM PERFORMANCE INDICATORS												
3	The following indicators are based on the Performance Improvement Plan of the Asia/Pacific Regional Framework for Collaborative ATFM, which should be read in conjunction with this form. The information provided will be used by the relevant Regional bodies to assess individual Administration and overall regional compliance with the Framework, and may be used by Administrations to internally evaluate their implementation status.												
4													
5													
6													
7													
8	INSTRUCTIONS												
9													
10	A	If your administration is expected, or intends, to implement and distribute cross-border ATFM measures under the terms of the Performance Improvement Plan of the Asia/Pacific Regional Framework for Collaborative ATFM:											
11													
12		Answer Questions 1 to 31											
13													
14	B	If your Administration is not expected to implement and distribute cross-border ATFM measures as described above:											
15		Answer Questions 32 to 46											
16													
17	C	Not implemented = 0 Partial implementation = 0.5 Full implementation = 1											
18													
19	D	Forward the completed form in MS Excel format to apac@icao.int .											

APAC eDocuments

Regional ATFM Plan Monitoring and Reporting Form

- Questions 1 to 31
*Administrations **expected or intending to implement and distribute** cross-border ATFM measures*
 - Questions 32 to 46
*Administrations **not expected to implement and distribute** cross-border ATFM measures*
- * *Note: All APAC Administrations are expected to receive and facilitate ATFM measures*

	A	B	C	D	E	F	G	H	I	J	K	L	M
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19	D	Forward the completed form in MS Excel format to apac@icao.int .											

Regional ATFM Implementation Status

Implementation status reported annually to:

- *Air Traffic Flow Management Steering Group (ATFM/SG)*
- *Air Traffic Sub-Group of APANPIRG (ATM/SG)*
- *APANPIRG*

ROBUST Implementation (90 – 100%)

India, Singapore, USA.

MARGINAL Implementation (70 – 89%)

Australia, Cambodia, China, Japan, Republic of Korea, Philippines, Thailand.

Incomplete Implementation (0 – 69%%)

Bangladesh, Hong Kong China, Macao China, Indonesia, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Caledonia, New Zealand, Pakistan, Papua New Guinea, Philippines, Viet Nam



Regional ATFM Implementation Status

Implementation status reported annually to:

- *Air Traffic Flow Management Steering Group (ATFM/SG)*
- *Air Traffic Sub-Group of APANPIRG (ATM/SG)*
- *APANPIRG*

DID NOT REPORT

Afghanistan, Bhutan, Brunei Darussalam, Cook Islands, Fiji, France (French Polynesia), DPR Korea, Kiribati, Lao PDR, Marshall Islands, Micronesia, Nauru, Palau, Samoa, Solomon Islands, Sri Lanka, Timor Leste, Tonga, Tuvalu, Vanuatu

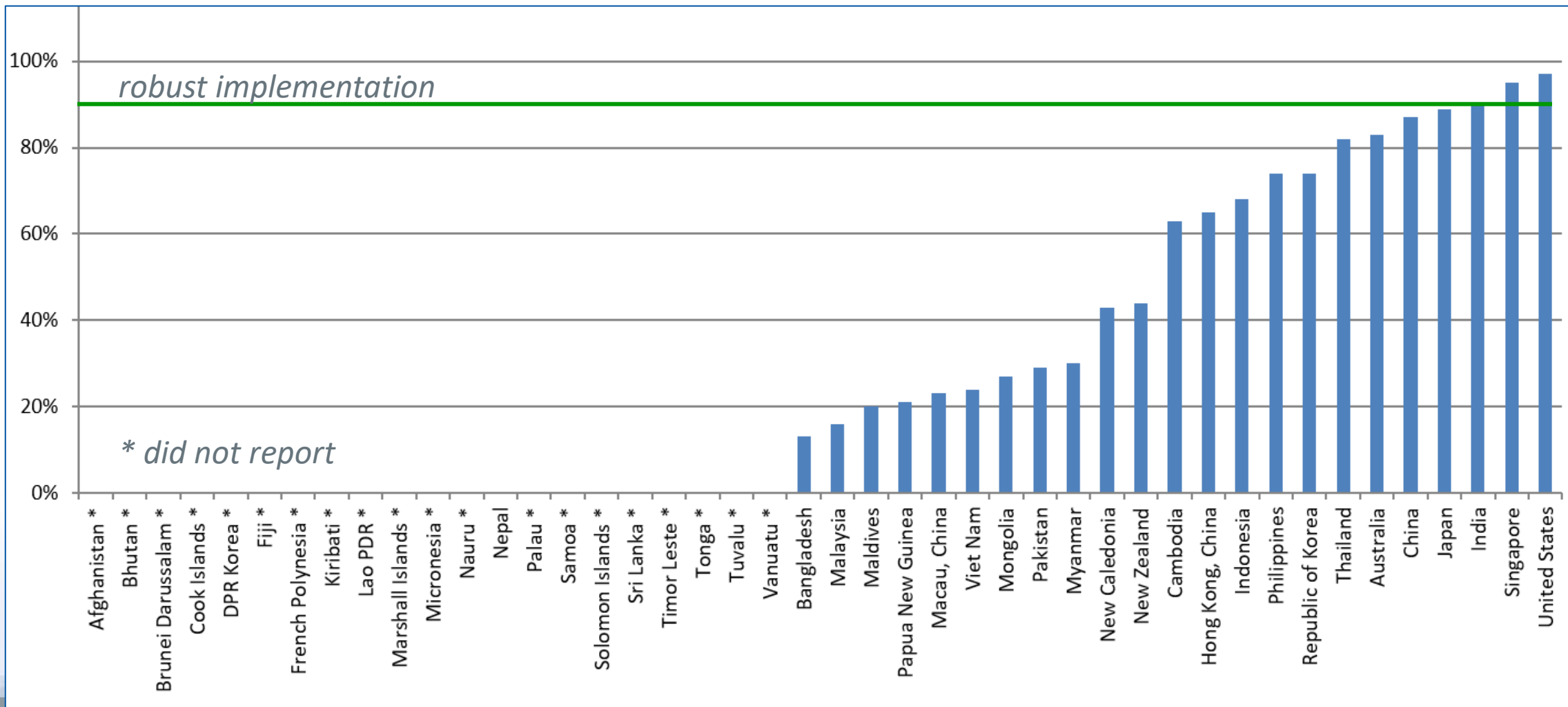
INCORRECT REPORT

Two States

CRITERIA TO BE REVIEWED



Regional ATFM Implementation Status





ICAO

UNITING AVIATION



ICAO

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU



Questions and Answers

Regional Focus



CANSO/ACI Asia-Pacific ATFM/A-CDM Integration Workshop

Wednesday 02 June 2021, 06:00-09:30 UTC

Thursday 03 June 2021, 06:00-09:00 UTC

Setting the scene for A-CDM Section



Mr. SL Wong

Head of Technical Affairs, Safety,
Capacity and ATM

ACI Asia-Pacific



Mr. Fredrik Lindblom

CANSO ATFM/A-CDM
Workgroup Co-Chair
SAAB ATM



Mr. Herman Chung

Deputy General Manager
Airport Authority Hong Kong



Mr. Punya Shakya

Regional Officer (AGA)
ICAO Asia Pacific Office



Mr. John Moore

Assistant Director Safety & Flight
Operations
IATA Asia Pacific



Mr. Fredrik Lindblom

Co-Chair CANSO ATFM/A-CDM
Workgroup

Sales Director & ATM Specialist
SAAB ATM

Regional Focus



Summary of A-CDM

Quick Facts

A-CDM = Airport Collaborative Decision Making

It is a concept of operations originally defined by Eurocontrol in 2007



- ✓ Airport CDM (A-CDM) aims at **improving the overall efficiency of airport operations** by **optimizing** the use of resources and improving the **predictability** of events.
- ✓ It focuses especially on **aircraft turn-round and pre-departure sequencing processes**.



Quick Facts

A-CDM AROUND THE WORLD

- 30+ European airports are fully A-CDM “compliant” and more are to come
- In APAC 50 airports are operating to A-CDM procedures (varying degree).
- US are working to implement S-CDM at 27 airports by 2024
- Airports in ME, South America and Africa are starting to adopt A-CDM

DOCUMENTS & GUIDELINES

- CANSO Guidelines
- ICAO Doc 9971AN/485: Manual on Collaborative Decision Making (CDM)
- ICAO APAC A-CDM Implementation Plan
- Eurocontrol Airport CDM Implementation Manual

THE NEED for A-CDM?!

- ✓ Non-optimised turnaround and sequencing performance
- ✓ Poor punctuality (such as airport start delays)
- ✓ First come first served principles for start-up
- ✓ Lack of transparency on overall airport plan, or lack of a 'single version of the truth'
- ✓ Long taxi queues and non-optimized throughput
- ✓ No access to turnaround and delay status.
- ✓ Poor recovery of airport after disruption.



A-CDM Benefits



Incheon Airport:

- **Average taxi-out time was reduced by 8.1% (1.5 minutes per flight)**
- **Average taxing fuel was reduced by 9.8% (77 lbs. per flight)**

Source: Incheon A-CDM Introduction, WP5, ICAO APAC Task Force#3, August 2018.

Mumbai Airport:

- **An average taxi time saving of 1.5 minutes per flight.**
- **Increased safety** due to reduced number of simultaneous aircraft movements on maneuvering area and reduction in R/T congestion
- **Optimization of resource utilization** by stakeholders due to enhanced predictability.

Source: Case Study - A-CDM at Mumbai Airport, Part of CANSO A-CDM guidelines, 2016.

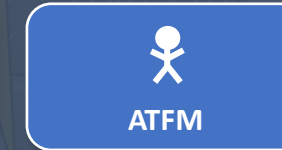
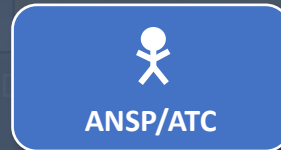
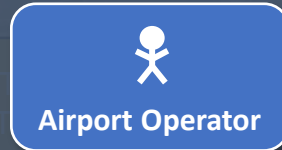
Changi Airport:

- **Fuel savings of >1,300 USD/day.**
- **Reduced Carbon Footprint of >9,500 kg/day of CO2**

Source: Changi Airport A-CDM Information Leaflet

What is Airport Collaborative Decision Making?

COLLABORATION AMONGST STAKEHOLDERS



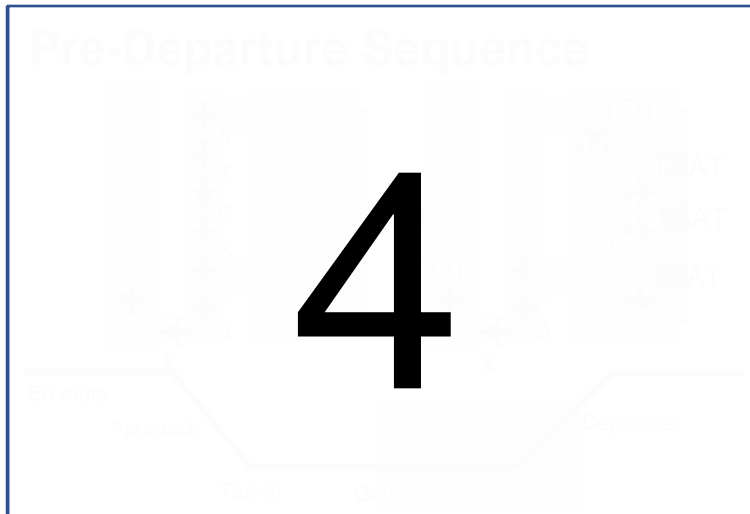
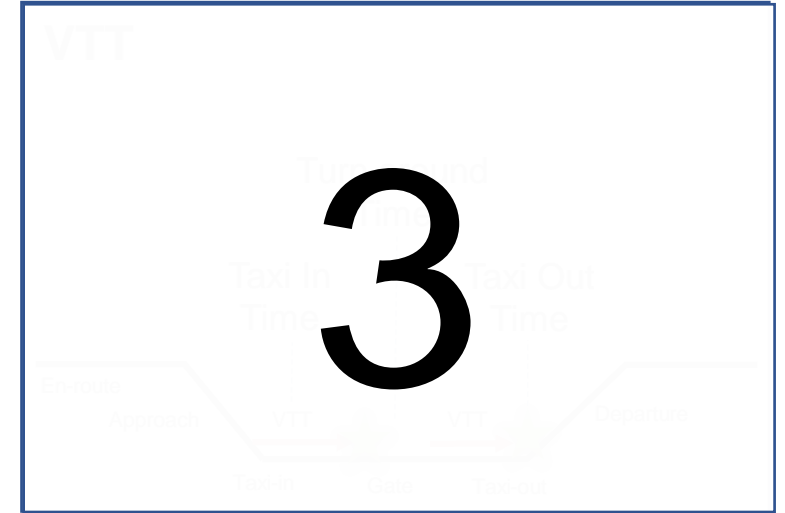
A-CDM PROCEDURES

will set the rules on how this shall work

A-CDM SOLUTION

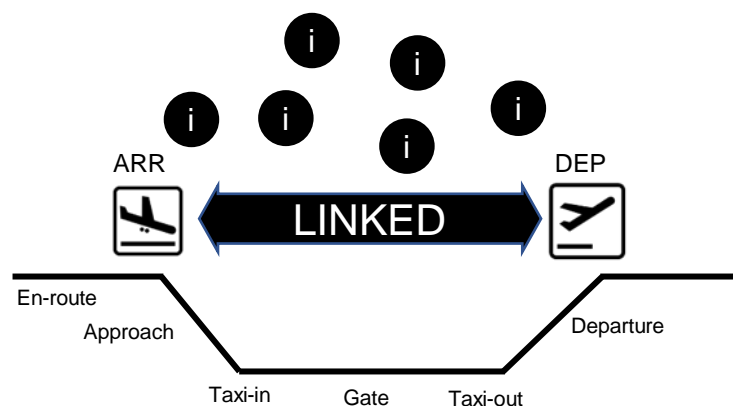
will provide capabilities to support the procedures

A-CDM "Buildings Blocks"

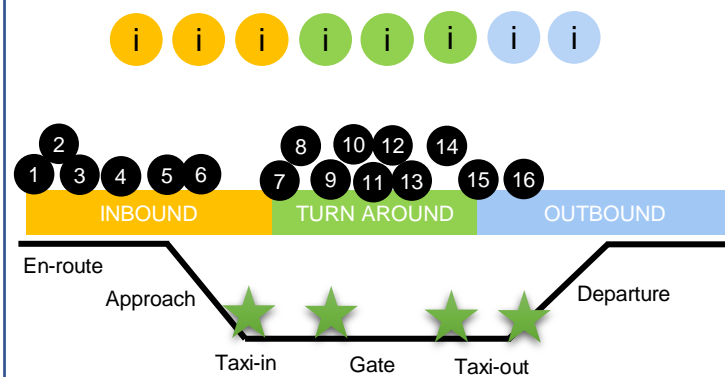


A-CDM "Buildings Blocks"

