airservices australia

# Airport Collaborative Decision Making (A-CDM) in Australia

GENERAL BRIEFING PACK

# Table of Contents

**Purpose: An introductory pack providing an overview of the A-CDM Program in Australia.**

Key Topics

# A-CDM in Australia

## PROGRAM OVERVIEW

# Airport Collaborative Decision Making (A-CDM)

**Airservices, airlines and airports working together to optimise airport operations & air traffic predictability.**

- Airservices is working in **partnership with our major airline and airport customers** to implement Airport Collaborative Decision Making (A-CDM) into Australia's four major airports – Brisbane, Perth, Sydney, and Melbourne.
- A-CDM will be delivered through a **staged rollout, one airport at a time**, with all four airports expected to be operational by end 2025.
- A-CDM is implemented in over 50 airports globally. This is a world first **multi-airport program** designed to harmonise operations across our four major airports, reduce implementation costs, and elevate the benefits of A-CDM to a whole-of-network perspective.
- A-CDM in Australia is enabled through the **A-CDM Aerobahn** suite of tools provided by Saab Sensis.


**A-CDM PARTNERS**

# What is A-CDM

**A-CDM is a new way of working to improve airport operations through the sharing of data via a common platform to make informed decisions to efficiently manage the arrival, turnaround and departure phases of aircraft.**

**Arrivals Mgt**

Common situational awareness of arrivals enabling resources (e.g. ground handlers) to be ready at the right time and place.

**Surface Mgt**

Increased visibility of aircraft status, gate assignment and conflicts plus bay planning.

**Turnaround Mgt**

Greater visibility of aircraft readiness to depart based on aircraft operators (or ground handlers) ensuring TOBTs are kept up to date.

**Departure Mgt**

Optimisation of the pushback sequence enabling aircraft operators to prioritise flights & have greater departure predictability

**A-CDM Information Sharing Platform (ACISP)**

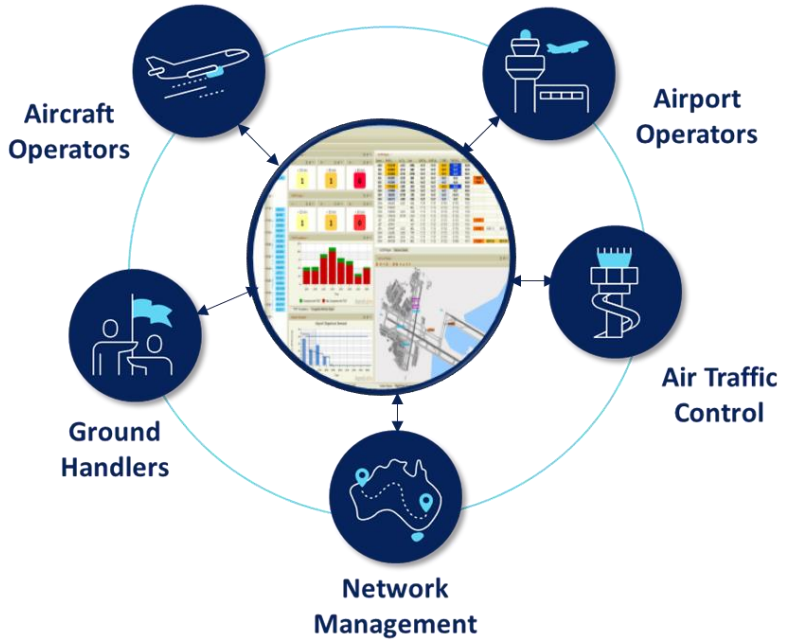
Capturing data at every stage of a flight's progress and sharing this information for all airport stakeholders to improve operational efficiency and predictability and facilitate better decision making.

# Why A-CDM

**A-CDM is a joint industry initiative with airport, airline partners and Airservices to improve airport operations.**

**KEY OBJECTIVES**

- To improve predictability
- To improve on-time performance
- To optimise use of resources
- To optimise the use of airport infrastructure
- To improve Air Traffic Flow Management (ATFM) compliance
- To reduce taxi-out times
- To reduce recovery time from adverse events
- To improve network management




***"Airports, Aircraft Operators and Airservices Australia collaborating through real-time data sharing to optimise airport operations."***