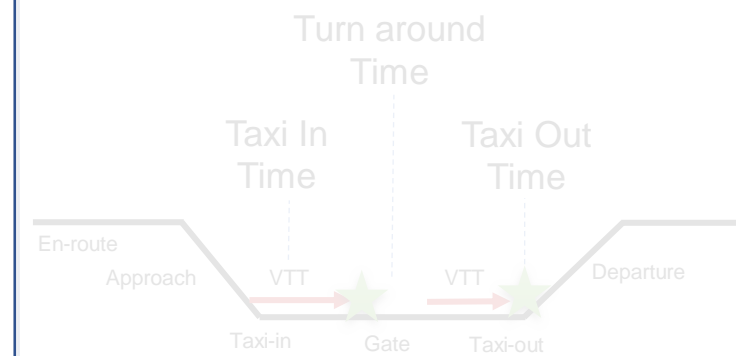
Info Sharing



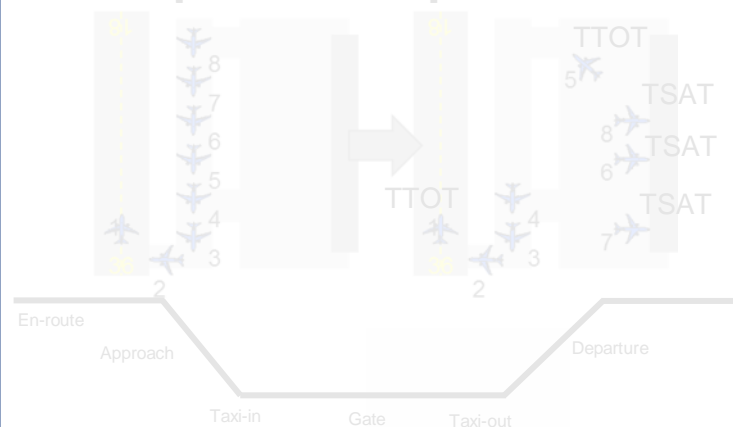
Milestone Approach



VTT & MTT



Pre-Departure Sequence

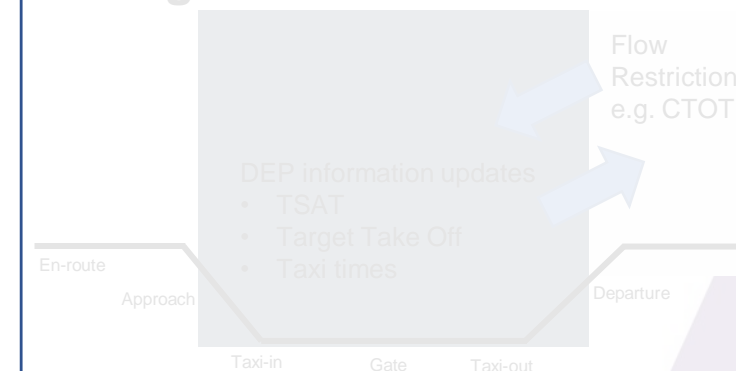


CDM in Adverse Conditions

A-CDM creates predictability and common awareness during e.g. typhoons, thunderstorms...de-icing ☺



Integration with Flow Management



Information Sharing

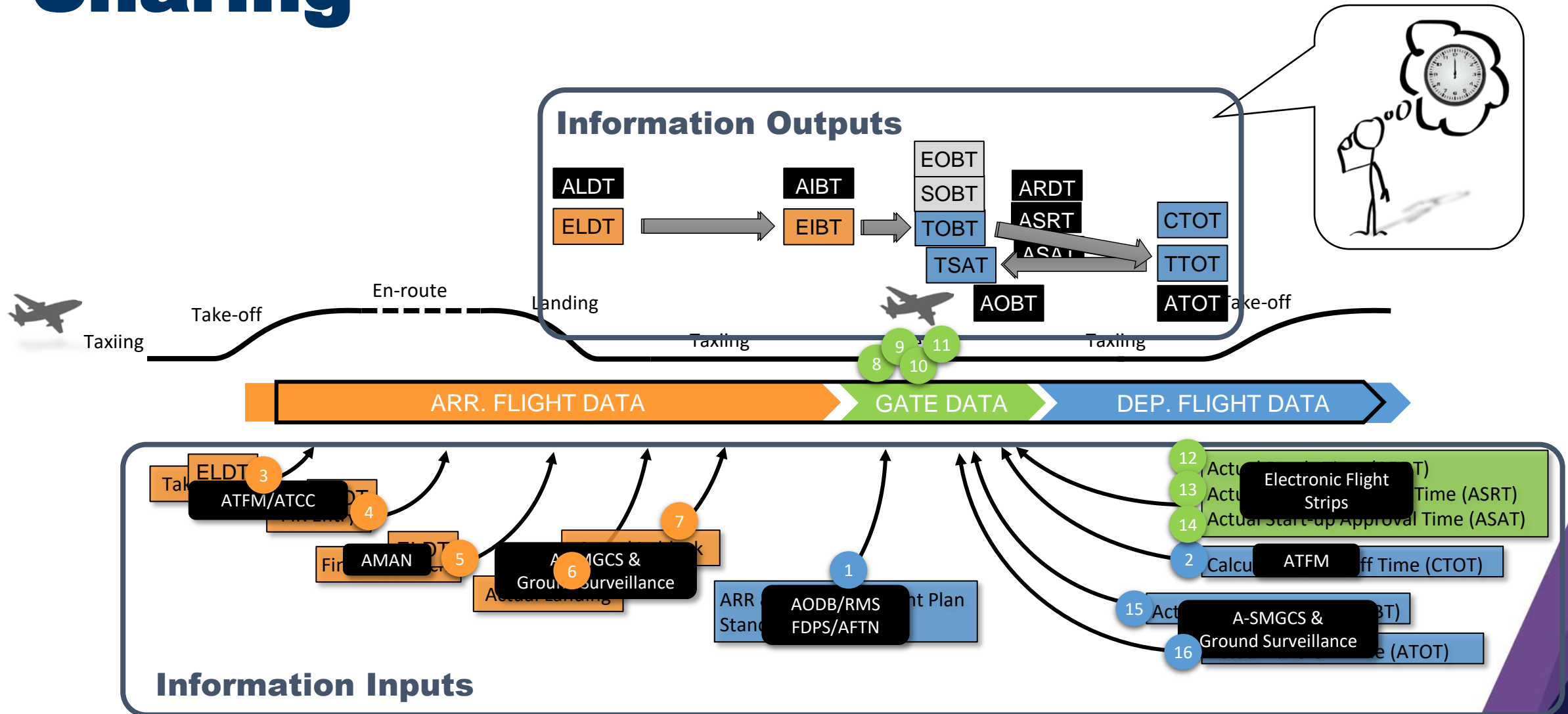
**WHAT
TIME IS
IT?**



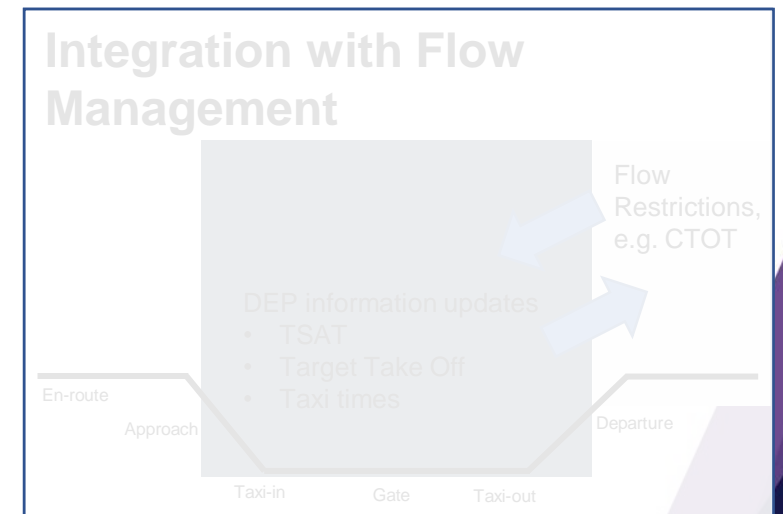
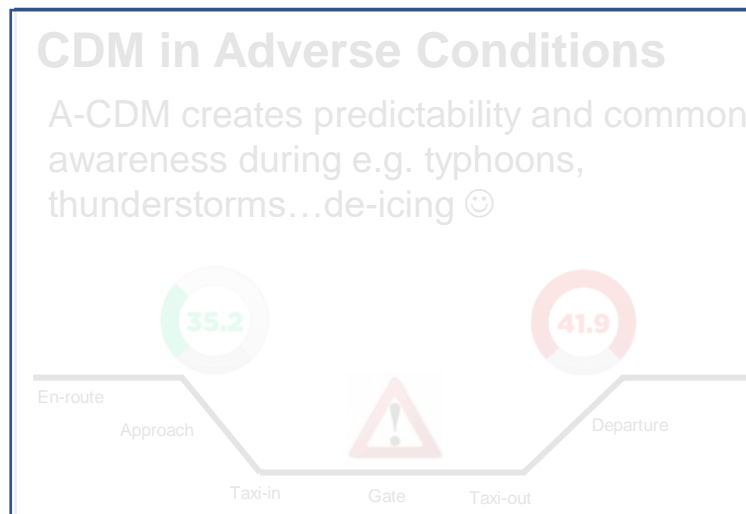
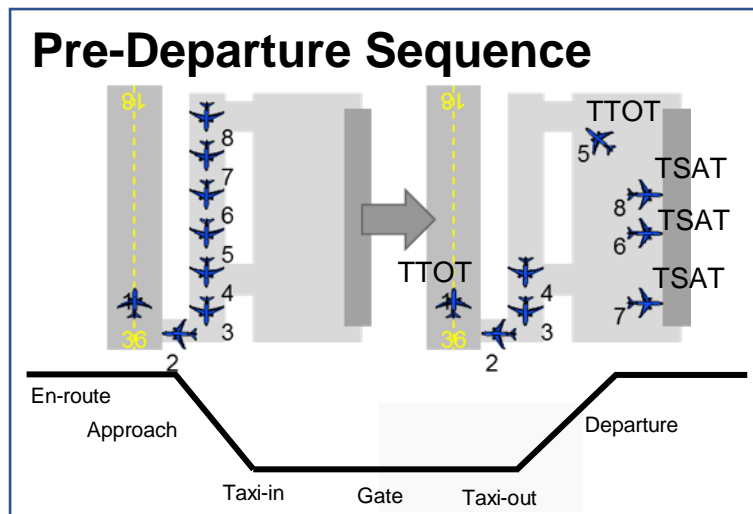
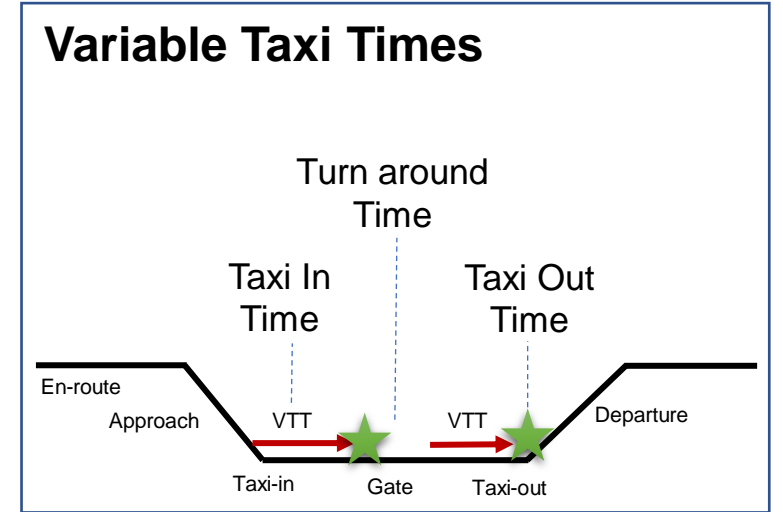
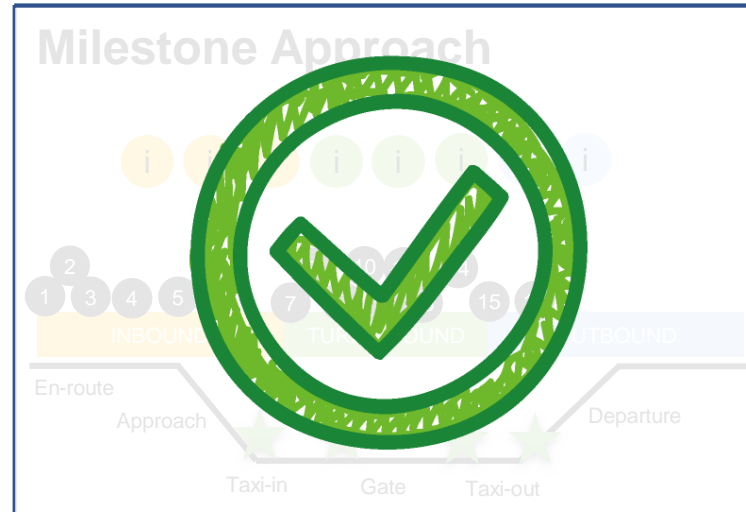
- ✓ **Single source of the “TRUTH”** – all stakeholders look at the SAME information.

Information Sharing

Milestone approach = Info Outputs & Inputs

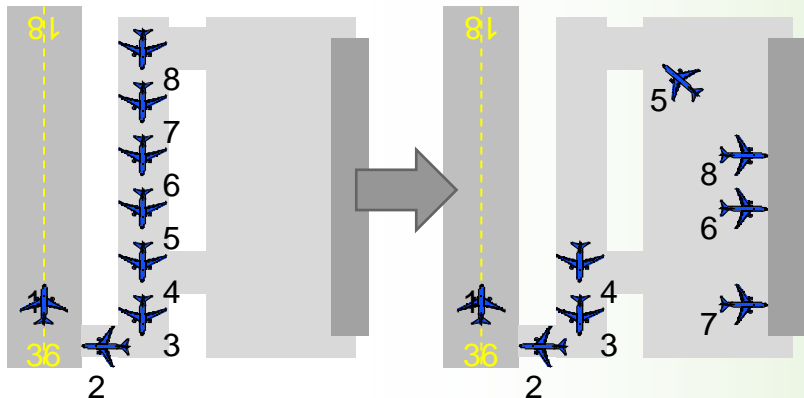


A-CDM "Buildings Blocks"



Pre-Departure Sequencing

Physical Queue



Virtual Queue
to save taxi
time and fuel

ORIGINAL SEQUENCE		
ACID	WC	DFIX
JBU87	L	WAVEY
DAL42	S	MERIT
DAL98	H	MERIT
AAL50	H	RBV
JBU11	L	RBV

MODIFIED SEQUENCE		
ACID	WC	DFIX

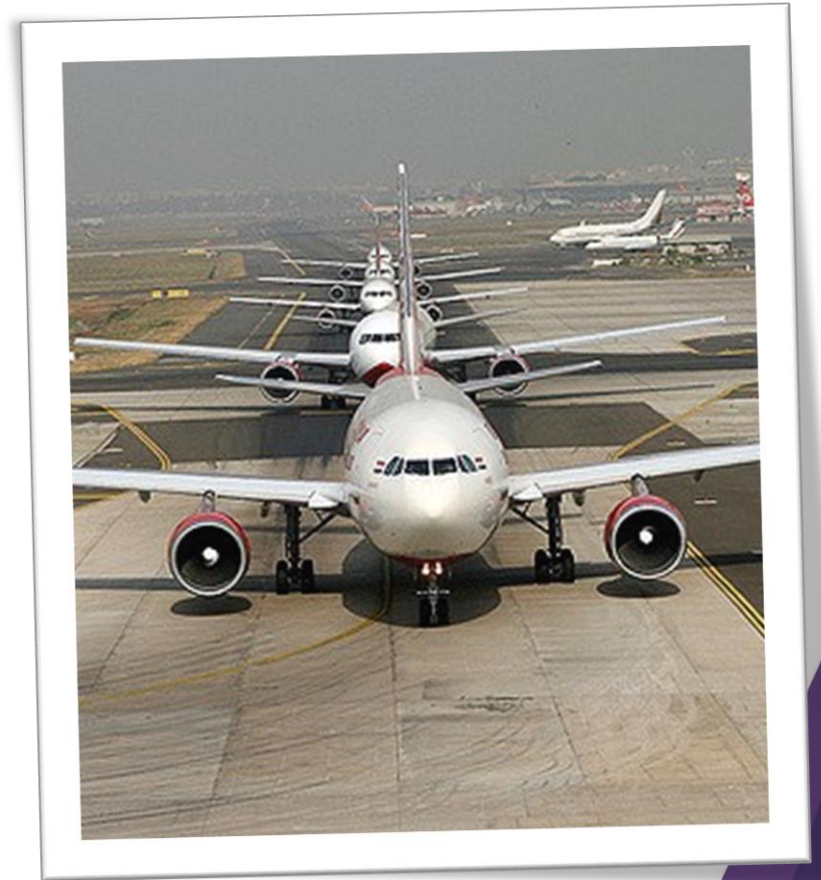
Improved runway
throughput &
reduced delay

**TSAT
&
TTOT**

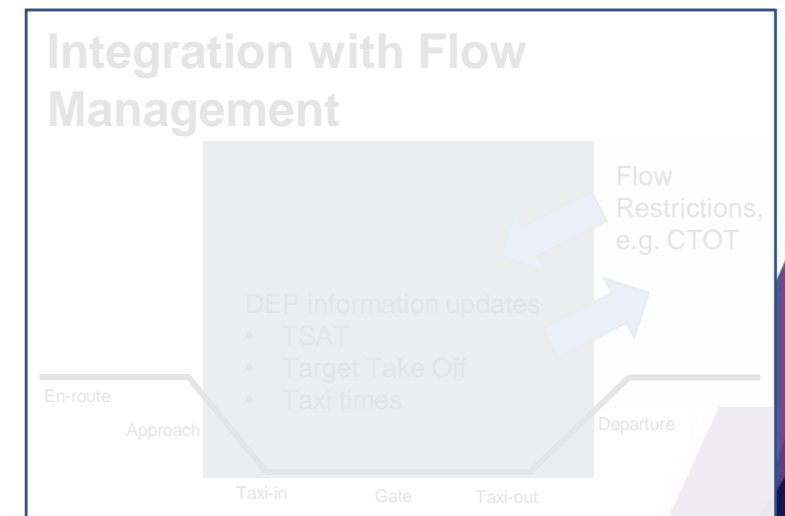
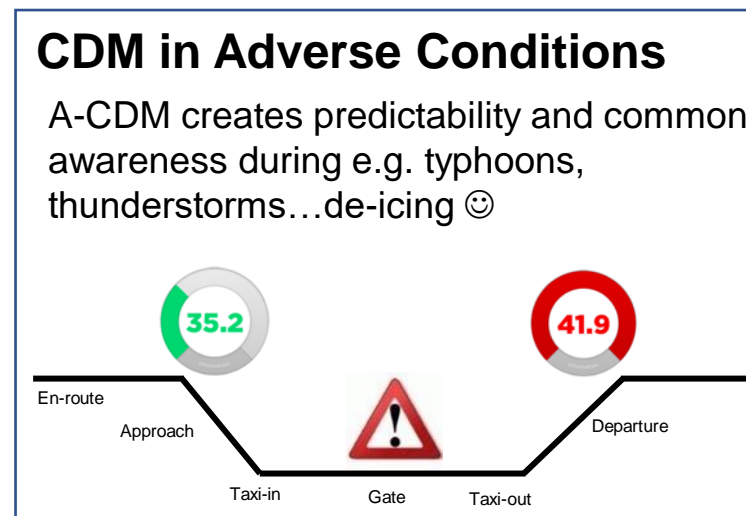
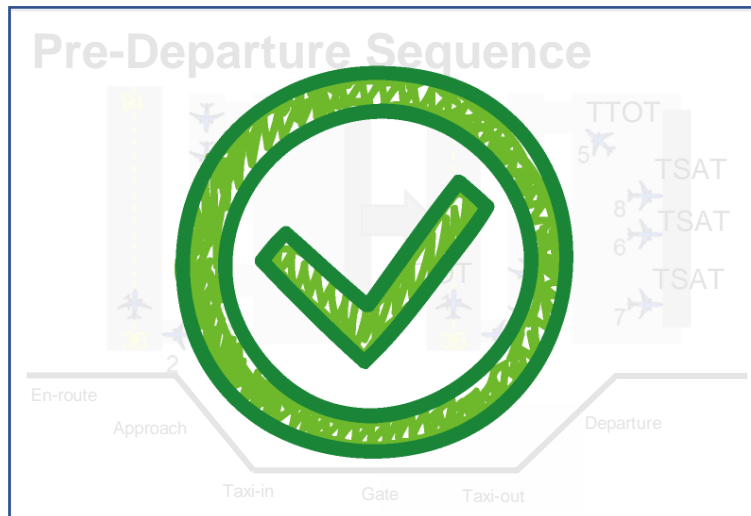
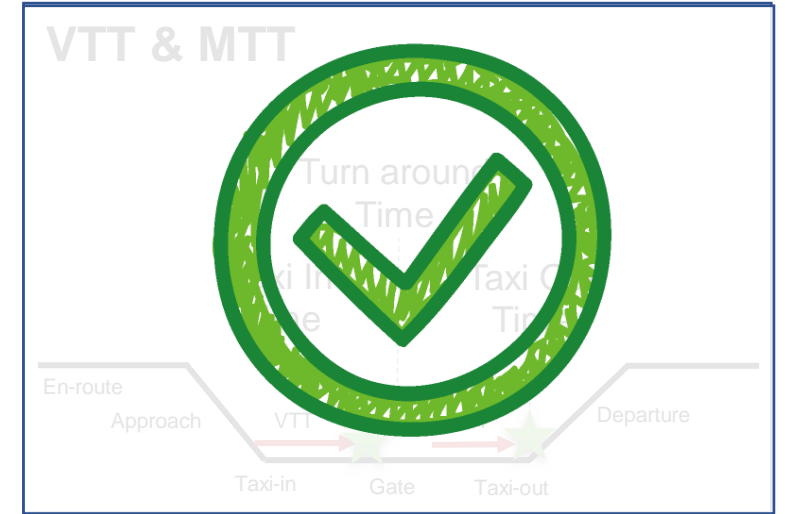
Pre-Departure Sequencing

TSAT and TTOT calculation are based on SOME or ALL of the following parameters:

- ➡ TOBT
- ➡ Estimated Taxi Out Times (EXOT)
- ➡ Runway configurations
- ➡ Departure Rates
 - De-icing operations
 - Gate Allocations/Adjacent Gates
 - ATFM CTOT
 - Aircraft type/Wake turbulence category
 - Standard Instrument Departures (SIDs)
 - Arrival flights (taking ELDT/ALDT into account)
 - Airborne restrictions (closed fixes, minutes or miles in trail restrictions)
 - Routing from A-SMGCS



A-CDM "Buildings Blocks"



A-CDM "Buildings Blocks"

Info Sharing



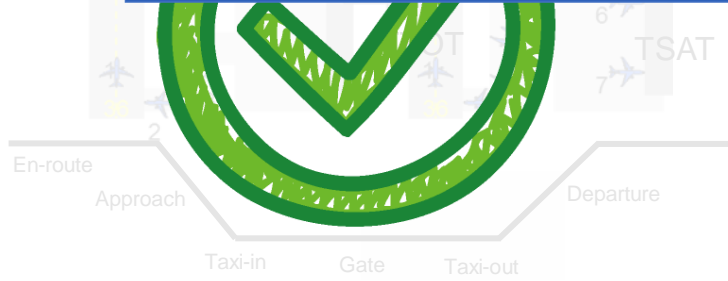
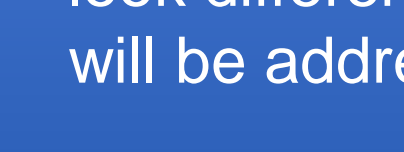
Milestone Approach



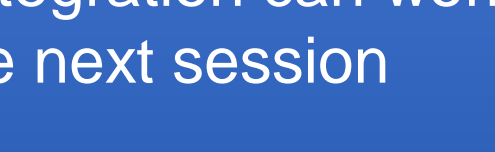
VTT & MTT



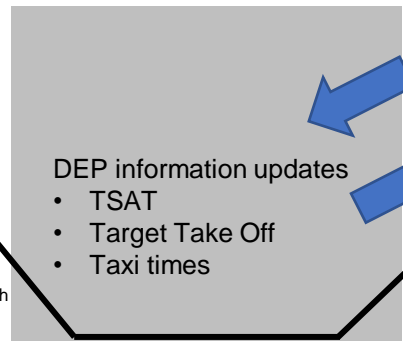
Pre-Departure



Integration with Flow Management



Integration with Flow Management



Flow Restrictions, e.g. CTOT

DEP information updates

- TSAT
- Target Take Off
- Taxi times

- VERY WELL defined, tested and implemented in EUROPE!
- Outside of Europe the ATFM Concepts look different → how integration can work will be addressed in the next session

In Conclusion...

**“BEST PLANNED BEST SERVED”
= OPERATIONS WITH TOBT & TSAT**

STAKEHOLDER COLLABORATION

A-CDM PROCEDURES

will set the rules on how this shall work

A-CDM SOLUTION

will provide capabilities to support the procedures

The A-CDM “Building Blocks”

Are the core capabilities of the A-CDM Solution

Thank you





Mr. Herman Chung

Deputy General Manager

Airport Authority Hong Kong



IMPLEMENTATION OF A-CDM AT HONG KONG INTERNATIONAL AIRPORT

Presented by :
Herman Chung
Deputy General Manager, Airfield
Airport Authority Hong Kong

A-CDM Implementation Timeline



A-CDM Phased Adoption

Jul 2017

Input of TOBT by airlines & TSAT by ATC for the period 0700 – 1200

I

Sep 2017

Input of TOBT by airlines & TSAT by ATC for the period 0700 – 1900

II

III

Feb 2018

24-hour input of TOBT by airlines & TSAT by ATC

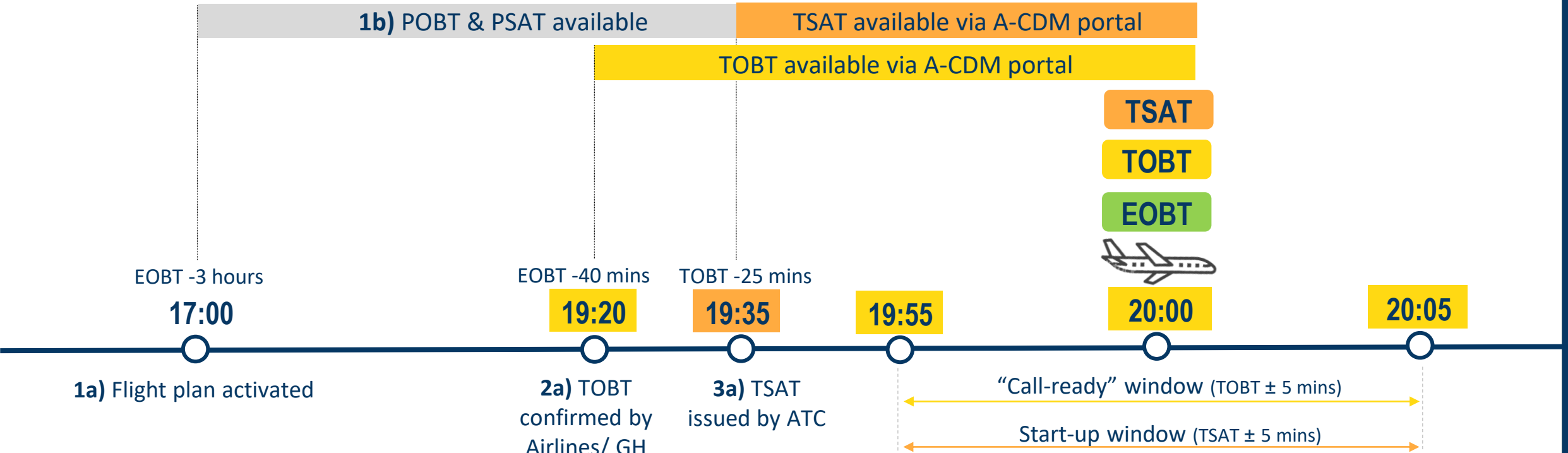
Nov 2018

ATC officially started using TSAT & CTOT for daily operations

LIVE OPS



Typical Use Case of A-CDM at HKIA



1a) Airlines: Flight plan filed at/before SOBT (STD) -3 hours

1b) A-CDM Portal: POBT & PSAT available from EOBT -3 hours

2a) Airlines/ GH: Confirmation of TOBT at EOBT -40 mins

3a) ATC: TSAT issued at TOBT -25 mins

4) Start-up Procedures (Call Ready)

5) Start-up Procedures (Start-up & Pushback)

4a) Pilot calls ATC Clearance Delivery Centre (CDC) "ready" (ARDT)

4b) CDC confirms TSAT and hands over to Ground Control (GC)