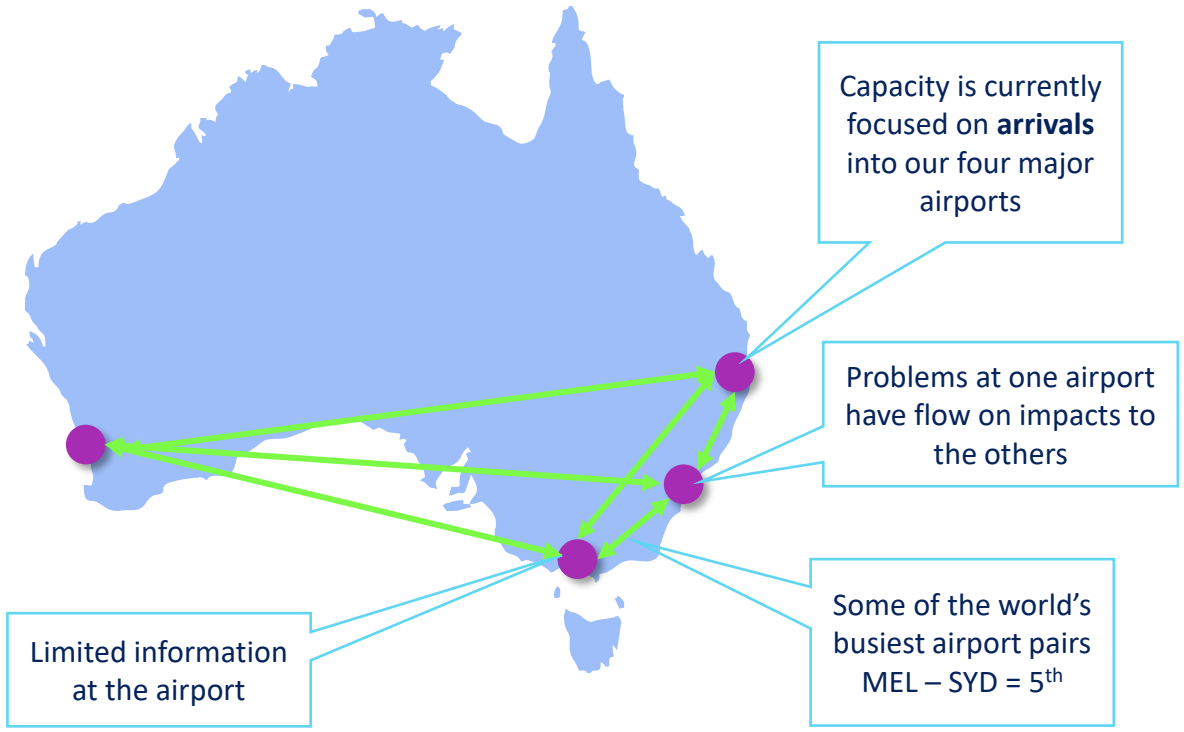
# Why A-CDM?

**A-CDM delivers significant benefits and outcomes for individual operators and the industry overall.**

| Situational Awareness | Operational Efficiency | Asset & Resource Utilisation | Customer Experience | Cost Savings | Environmental Benefits |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| Common, real-time situational awareness of local / network pain points | Optimising the push-back sequence to reduce taxi-out times, improved ATFM compliance and network management | Better utilisation and unlocking of latent airspace, runway and gate capacity | Improved on time performance, customer experience, predictability and recovery from adverse events | Cost savings by reduced inefficiencies and improved operational predictability | Lowered CO2 emissions through reduced taxi time and fuel burn |

# Network Benefits

**A-CDM optimises and unlocks runway and gate capacity and enables situational awareness across the network.**




OUR UNIQUE NETWORK ENVIRONMENT

A-CDM becomes a new control lever to optimise whole of network performance by:

- Providing real time information at each major airport
- Reducing taxi delays through optimised departure sequencing
- Enabling more sophisticated departure management capability improving enroute flow
- Improving ATFM compliance as the departure sequence takes into account CTOTs
- Improving recovery from adverse events reducing the flow on impact at the other airports
- Providing strategic awareness of what's happening and what's coming across the whole network through the NOMC

# About A-CDM

## WHAT IT IS & HOW IT WORKS

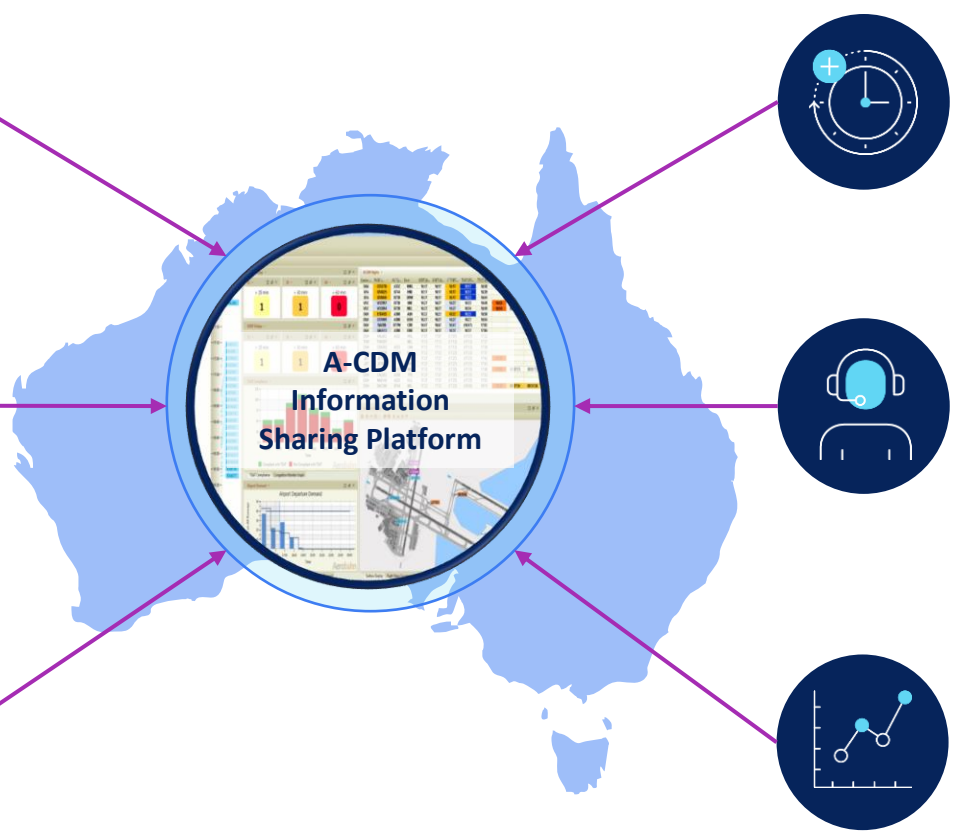
# How A-CDM works

## A-CDM is underpinned an information sharing platform comprising six key elements.

### 1. INFORMATION SHARING
A-CDM provides common situational awareness for all stakeholders (air traffic control, airlines, airports, ground handlers) – read more here.

### 2. MILESTONE APPROACH
A-CDM captures flight progress data in real time according to 16 standardized milestones – read more here.

### 3. PRE-DEPARTURE SEQUENCING
A-CDM uses data within the system to establish an optimised pre-departure sequence to reduce taxi out delays, provide predictability and reduce congestion – read more here.




### 4. VARIABLE TAXI TIME
A-CDM calculates the estimated time that an aircraft spends taxiing between parking bay/stand & runway thus providing predictable & accurate estimates of in blocks and take off times – read more here.

### 5. RECOVERY FROM ADVERSE EVENTS
Through information sharing and pre-departure sequencing, A-CDM enables a more timely recovery from adverse conditions considering arrival & departure demand – read more here.

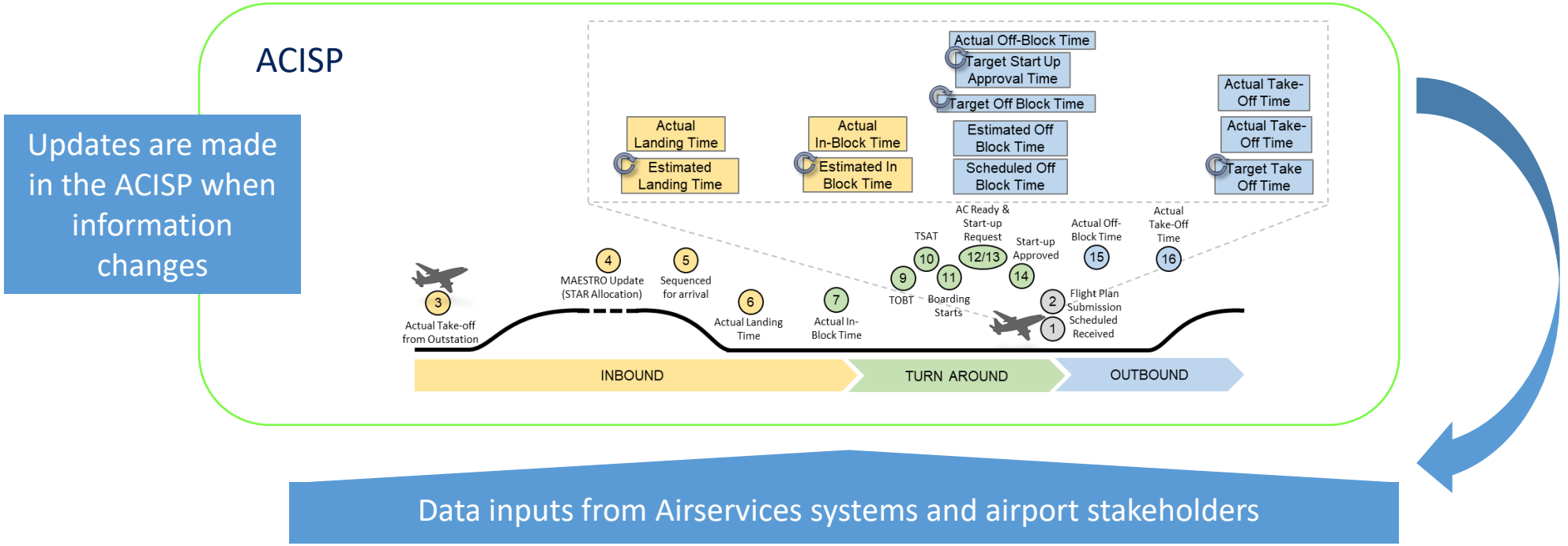
### 6. COLLAB. MGT OF FLIGHT UPDATES
A-CDM integrates of airport operation information into whole-of-network mgt, providing improved visibility of real-time arrival and departure demand throughout the network – read more here.