5a) Pilot to request start-up & push back approvals from GC

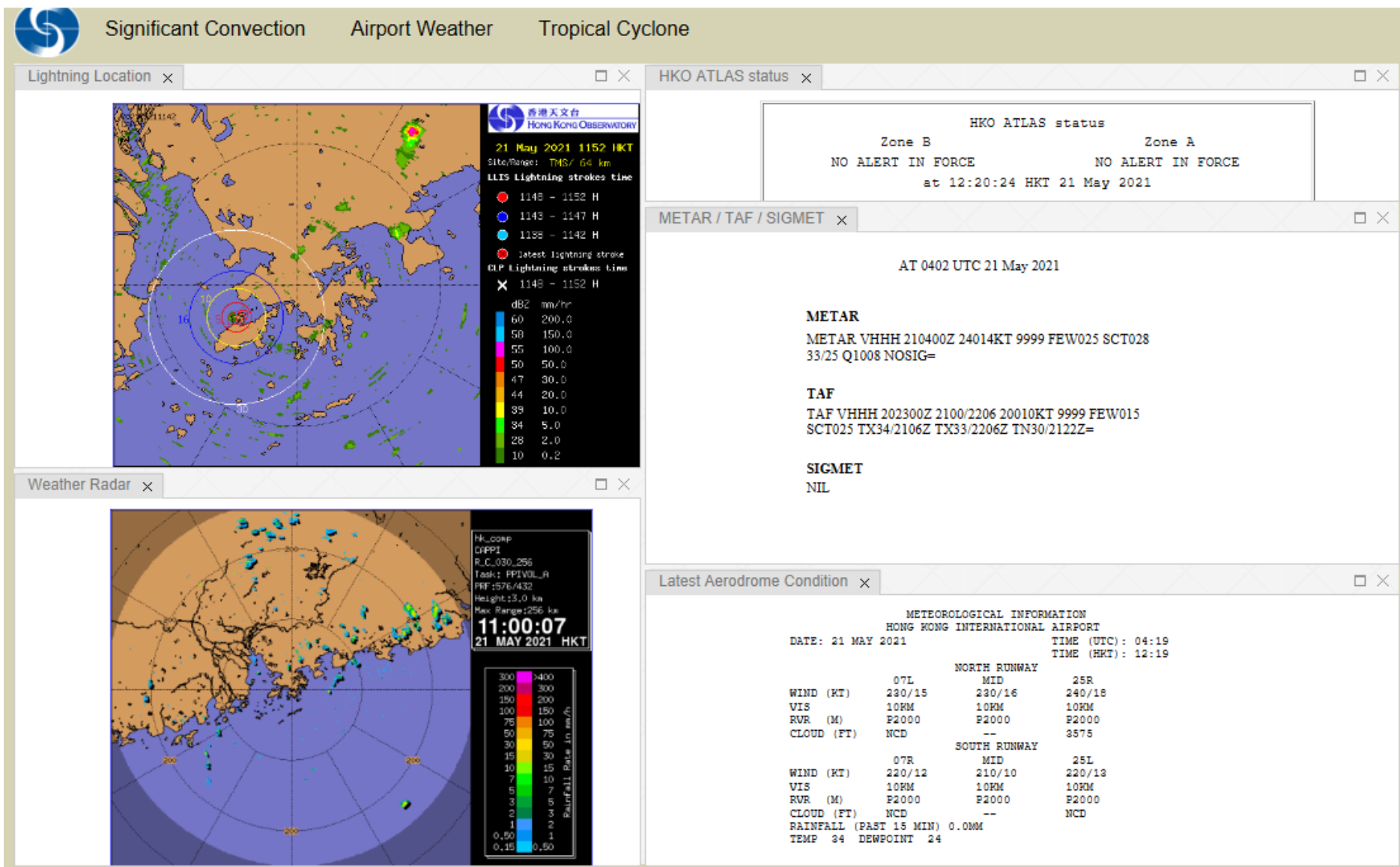
5b) GC issues start-up approval (ASAT) & push back approval

Special Features of HKIA A-CDM

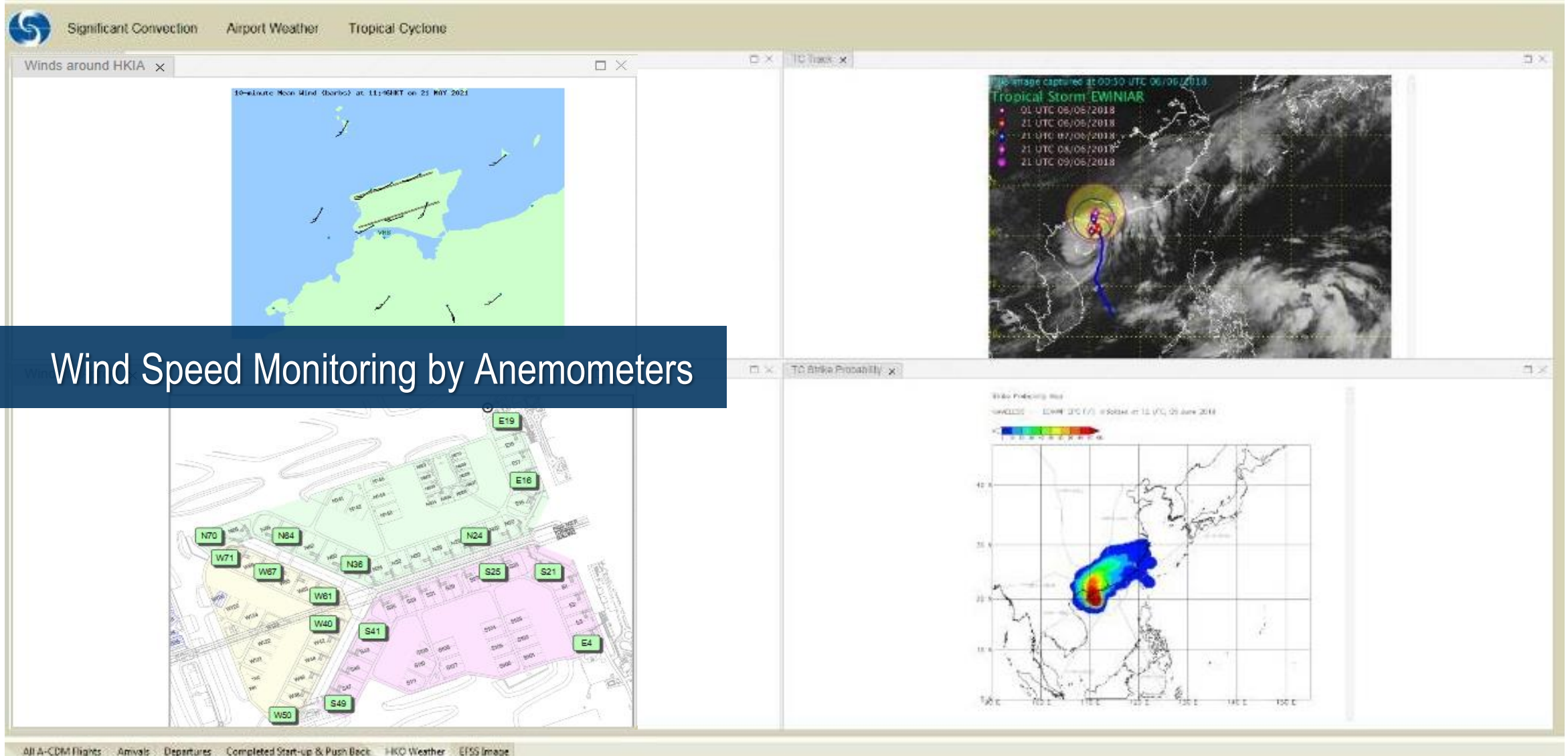
ASMGCS – Ground Radar



Airport Weather



Typhoon Tracking



Wind Speed Monitoring by Anemometers

EFSS – Departure Sequence Monitoring

The screenshot displays the EFSS (Electronic Flight Service System) Departure Sequence Monitoring interface, which is divided into three main panels: Pending Clearance, Clearance Request, and ATC Clearance.

Pending Clearance Panel: This panel lists flight information for aircraft that are pending clearance. The list includes flight numbers, altitudes, and other details. Handwritten notes in blue ink are visible next to several entries, including "CPA826" and "CPA312".

Clearance Request Panel: This panel is currently empty, with a large handwritten note in blue ink that reads "CPA826 T300".

ATC Clearance Panel: This panel displays a list of aircraft that have received ATC clearance. The list includes flight numbers, altitudes, and other details. Handwritten notes in blue ink are visible next to several entries, including "CPA731" and "CPA826".

Ready to Start Panel: This panel is located at the bottom right of the interface and displays a green box with the text "25N3 25N3 CFS UFF / 2RT3 CFS TIL 1021". Below this, there is a handwritten note in blue ink that reads "Elyx6 All BK +12 0120-0951 / SLOT No NEED".

Bottom Bar: The bottom bar of the interface includes a "FREQUENTIS" logo, a timestamp "08:50:10", and a series of icons for various functions, including a "CDC" button.

Aircraft Docking Guidance System Enhancement

Flight No.	XX 1111 AATEST1 HKG 01:09 -0:18	
Registration Mark		
Port of Origin		
Best of Time (BOT)		
Count Down Time (i.e. Current Time – BOT)		

Arrival Flight Display

- Arrival flight information will be displayed 15 mins prior to Best Of Time (BOT) of arrival flight.
- Arrival flight information will disappear when aircraft docking starts.

Flight No.	XX 1111D AATEST1 TOBT 01:46 TSAT 02:15 +0:04	
Registration Mark		
TOBT		
TSAT		
Count Down Time (i.e. Current Time – TOBT)		

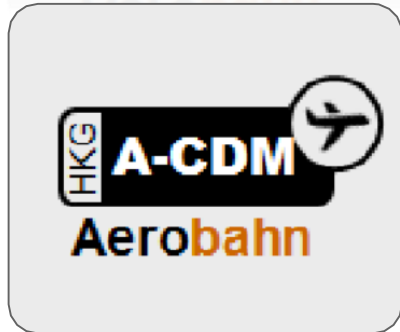
Departure Flight Display

- Departure flight information will be displayed 40 mins before TOBT.
- Departure flight information will disappear when:
 - TOBT is deleted; or
 - ADGS recognizes the aircraft is pushed back; or
 - Updated TOBT is >120 mins of current time.

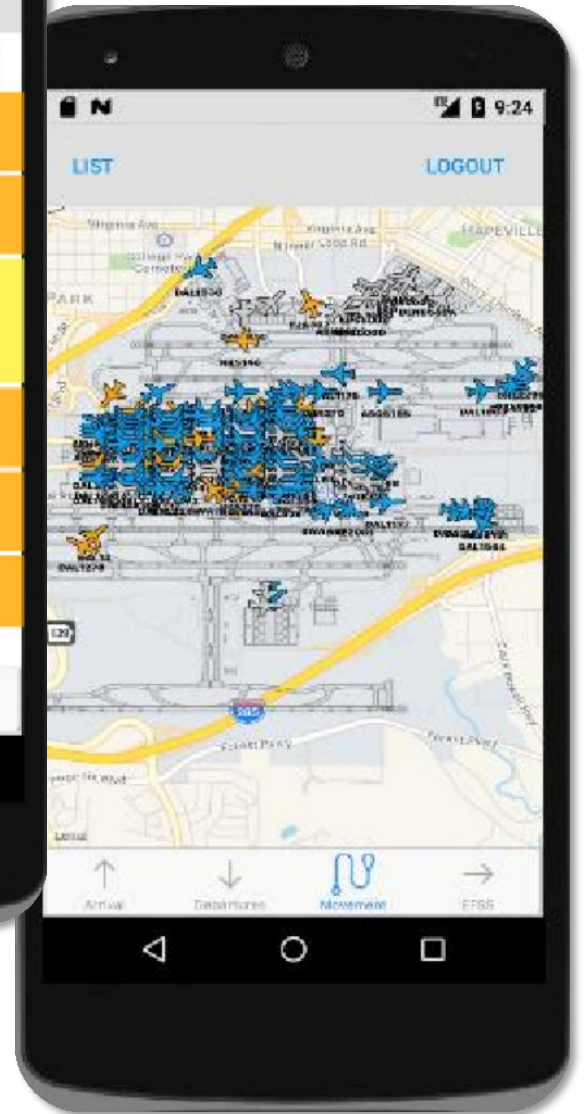
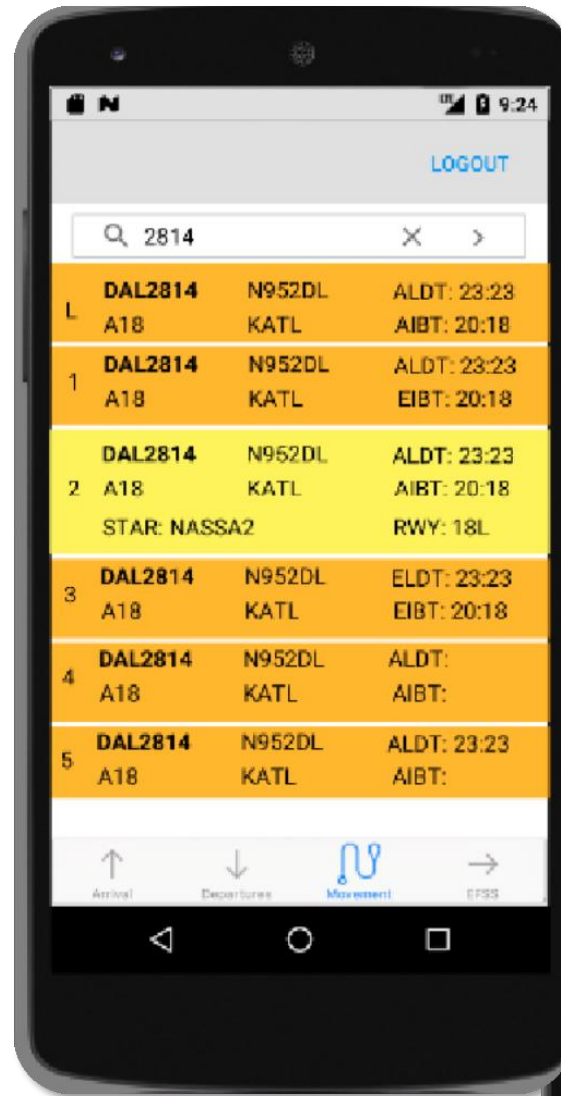
Mobile A-CDM App



Manage
TOBT Inputs



A-CDM
Information



KPIs on Effectiveness

KPIs on A-CDM

KPI	Description	Objective
1	Accuracy of ARDT vs. First TOBT Pilot to call ready within ± 5 mins of the first TOBT	For assessing <u>airlines'</u> predictability of TOBT
2	Accuracy of ARDT vs. Final TOBT Pilot to call ready within ± 5 mins of the final TOBT	For assessing <u>pilots'</u> compliance in making the call-ready notifications
3	Accuracy of TSAT vs. ASAT ASAT to be within ± 5 mins of TSAT	For determining accuracy of <u>ATC</u> in issuing ASAT
4	Accuracy of AOBT vs. TSAT Push-back to be carried out within ± 5 mins of TSAT	For determining accuracy of <u>A-CDM system algorithm</u> for devising the TSAT
5	Accuracy of AOBT vs. ASAT Push-back to be carried out right after ATC's ASAT within 2 mins	For assessing the <u>Line Maintenance Operators'</u> response time for carrying out push-back towing
6	TSAT = TOBT ratio	For indicating the status of <u>airport congestion</u>

Use A-CDM Data to Drive for Improvements

01

Share monthly report with respective stakeholders for their assessment on performance.

02

Regular reviews with airlines (down to flight level) to identify procedural non-compliance/ systemic issues.

03

Work with airlines/ ground handlers to formulate improvement measures.