# How A-CDM works

## 1. INFORMATION SHARING – capturing and presenting real time data to support informed decision making.

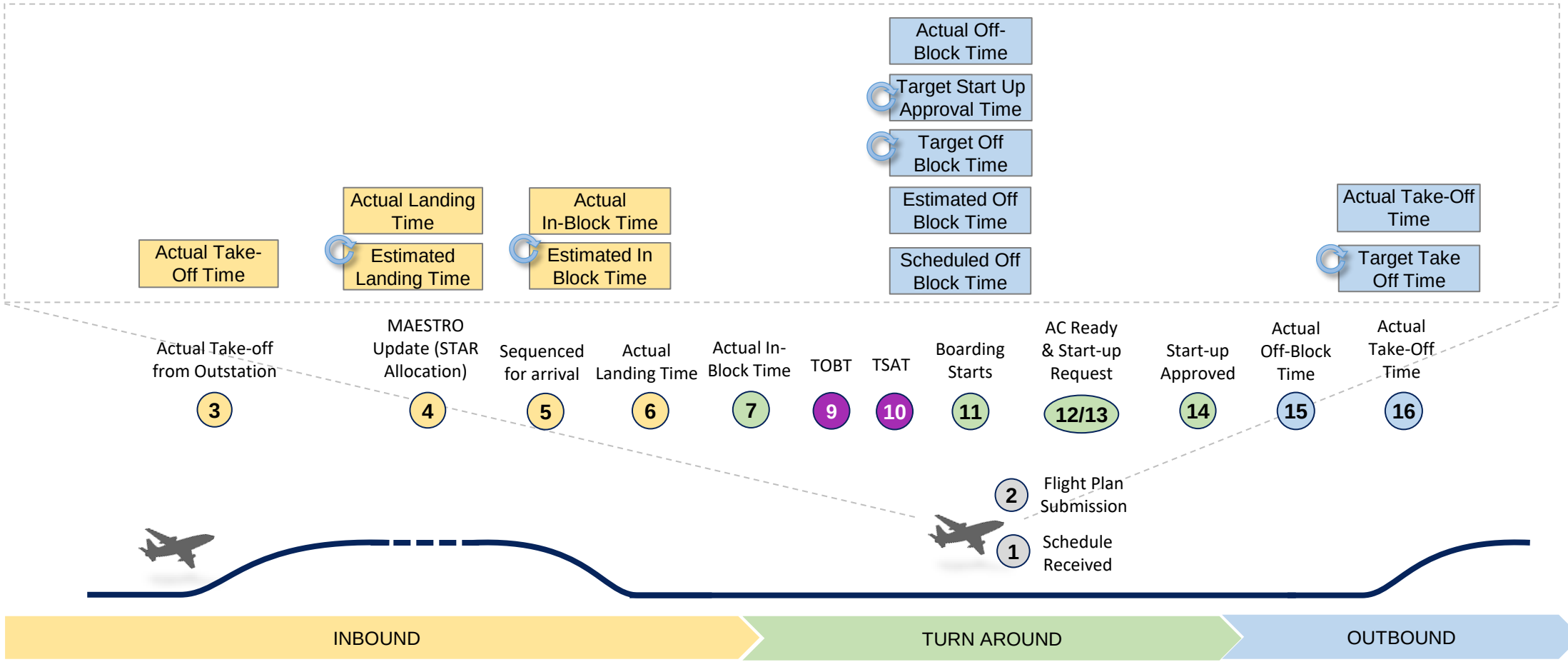
### A-CDM WORKSPACES


Information is presented to users in tailored workspaces based on what they need to do their job.



# How A-CDM works

## 2. MILESTONES APPROACH – facilitating situational awareness through standardized tracking of flight progress.

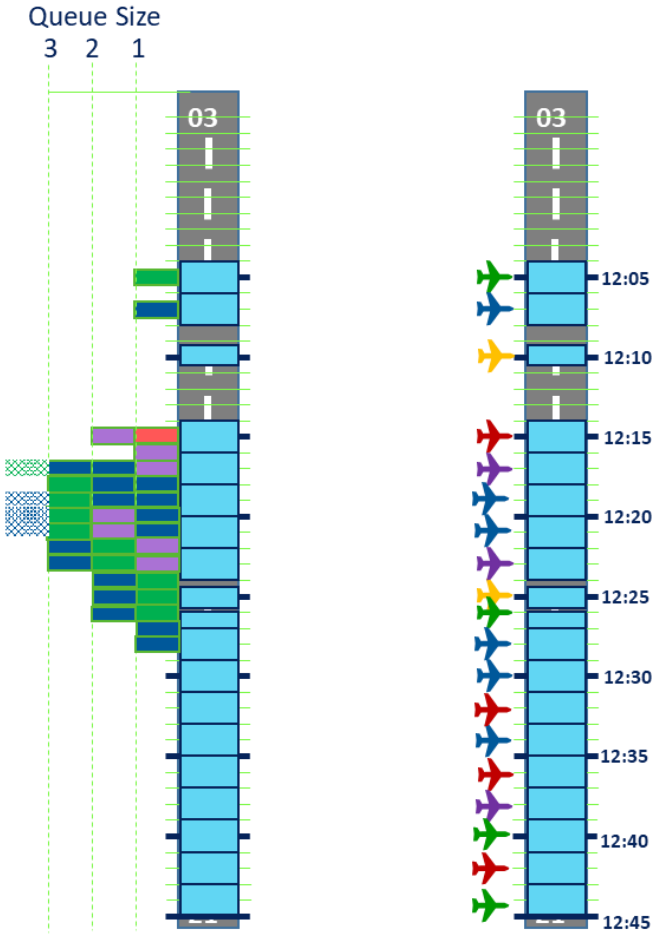



Times are continually being updated in real time through the phases of the flight

A-CDM focuses on the turnaround & pre-departure sequence processes introducing two new milestones: **Target Off Block Time (TOBT)** and **Target Start Up Approval Time (TSAT)**

# How A-CDM works

## 3. PRE-DEPARTURE SEQUENCING – optimizing departures to reduce taxi out delays & taxiway congestion







**FROM (TODAY)** **TO (WITH A-CDM)**

- The Pre-Departure Sequencer (PDS) within the ACISP establishes an optimum pre-departure sequence considering:
  - operator preferences
  - wake turbulence
  - queue lengths
  - runways in operation
  - operational constraints
- The PDS uses the TOBT as the earliest time an aircraft can depart and assigns a TSAT which places each aircraft in an optimal departure sequence off blocks.

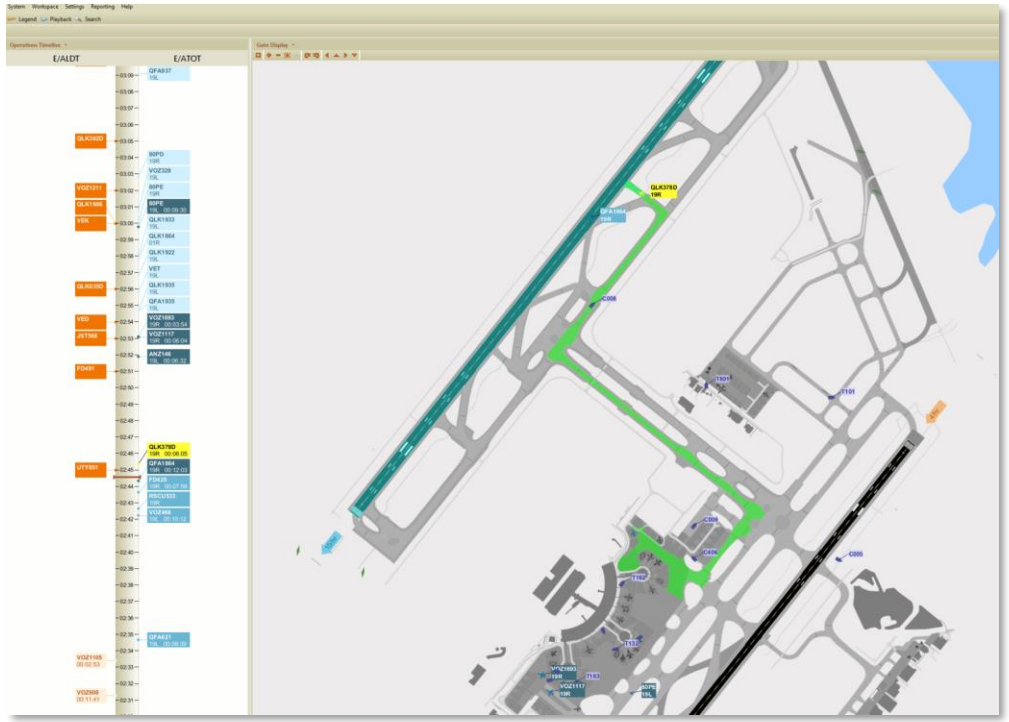
# How A-CDM works

## 4. VARIABLE TAXI TIME – providing predictable and accurate estimates of in block and take off times.

- Variable Taxi Time (VTT) is the estimated time that an aircraft spends taxiing between its parking bay/stand and the runway or vice versa.

- VTT is calculated based on the following:
  - Route based on estimated optimal taxi route
  - Aircraft parking position (stand/bay)
  - Runway in use
  - Aircraft Type – for taxi speed
  - Changing operational conditions

- VTT means that times within Aerobahn A-CDM are based on **real time conditions** providing **greater accuracy of information** within the platform and **predictability for operational decision making**.



# How A-CDM works

## 5. ADVERSE CONDITIONS – real time information & departure sequencing to improve recovery

- Leading into adverse conditions, the current CDM focus is on managing arrival demand through adjusting airport arrival acceptance rates and associated GDP revisions w/ considering the impact of departure demand. This impacts recovery with large departure delays occurring as arrival demand has been prioritised with flow on impact to arrival flows at the destination airport. The impact of an adverse event at one airport, may therefore ripple unpredictably throughout the network and lengthen the time it takes for all stakeholders to recover.
- With A-CDM, real-time operational information is shared between all airport stakeholders. Combined with pre-departure sequencing, A-CDM provides improved visibility of real-time arrival and departure demand throughout the network. It also enables CDM to include considerations of arrival and departure balancing, to ensure a smoother recovery from an adverse event, and mitigate the impact on the remainder of the network.