Improvement in On-Time-Performance (OTP)

PRE-A-CDM

MATURITY OF A-CDM

FY2017/18

65%



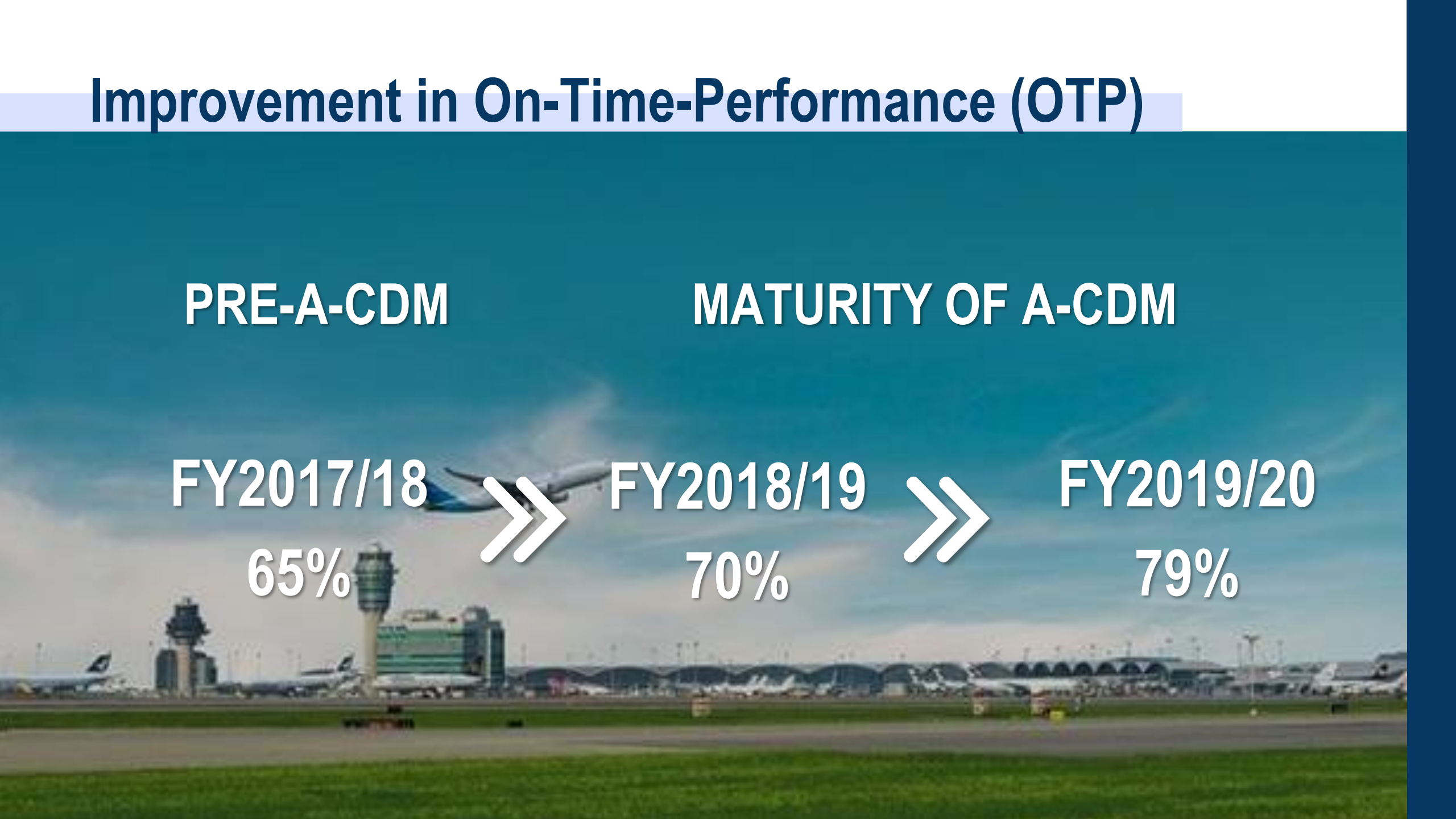
FY2018/19

70%



FY2019/20

79%



Challenges Encountered in A-CDM



01

Fine-Tuning TSAT

Fine-tune A-CDM algorithm to enhance TSAT accuracy, based on data collected and feedback from stakeholders



02

Handling of Special Flights

Added a new function in A-CDM to cater air- and ground-return flights



03

Integration of A-CDM with Base Carriers' Flight Operations Systems

Enable base carriers to update A-CDM via their own systems

A-CDM Operations Guidelines



Airport Collaborative Decision Making (A-CDM) Operations Guidelines

Version 2.1
Date: 26 Mar 2021

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Issued A-CDM Operations Guidelines (Version 2.1) –

Readily accessible by key
stakeholders of A-CDM to
facilitate aircraft operations

Link to the Guidelines :

<https://extranetapps.hongkongairport.com>

THANK
YOU



香港
國際機場

HONG KONG
INTERNATIONAL
AIRPORT



Mr. Punya Shakya

Regional Officer (AGA)

ICAO Asia Pacific Office



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CANSO/ACI Asia-Pacific ATFM/A-CDM Integration Workshop

A-CDM Implementation in Asia/Pacific

Punya Raj Shakya

Regional Officer, Aerodromes and Ground Aids

ICAO Asia and Pacific Office

pshakya@icao.int

Wednesday 02 June 2021, 06:00-09:30 UTC

Thursday 03 June 2021, 06:00-09:00 UTC





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Topics..

- Global and regional frameworks for A-CDM
- Asia/Pacific A-CDM Implementation Plan

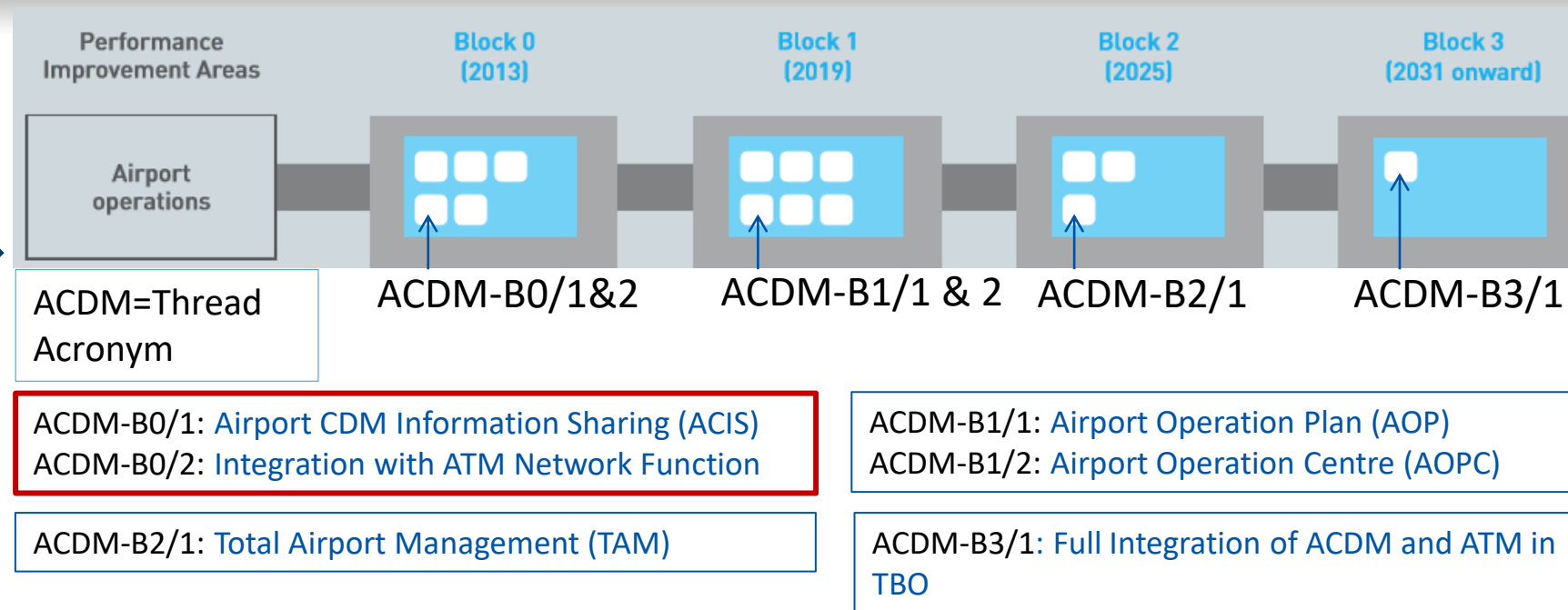




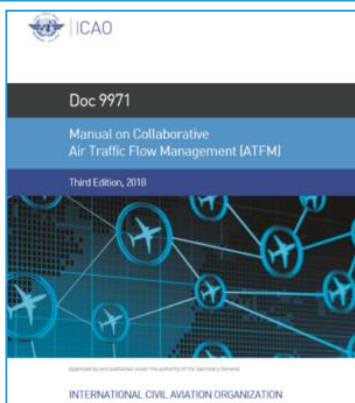
Global Framework



GANP (Doc 9750)



Global Guidance



Doc 9971



GANP Portal: <https://www4.icao.int/ganpportal/>

Manual on Collaborative ATFM (Doc 9971)

PART III. AIRPORT COLLABORATIVE DECISION-MAKING

- Chapter 1. What is A-CDM?
- Chapter 2. Airport-CDM partners and stakeholders.....
- Chapter 3. A-CDM methods and tools.....
- Chapter 4. A-CDM implementation.....



Regional Framework for A-CDM

- ICAO APAC Seamless ANS Plan :

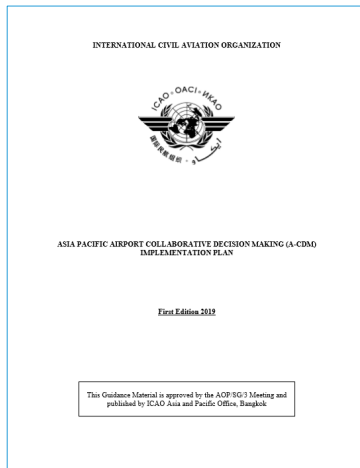
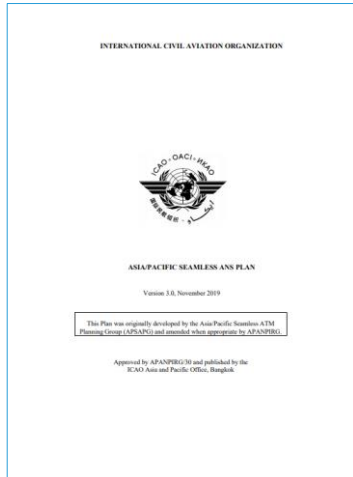
<https://www.icao.int/APAC/Documents/edocs/Asia%20Pacific%20Seamless%20ATM%20Plan%20V%203.0.pdf>

- PARS Phase II (expected implementation by 07 November 2019)

7.3 All international aerodromes should operate an A-CDM system for Airport CDM Information Sharing (ACIS) integrated with the ATM network function consistent with ACDM-B0/1 – 2 (Priority 1).

- APAC A-CDM Implementation Plan, First Ed. 2019

<https://www.icao.int/APAC/Documents/edocs/APAC%20A-CDM%20Impl.%20Plan%20First%20Edition%202019.pdf>





Asia/Pacific A-CDM Task Force

➤ Decision APANPIRG/27/2 (September 2016):

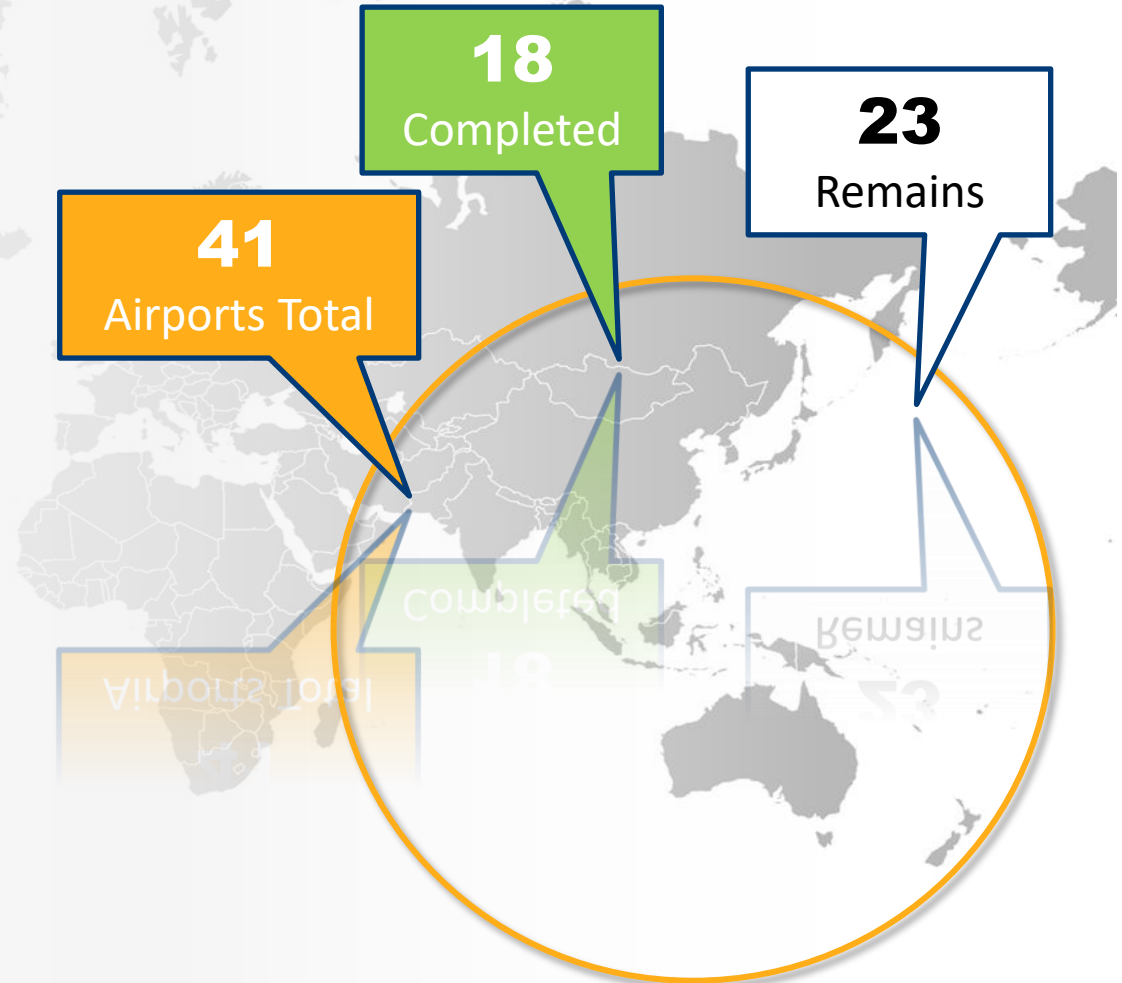
- Establish APA-CDM/TF:
States (9): Australia, China, Hong Kong, China, India, Japan, Philippines, Singapore, Thailand, USA
IOs (2): CANSO, IATA
- APA-CDM/TF/1 (Apr. 2017, Kunming, China)
 - One key outcome was to conduct a survey on A-CDM implementation status and plans, as well as the approach to A-CDM