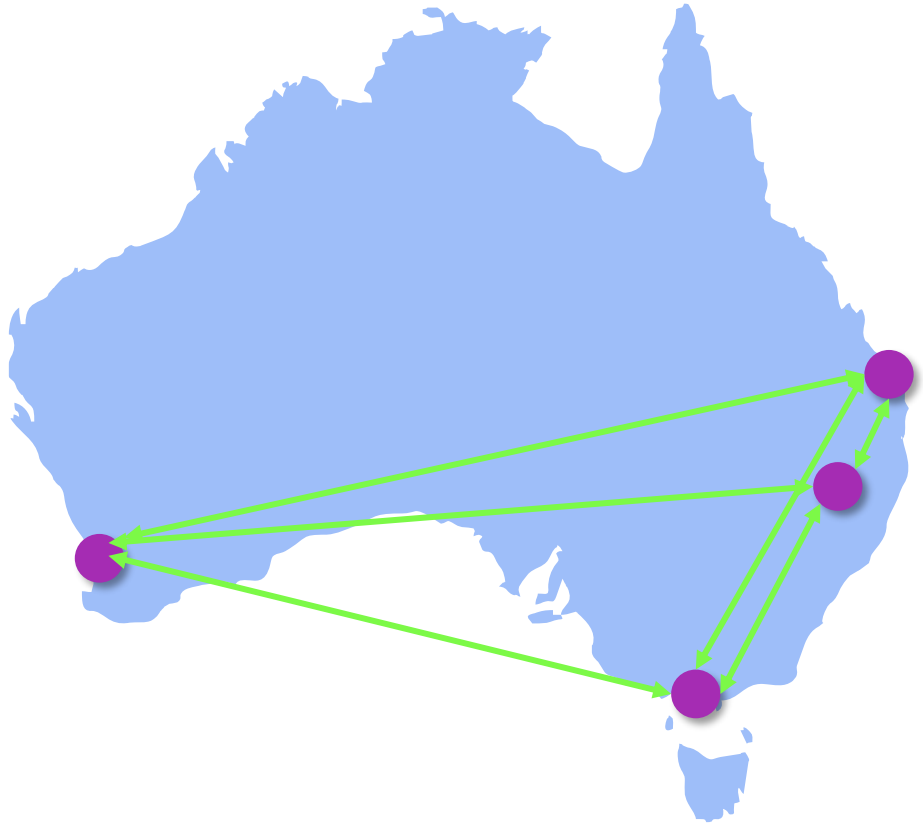
# How A-CDM works

## 6. COLLABORATIVE MANAGEMENT OF FLIGHT UPDATES

- A-CDM integrates real-time airport operation information into the whole-of-network management to provide improved visibility of real-time arrival and departure demand throughout the network.

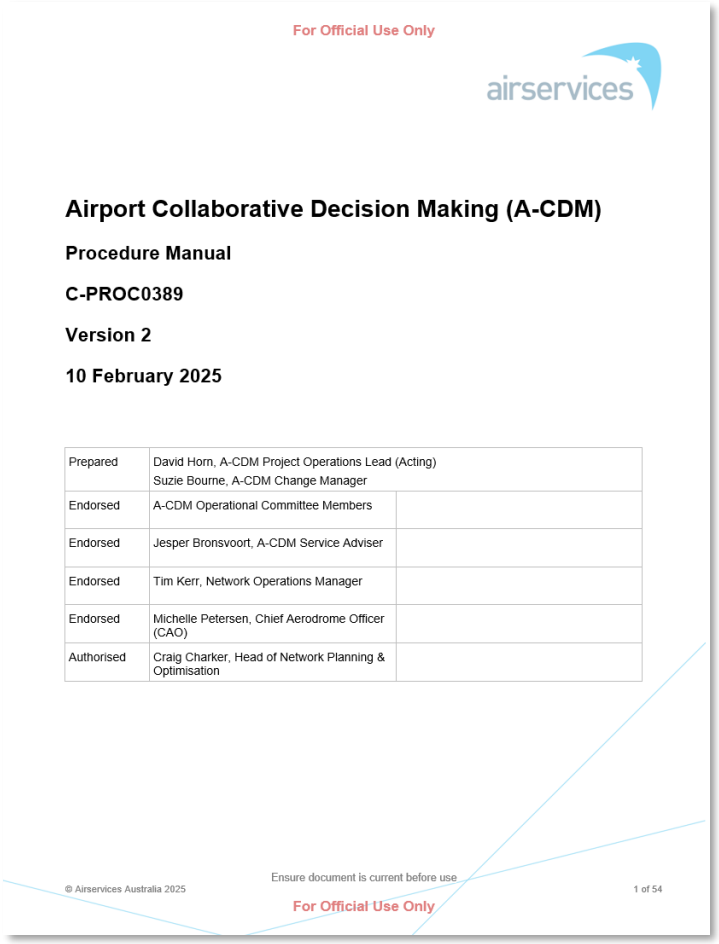
- This will be achieved by:
  - sending ATFM constraints from Harmony (CTOT) to the ACISP
  - sending updated arrival time information from Harmony to the ACISP

- The calculation of the TSAT includes CTOT ensuring that the flight will meet it’s ATFM compliance.



# How A-CDM works

**The *A-CDM Procedure Manual* outlines the way A-CDM will work in Australia & how we implement these elements.**



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**Airport Collaborative Decision Making (A-CDM)**

**Procedure Manual**

**C-PROC0389**

**Version 2**

**10 February 2025**

| | | |
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| Endorsed | Tim Kerr, Network Operations Manager | |
| Endorsed | Michelle Petersen, Chief Aerodrome Officer (CAO) | |
| Authorised | Craig Charker, Head of Network Planning & Optimisation | |



Ensure document is current before use



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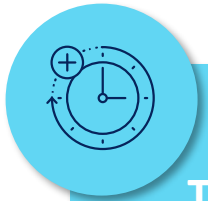
## A-CDM PROCEDURES

- The *A-CDM Procedure Manual* defines the processes, responsibilities and business rules (essentially the “Conops”) common to all airports implementing A-CDM in Australia.
- It has been developed and agreed in collaboration with airport and airline A-CDM partners through the A-CDM Operations Committee.
- The A-CDM system (ACISP & Workspaces) is built to support these procedures by providing information, automated calculations, and alerts.
- Each A-CDM stakeholder (partners and other airport stakeholders) are required to define their local business processes to support implementation of the procedures defined in the *A-CDM Procedure Manual* in readiness for go-live.

# How A-CDM works

**A-CDM introduces new concepts to enable better awareness of readiness and optimise departures.**



## TOBT = Target Off Block Time

- The time a plane is ready to depart, doors closed and ready for ATC clearance.
- Indicates aircraft's readiness for departure and is used to calculate the Target Start Up Approval Time (TSAT).

Aircraft operators (or ground handlers) must keep TOBTs updated within -5/+5 window.

## TSAT = Target Start Up Approval Time

- The time a flight crew expects to receive start-up/pushback clearance by ATC.
- Calculated by the Pre-Departure Sequencer based on the optimum departure sequence for ALL departing aircraft.
- ATC will give pushback / startup clearance once flights are within the TSAT window.

Adhering to TOBT and TSAT enables change from
**"FIRST COME, FIRST SERVED"** to **"BEST PLANNED, BEST SERVED"**

# How A-CDM works

## The new A-CDM rules and how we monitor compliance

### TOBT

- All IFR fixed wing (excl. exempt) flights responsible for complying with their Target Off Block Time (TOBT)
- Aircraft operators (or ground handlers) responsible for updating TOBT if not achievable within -5/+5 mins window
- Flight crews responsible for calling for ATC clearance within TOBT window (-5/+5 mins)
  - If early (*before* their TOBT window) ATC will advise to standby for ground
  - If late (*after* their TOBT window), ATC will advise to contact company for a new TOBT

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### TSAT

- ATC is responsible for issuing start up / pushback approval -5/+5 mins of TSAT

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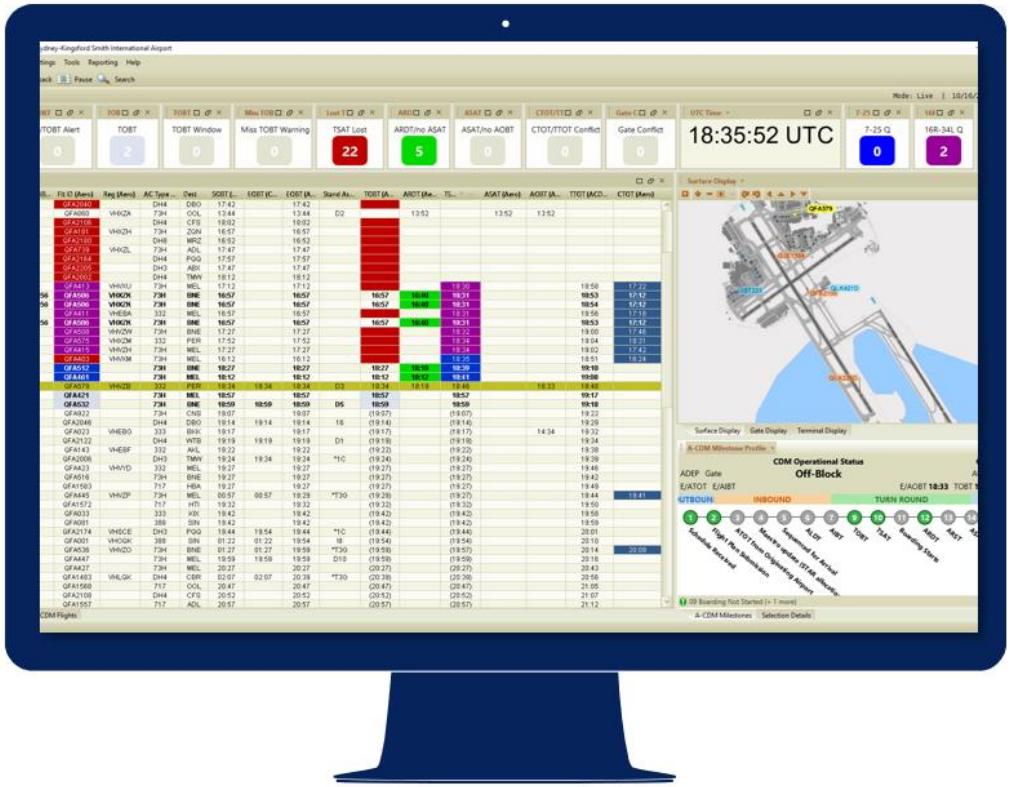
### CTOT