APA-CDM/TF/2 (Nov. 2017, Hong Kong, China)

- Presented survey results
- Decision to develop Regional Guidance on A-CDM Implementation

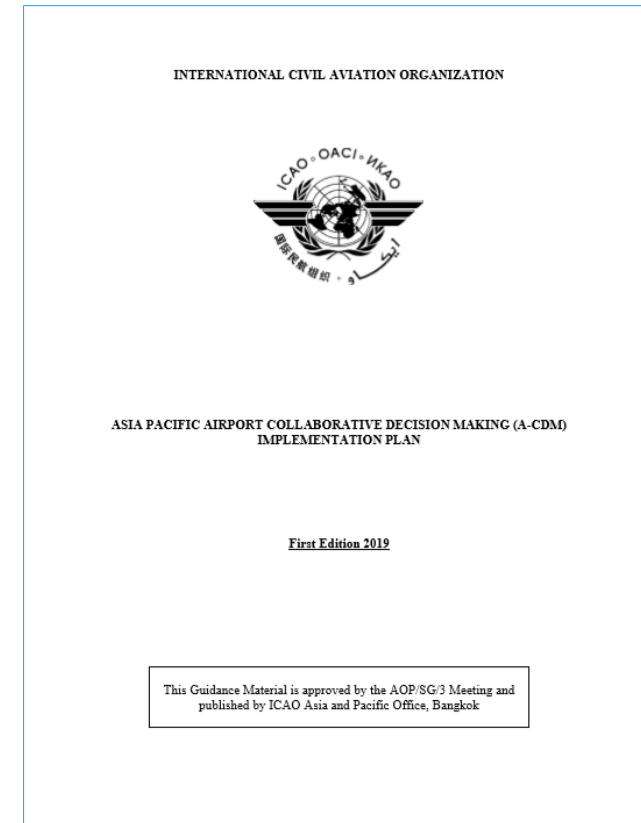




Asia Pacific A-CDM Implementation Plan

Content

1. SCOPE OF THE PLAN
 2. PLAN DEVELOPMENT AND OBJECTIVES
 3. EXECUTIVE SUMMARY
 4. ABBREVIATIONS AND ACRONYMS
 5. OVERVIEW OF A-CDM
 6. A-CDM IMPLEMENTATION GUIDANCE
 7. HARMONIZATION FRAMEWORK
 8. INTEROPERABILITY OF A-CDM WITH OTHER SYSTEMS
 9. CURRENT SITUATION
 10. PERFORMANCE IMPROVEMENT PLAN
 11. RESEARCH AND FUTURE DEVELOPMENT
- APPENDICES



https://www.icao.int/APAC/Documents/edocs/APAC%20A-CDM%20Impl.%20Plan_First%20Edition%202019.pdf



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A-CDM IMPLEMENTATION GUIDANCE



Phases of A-CDM

Initiation Phase

- Initial familiarization on A-CDM
- Stakeholder consultations
- Draft Governance Structure
- MOU between all stakeholders
- A-CDM GAP analysis
- Cost Benefit Analysis (CBA)
- Requirement Definition
- Procurement (if needed)
- High-level implementation plan

Implementation Phase

Governance

- Establish Steering Group
- Set-up of project organization with roles and responsibilities
- Develop detailed implementation plan
- Establish communication plan
- Establish training plan
- Establish data sharing agreement

A-CDM Operations

- Develop A-CDM procedures, including roles and responsibilities
- Carry out stakeholder workshops/training on A-CDM and the change it will introduce to stakeholders.
- Establish Measurement Framework, including compliance and performance
- Implement A-CDM solution
- Adapt necessary systems to provide and receive A-CDM data.
- Plan and carry out live trials

Operation and Monitoring Phase

- Establish necessary framework to maintain A-CDM operations with roles and responsibilities
- Follow-up on A-CDM compliance and performance to ensure procedures are followed and objectives are met.
- Adjust procedures, as and when needed



Measurement of Effectiveness of A-CDM Implementation

Measurement of TOBT

Name of indicator	TOBT input participation rate
Value of Indicator	Allows the A-CDM project team to see the amount of participation from airlines/ground handling agents in TOBT inputs before proceeding to measure the accuracy and use TOBT for pre-departure sequencing.
Data requirement	Manual TOBT updates/inputs
Formula	Track number of TOBT inputs from each airline and ground handling agent through different time references before departure, e.g. at TOBT-10mins, -20min and -40mins
Indicator Forms	Participation rate in TOBT inputs and when does it occur
Tips/Warning	<p>It is important to achieve a high % of participation in order for the A-CDM concept to work.</p> <p>A-CDM with low participation rate will lead to questions on fairness when TSAT is used for pushback and eventually the collaborative concept may fail.</p> <p>To improve participation rate, more A-CDM awareness workshops or compliance measures may be required.</p>
System requirements	Data analysis tool of the A-CDM portal if available or TOBT input records

Accuracy of TOBT

Name of indicator	TOBT Accuracy
Value of Indicator	<p>Allows airlines/ground handling agents to understand whether their TOBT submission workflow/process is effective in achieving an accurate TOBT.</p> <p>Allows the A-CDM project team to assess whether the TOBT quality is acceptable and can be used to generate TSAT.</p> <p>It also gives a general indication of compliance rate for TOBT submission.</p>
Data requirement	<ul style="list-style-type: none"> TOBT Actual Ready Time (ARDT) and/or Actual start-up request time (ASRT)
Formula	<ul style="list-style-type: none"> Compare TOBT against ARDT and/or ASRT Compare TOBT against AOBT
Indicator Forms	<ul style="list-style-type: none"> Accuracy of TOBT TOBT compliance rate
Tips/Warning	<p>Low TOBT accuracy with high TOBT participation rate indicates that the airline/ground handling may have to improve their internal workflow/process for updating of TOBT.</p> <p>How to measure the accuracy of the TOBT depends on the procedures applied for the A-CDM implementation. To be able to measure the TOBT accurately, it is highly recommended that pilot shall call ready within a window of the TOBT and that ATC indicates this time via an ARDT or ASRT.</p>
System requirements	<ul style="list-style-type: none"> Data analysis tool of the A-CDM portal if available or TOBT input records AOBT from appropriate source ARDT and/or ASRT from an Electronic Flight Strip system or alternative means.



Measurement of TSAT

Name of indicator	TSAT Compliance
Value of Indicator	Allows the A-CDM project team to assess whether ATC is following the TSAT for pushback and also pilots' adherence to the TSAT procedure.
Data requirement	<ul style="list-style-type: none">• TSAT• Actual Start-up Approval Time (ASAT)• AOBT
Formula	<ul style="list-style-type: none">• Compare ASRT and/or ASAT against TSAT• Compare AOBT against TSAT
Indicator Forms	<ul style="list-style-type: none">• TSAT compliance rate
Tips/Warning	<p>If the compliance level is low, it may mean either the A-CDM procedures are not followed by ATC/Pilots or ATC did not enforce TSAT compliance or the TOBT submitted by airlines/ground handling agents is not up to desired accuracy.</p> <p>How to measure the compliance to the TSAT depends on the procedures applied for the A-CDM implementation. To be able to measure the compliance it is highly recommended that pilot request within a window of the TSAT and that ATC indicates this time via an ASRT. ATC shall also give the start-up approval within the given TSAT window and indicate this via an ASAT.</p>
System requirements	<ul style="list-style-type: none">• Data analysis tool of the A-CDM portal if available or TSAT records from DMAN/PDS• AOBT from appropriate source• ASRT and/or ASAT from an Electronic Flight Strip system or alternative means.



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HARMONIZATION FRAMEWORK

A-CDM Acronyms and Definitions

Acronyms	Definition	Explanation
ACGT	Actual Commence of Ground Handling Time	The time when ground handling on an aircraft starts, can be equal to AIBT (to be determined locally)
ACZT	Actual Commencement of De-icing Time	The time when de-icing operations on an aircraft starts
ADIT	Actual De-icing Time	The actual time that the de-icing activity takes. Metric $AEZT - ACZT$
AEGT	Actual End of Ground Handling Time	The time when ground handling on an aircraft ends.
AEZT	Actual End of De-icing Time	The time when de-icing operations on an aircraft end
AGHT	Actual Ground Handling Time	The total duration of the ground handling of the aircraft. Metric $AEGT - ACGT$
AIBT	Actual In-Block Time	The time that an aircraft arrives in-blocks.
ALDT	Actual Landing Time	The time that an aircraft lands on a runway.
AOBT	Actual Off-Block Time	Time the aircraft pushes back /vacates the parking position.



Milestone Approach



16 Milestones of A-CDM in relation to the Phases of Flight



Overview of the 16 A-CDM Milestones

Milestone	Purpose of the Milestone	Milestone is triggered by	Data Elements	A-CDM Actions	Example of system(s) that typically has this data (and should share it)	Required/ Optional
MS1 ATC Flight Plan Activated	<ul style="list-style-type: none"> Starts the A-CDM process for a flight To check the data consistency between Airport Slot and Airline's flight plan data (EOBT vs SOBT, aircraft registration and aircraft type) 	<ul style="list-style-type: none"> ATC flight plan is submitted by Aircraft Operator (this happens typically at EOBT-3hrs but can also be later) 	<ul style="list-style-type: none"> Schedule Time of departure and arrival for the flight (STD/SOBT and ETA/SIBT) Flight Plan EOBT Gate/Stand 	<ul style="list-style-type: none"> Calculate: ELDT, EIBT, TOBT, TSAT, TTOT Present/Disseminate: ELDT, EIBT, EOBT, SOBT, TOBT, TSAT, TTOT 	<ul style="list-style-type: none"> TWR Flight Data Processing System ACC Flight Data Processing System AODB/RMS 	<ul style="list-style-type: none"> Required
MS2 CTOT Allocation	<ul style="list-style-type: none"> To allow early awareness of departure delay if there are en-route/destination airport constraints <p>Note 1: Multi-Nodal ATFM Trial currently issues CTOT at latest time of EOBT-1.5hrs</p> <p>Note 2: BOBCAT CTOT is available at EOBT-2hrs</p>	<ul style="list-style-type: none"> CTOT issued by relevant ATFM Unit/cross-border ATFM nodes 	<ul style="list-style-type: none"> CTOT 	<ul style="list-style-type: none"> Calculate: TSAT BASED on CTOT Present/Disseminate: ELDT, EIBT, EOBT, SOBT, TOBT, TSAT, CTOT 	<ul style="list-style-type: none"> ATFM System or similar capability 	<ul style="list-style-type: none"> Required for a fully integrated A-CDM – ATFM solution but not for a local A-CDM implementation
MS3 Take-off from Outstation	<ul style="list-style-type: none"> To provide an ELDT at early stage by using FPL EET + ATOT. To revise system generated TOBT, TSAT and TTOT if required Allow early awareness of deviation from scheduled in-block time for resource planning. 	<ul style="list-style-type: none"> Take-off from up-station 	<ul style="list-style-type: none"> ELDT 	<ul style="list-style-type: none"> Re-calculate: EIBT, TOBT, TSAT, TTOT Present/Disseminate: ELDT, EIBT, EOBT, SOBT, TOBT, TSAT, TTOT 	<ul style="list-style-type: none"> ACC Flight Data Processing System ACARS 	<ul style="list-style-type: none"> Optional

Reference: Table 5 of Asia/Pacific A-CDM Implementation Plan



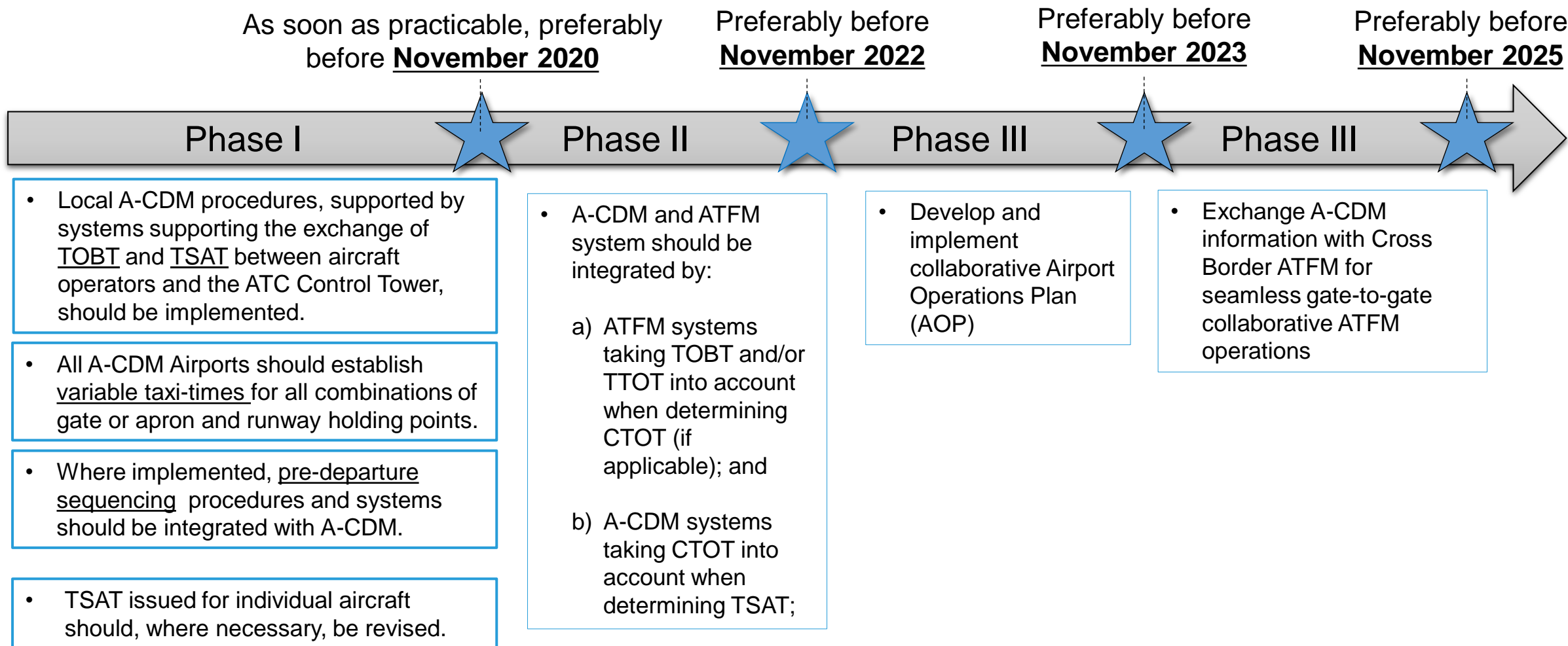
A-CDM Performance Indicators

Strategic Performance Indicator	Performance Driver	Performance Indicator	Performance Measurement	Milestone Measurement	Stakeholders
1) Improve punctuality and reduce delays	Turnaround punctuality	Turnaround compliance	<ul style="list-style-type: none"> ➤ (ARDT - AIBT) - MTTT > or = 5 minutes (%) ➤ (ARDT - AIBT) - (SOBT - SIBT) > or = 5 minutes (%) ➤ AOBT - ARDT > or = 5 minutes (%) 		Aircraft Operator Airport
	Arrival punctuality	In Block Time accuracy	<ul style="list-style-type: none"> ➤ ALDT - ELDT (minutes) ➤ ALDT - ELDT > or = 5 minutes (%) ➤ AIBT - SIBT > or = 15 minutes (%) ➤ AIBT - EIBT (minutes) ➤ AXIT - EXIT (minutes) ➤ # of missed approaches, go arounds per day per RWY (Include explicit times for the missed approaches for each runway) 	@ Milestones 3, 4 and 5 @ Milestones 3, 4 and 5 @ Milestones 3, 4, 5 and 6 @ Milestones 3, 4, 5 and 6	Aircraft Operator Airport

Reference: Table 6 of Asia/Pacific A-CDM Implementation Plan



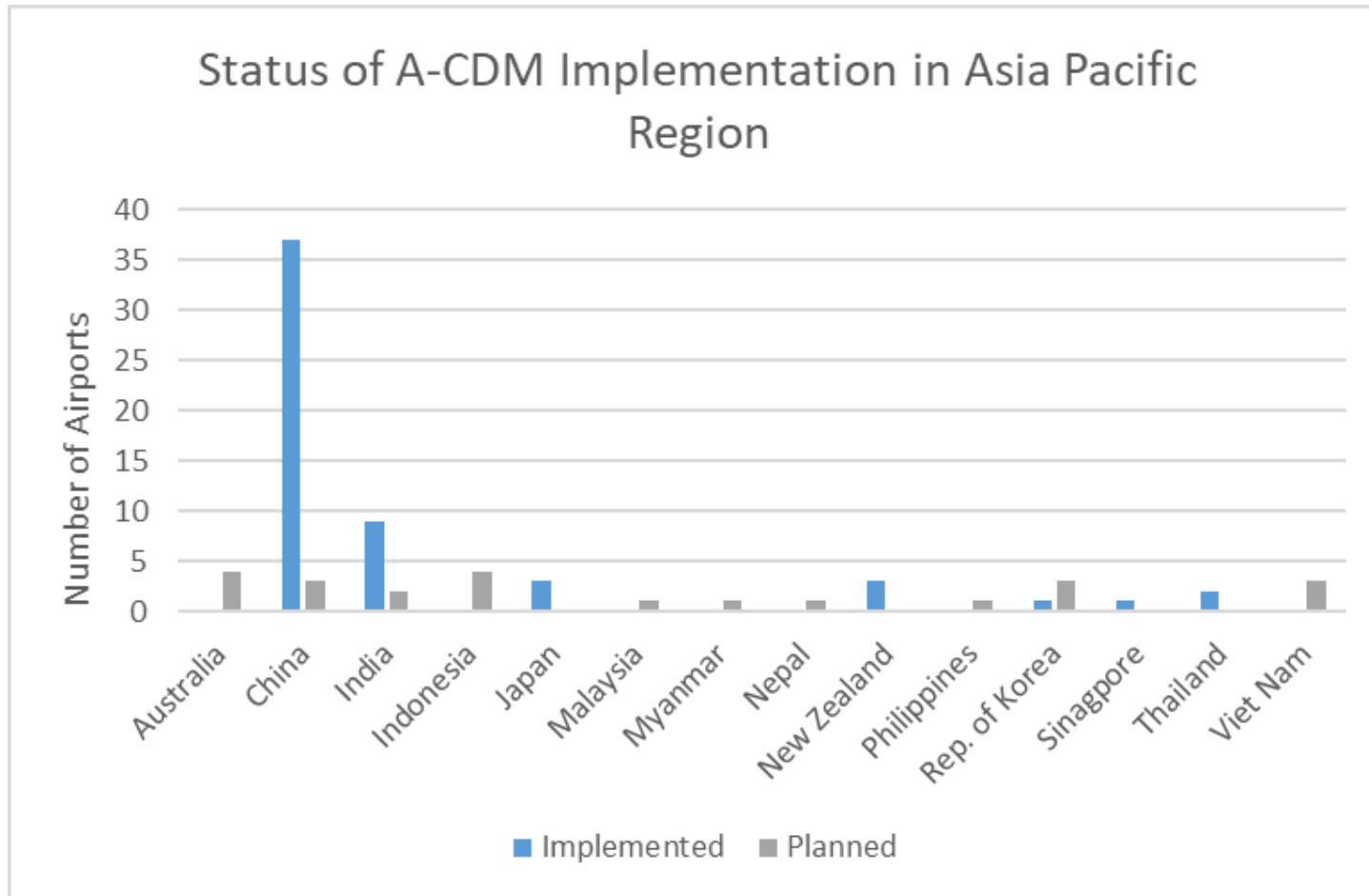
PERFORMANCE IMPROVEMENT PLAN



Reference: Table 8 of Asia/Pacific A-CDM Implementation Plan



A-CDM Implementation in APAC Region



- As of May 2021:
 - **56** airports have implemented A-CDM
 - **23** airports have plan to implement A-CDM.



A-CDM Frequently Asked Questions (FAQs)

Structure of the FAQ:

- **Implementation related FAQs** – these are questions and answers that relate to the planning and execution of an A-CDM implementation
- **Procedural related FAQs** – these are questions and answers that relate to the procedural character.
- **Technical related FAQs** – these are questions and answers that relate to the technical aspects of the solution and various systems that enables an A-CDM implementation.

<https://www.icao.int/APAC/Meetings/Pages/2021-APA-CDM-TF6.aspx>



Implementation related FAQs

Q01: Is A-CDM necessary at a small single-runway airport? What size of an airport would render A-CDM necessary?

A01: There are different size-based models that provide guidance as to when an airport should *explore the needs* for A-CDM process. In Asia-Pacific, the regional *Seamless ANS Plan (v3.0, 2019)* recommends that all international aerodromes consider implementing A-CDM with integration to ATFM.

It is important to note, however, that A-CDM is a process designed to address inefficiencies and sub-optimized operations at the airport. Thus, a needs analysis that looks beyond just the level of traffic demand should be carried out to determine the needs for A-CDM. Common problems A-CDM is designed to alleviate include, inter alia, turnaround inefficiencies, punctuality problems, lack of information transparency, congestions and inefficiencies in the movement areas (taxiways, runways), and lack of good coordination among airport stakeholders. Even if an airport is small, if these problems exist, a level of A-CDM process may be useful.



Framework for Monitoring A-CDM Implementation

<input type="button" value="Enable Editing & Macro"/>		STATE / ADMINISTRATION:		
<input type="button" value="ADD AN AIRPORT"/>				
#	NAME OF THE AIRPORT	<i>Airport 3</i>	<i>Airport 2</i>	<i>Airport 1</i>
1	What is the phase of A-CDM Implementation at your Airport?	SELECT	SELECT	SELECT
	<i>Please add free text / comments, if needed:</i>			
2	Is the A-CDM implementation enforcing operation with TOBT and TSAT?	SELECT	SELECT	SELECT
	<i>Please add free text / comments, if needed:</i>			
3	Which of the following A-CDM enabling elements are being implemented to support A-CDM operations			
	Information Sharing	Yes/No	Yes/No	Yes/No
	Milestone Management	Yes/No	Yes/No	Yes/No
	Variable Taxi times	Yes/No	Yes/No	Yes/No
	Pre-Departure Sequencing	Yes/No	Yes/No	Yes/No
	A-CDM in Adverse Conditions	Yes/No	Yes/No	Yes/No
	Integration with Air Traffic Flow Management System	Yes/No	Yes/No	Yes/No

<https://www.icao.int/APAC/Meetings/Pages/2021-APA-CDM-TF6.aspx>



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UNITING AVIATION



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(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU



Mr. SL Wong


Head of Technical Affairs, Safety,
Capacity and ATM

ACI Asia-Pacific

Why Airports Need A-CDM?

- Problem for airports:
 - Traffic ↑
 - Delays ↑
 - Need to squeeze most capacity from infrastructure without necessarily pouring in more concrete and \$\$\$

A-CDM a cost effective solution

- Reduction in delays
 - Better utilization of slots
 - Less engine emissions (CO₂, NO_x)
 - Taxiing and idle aircraft
 - Better resilience and recovery from disruptions
 - Weather events
- 

Airport's Role in A-CDM

- Airport's role as ground coordinator
- Airports should take lead in A-CDM implementation to work with
 - Airlines
 - ANSP
 - Network manager
 - Ground handlers
- ACI recognizes ICAO's leadership in promoting A-CDM/ATFM

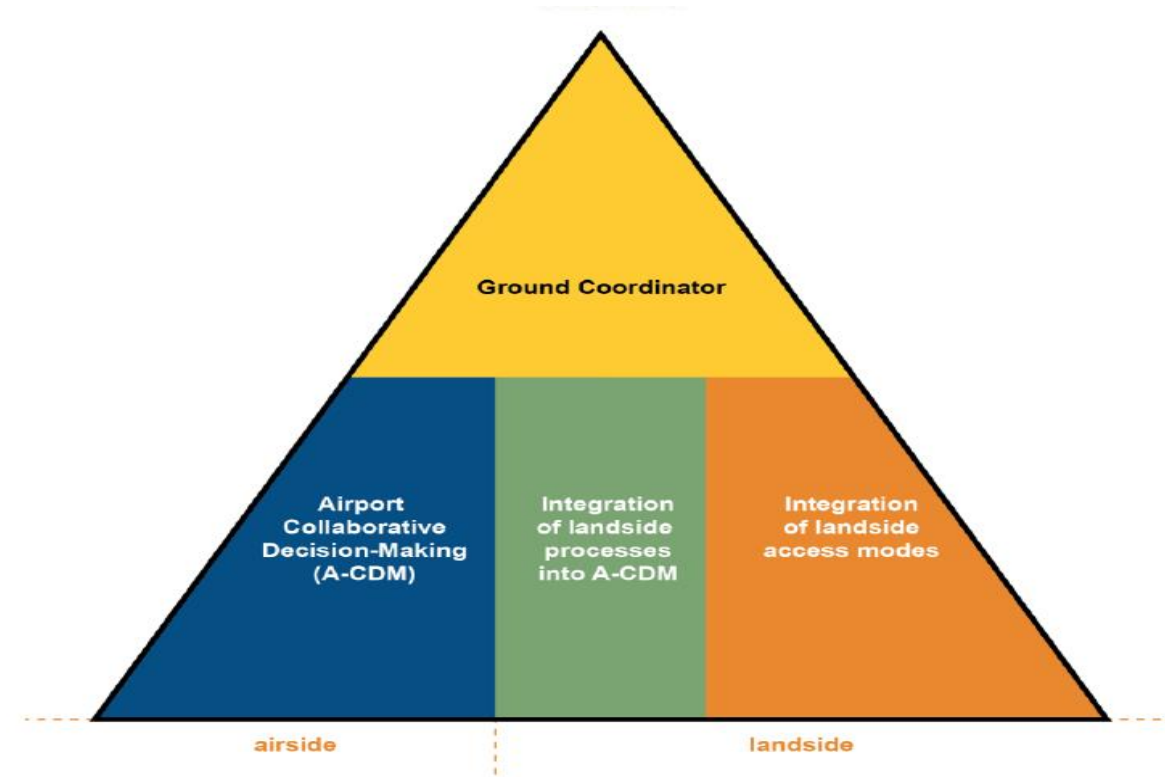


Figure 1: Evolution of the Ground Coordinator

ACI a longstanding supporter of A-CDM

- ACI Resolution 2011
 - Supports cooperation with CANSO on A-CDM
 - Work with partners
 - Promote worldwide standards



21st meeting of the ACI World General Assembly
Marrakech, 1 November 2011

Agenda Item 10

RESOLUTION N° 4

AIRPORT COLLABORATIVE DECISION-MAKING TO IMPROVE EFFICIENCY AND MINIMIZE DELAYS

The Twenty-first ACI World General Assembly,

Whereas sustainability and efficiency are ACI priorities;

Whereas many airports have capacity limitations;

Whereas airport operators represented by ACI and air navigation service providers represented by CANSO should work together to maximize system efficiency

Whereas, to optimize performance, it is necessary to integrate the entire aviation system, from landside and airside of terminals, to aircraft gates and airfield management, to runway and airspace use;

Whereas Airport CDM should be integrated with in-flight CDM, using the ICAO SWIM (System wide information management) framework;

Whereas ICAO is working on a future Air Traffic Management concept based on standard modules ("Aviation System Block Upgrades") to ensure interoperability;

Whereas EUROCONTROL has developed specifications for Airport CDM which are being applied in Europe, and ACI Europe has entered into an agreement with EUROCONTROL and CANSO to promote the application of Airport CDM at European airports;

Resolves to:

1. Support a joint project with CANSO to promote the worldwide introduction of A-CDM systems that can interact with in-flight CDM using standard interfaces, based on the existing model supported by EUROCONTROL;
2. Support work on a data interchange technical framework between airlines, ground handlers and airport operators;
3. Support further work with ICAO on the Future Aviation (air traffic management) system;
4. Work with ACI regions to promote worldwide standards for Airport CDM

END

ACI Welcomes Groundswell of Support and Efforts

- Beijing Declaration, 2018
- ICAO Asia-Pacific Seamless ANS Plan
- GANP

Declaration of Asia Pacific Ministerial Conference on Civil Aviation

1) We, the Ministers from the Asia and Pacific States, responsible for Civil Aviation, met in Beijing, China from 31 January to 1 February 2018, on the occasion of the Asia Pacific Ministerial Conference on Civil Aviation, organized by the International Civil Aviation Organization (ICAO);

2) Mindful of the obligations as Contracting States to the Convention on International Civil Aviation signed on 7th December 1944 (also known as the Chicago Convention);

3) Considering the importance of air transportation world development (the Global Air Transport Industry support worldwide and contributes US\$ 2.7 trillion to Global Gross Domestic Product equivalent to 3.5% of global GDP and US\$ 664.4 billion aviation industry revenue);

4) Recognising that the Asia and Pacific Region has aviation market in terms of available seat-kilometres and general aviation, share of international revenue passenger-kilometres, and corresponding air traffic capacity, efficiency and safety challenges;

5) Recognising that there are various programmes, objectives and initiatives being pursued under the ICAO "No Country Left Behind (NCLB)" in capacity development in order for States to derive maximum benefits from aviation, let aviation contribute ultimately to the realization of the priorities, particularly the United Nations 2030 Agenda for Sustainable Development, which plays its important role in the building of a community of shared future for mankind;

6) Recognising that the ICAO Global Air Navigation Plan (GANP) set out regional expectations, particularly in the Asia Pacific Region, agreed at regional fora such as the Asia Pacific Air Navigation Planning Group (APANPIRG) and the Regional Aviation Safety Implementation Assistance Partnership (ASIAP), the Co-ordinating Committee for the Asia Pacific Region (CCAPR), and the Asia Pacific Air Transport Agreement (APATA);

7) Recognising that there are existing bilateral and multilateral platforms, such as the Asia and Pacific Directors General of Civil Aviation (APDGA) Conference, APANPIRG, RASG-APAC, and ICAO Safety Implementation Assistance Partnership (ASIAP), the Co-ordinating Committee for the Asia Pacific Region (CCAPR), and the Asia Pacific Air Transport Agreement (APATA);

8) Recognising the importance of active participation of States in attending ICAO fora and other international meetings, trade events to advance civil aviation development in the Region;

9) Acknowledging that the existing regional relationships with meaningful technical cooperation and assistance provided by ICAO, APANPIRG, RASG-APAC, ASIAP, CCAPR, and APATA;

- 1 -

INTERNATIONAL CIVIL AVIATION ORGANIZATION




ASIA/PACIFIC SEAMLESS ANS PLAN

Version 3.0, November 2019


This Plan was originally developed by the Asia/Pacific Seamless ATM Planning Group (APSAPG) and amended when appropriate by APANPIRG.

Approved by APANPIRG/30 and published by the ICAO Asia and Pacific Office, Bangkok

A-CDM/ATFM Integration Creates a Synergy

- Advance information exchange → Better decisions
 - Further minimize delays
 - Further optimization of airport capacities
- 

What we need to do now?

- Continue joint promotion of A-CDM
 - Integration of A-CDM/ATFM
 - Interoperability
 - Standardize data format, communications
- 

Thank you





Mr. John Moore

Assistant Director Safety & Flight
Operations

IATA Asia Pacific

CANSO / ACI - APAC

ATFM / A-CDM Integration Workshop

2-3 June 2021

John Moore

Assistant Director
Safety & Flight Operations
Asia-Pacific



IATA in brief

Global trade association for the world's airlines

290 passenger and cargo carriers in 120 countries

82% of global air traffic

54 offices in 53 countries

New Director General: Mr Willie Walsh



Airline Operations in ATFM



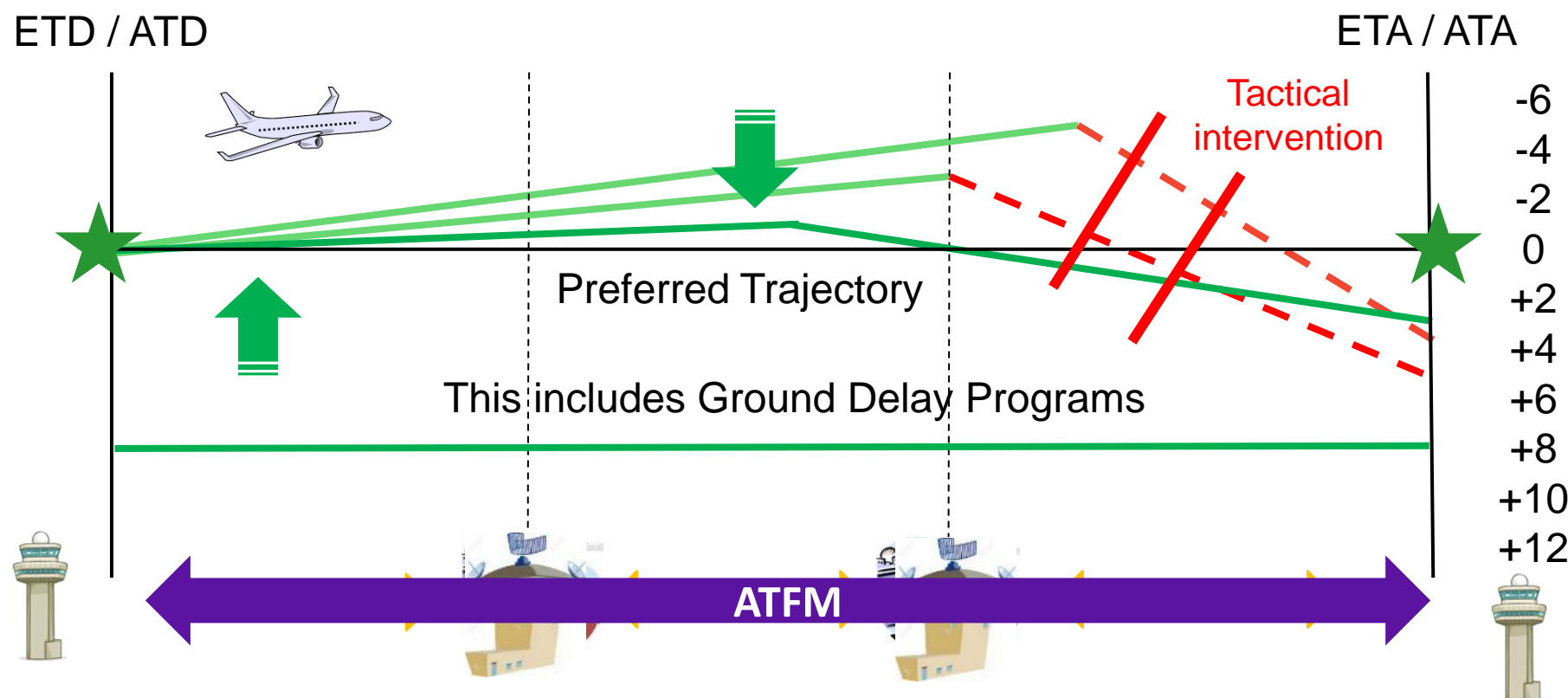
Airline Benefits from ATFM

- Accurate and common picture
- Shift the delay from airborne holding to ground delay or airborne adjustment
- Reduced fuel burn
- Increased predictability of operations
- Ability to change or swap slots
- Broader collaboration and autonomy for business decisions
- Enhanced safety due to reduced congestion
- Environmental savings



ATFM Supporting Airline Efficiencies

Fuel burn in the cruise can be significantly lower than fuel burn in a holding pattern or low-level vectors or maintaining lower levels.



Early information via LR-ATFM can permit delay absorbing in cruise avoiding high fuel burn scenarios in descent



ATFM going forward

- Support regional framework expectations from the ICAO concept
- Distributed Multi-Nodal ATFM Network – supporting expansion of cross-border ATFM
- Priority is interoperability rather than concept harmonisation of the various ATFM programs
- Aim to have maximum participation of exempt flights
- Long-Range ATFM



ATFM going forward

- System-to-system connection
- Common formats – FIXM v4.1 + Asia/Pac extension
- ATFM data exchange over common paths (eg: CRV)
- Requires Business Rules and strict Governance
- Cyber Security
- Regular performance reviews

Continued Improvements

- Greater equity in airspace access
- Greater access to timely and meaningful information for decision support
- More autonomy in decision making, including strategic and pre-tactical congestion management
- Ability to better deliver business and individual outcomes

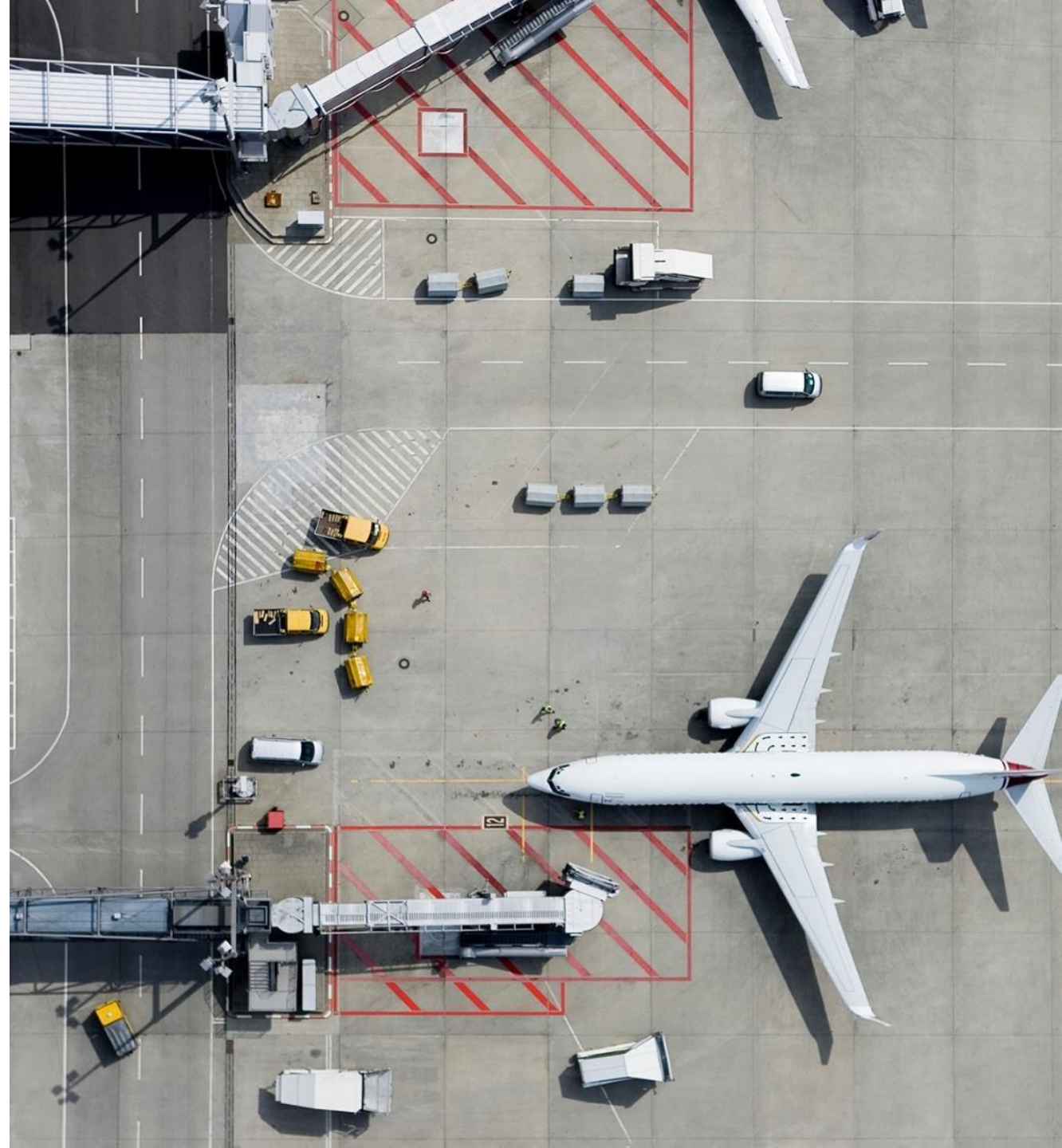


Airline Operations in A-CDM

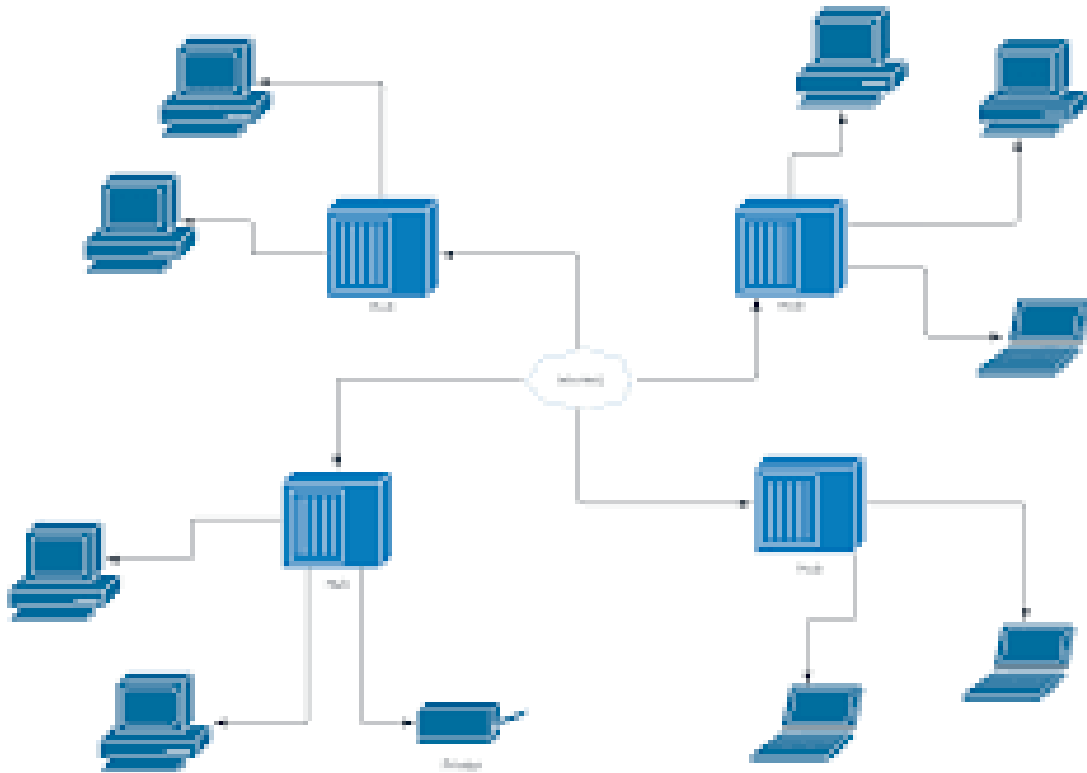


When should A-CDM Implementation be considered?

- Non-optimised turnaround and sequencing performance
- Poor punctuality and performance
- Poor compliance to EOBT and non-compliant FPLs
- Lack of transparency on overall airport plan, or lack of a 'single version of the truth'
- First come, first served principles for start-up



When should A-CDM Implementation be considered?



- Poor data into network resulting in high regulation to airport
- Poor recovery of airport after disruption
- Start-up delay due to false demand
- Poor interface with handling agents

Roles & Responsibilities



- Varied roles and responsibilities
- Requirement for a good understanding of TOBT
- Policy for alignment of TOBT and EOBT must be clear in A-CDM
- Importance of a pre-departure sequencer
- Publish responsibility for when the pilot is to call for start-up

Roles & Responsibilities



Aircraft Operator:

- Provide the FPL and any updates
- Provide an accurate TOBT
- Ensure Flight Crew are aware of their start-up call requirements

Ground Handling Agent:

- Providing an accurate TOBT in coordination with the airline OCC
- Ensure flight crew is aware of TOBT
- Ensure aircraft is ready for departure at TOBT

Consultation

- Comprehensive consultations with all airline customers
- Ensuring early engagement and a collaborative culture supports success
- Clear and agreed objectives
- A framework of reviews



Airline Benefits from A-CDM

- Helps reduce airport and en route delay and optimize airport operations
- Helps to improve gate management, reduce apron, taxiway, and holding point congestion
- Can help reduce operating costs attributed to fuel burn, which contributes to environmental targets



Thank-you

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Questions and Answers

Recap and setting the scene for day 2



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Co-Chair CANSO ATFM/A-CDM
Workgroup

AEROTHAI

Contact us



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Regional Focus



CANSO/ACI Asia-Pacific ATFM/A-CDM Integration Workshop

See you tomorrow

Thursday 03 June 2021, 06:00-09:00 UTC

Thank you