- GDP compliance for flights departing from A-CDM airports shifts from COBT to CTOT
- CTOTs are included in the calculation of the TSAT in the pre-departure sequencer
- Flights cannot leave early non-compliant as adherence to TSAT prevents this
- Although flights won't be prevented leaving late non-compliant, onus is on aircraft operator to manage compliance
- No penalties for late non-compliance for the first 3 months post go-live

# How A-CDM works

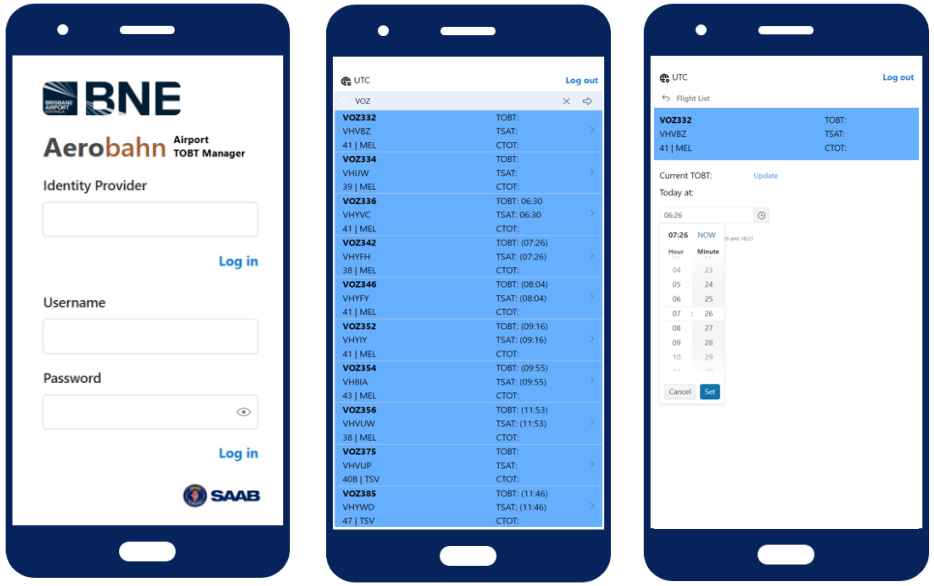
**Aircraft operators can update TOBTs via the A-CDM portal, web application or through airline system interfaces.**

## A-CDM Workspace (Web Portal)




A PC based application providing situational awareness on all aircraft movements at each A-CDM airport plus ability to update TOBTs.

## A-CDM TOBT Mobile Application




A web application enabling designated users (ie. ground handling agents) to easily update TOBTs.

# How A-CDM works

**To work successfully, A-CDM requires all airport stakeholders to play their part.**

| Aircraft Operators | Ground Handlers | Flight Crews | Airport Operators | Air Traffic Control | NOMC |
|---|---|---|---|---|---|
| ✓ Monitor and update TOBT<br>✓ Ensure flight crew are aware of TOBT<br>✓ Monitor TSAT | ✓ Monitor and updates TOBT for designated aircraft operators | ✓ Call ready within TOBT compliance window (-5/+5 mins)<br>✓ Monitor ground frequency start up approval<br>✓ Follow ATC start-up / pushback instructions | ✓ Manage bay allocations<br>✓ Identify and manage gate conflicts<br>✓ Facilitate local airport stakeholder governance forum (LWG) | ✓ Manage TSAT<br>✓ Record aircraft ready & startup approval<br>✓ Provide & records start-up / pushback clearance<br>✓ Updates runway and airport configurations, flow restrictions and region status | ✓ Inputs forecast runway and airport configurations pre-tactically<br>✓ Updates runway and airport configurations, flow restrictions and region status (on behalf of the ATC if required) |

**Working together to enable operational efficiency for all.**

# What this means

## KEY CHANGES FOR AIRCRAFT OPERATORS & GROUND HANDLERS, AIRPORTS, ATC, NOMC

# What this means for you

## Key changes for AIRCRAFT OPERATORS (incl. INTERNATIONAL & SMALLER DOMESTIC AIRLINES)

**Ensure your Target Off Block Time (TOBT) is accurate within -5/+5 mins.**

- If not, you (or your local ground handler) needs to update it.
- Updating TOBTs can be done via the A-CDM portal or mobile app.

**Flight crews to call 'ready' for ATC clearance within the TOBT window (-5/+5 mins).**

- If you call ***before*** your TOBT window (early non-compliant), ATC will advise you to wait or monitor frequency and issue pushback / start up clearance once you're within the TSAT window.
- If you call ***after*** your TOBT window (late non-compliant), ATC will advise to contact your operations centre to get a new TOBT.

**Ensure your flight crews are aware of their TOBT and TSAT times** – via the ground handler, airline operations centre or other.

**KEY BENEFITS**

- Your flight crews will know when to expect startup / pushback clearance from ATC (TSAT).
- Less waiting (reduced fuel burn / emissions) at the threshold due to an optimised departure sequence.

# What this means for you

## Key changes for GROUND HANDLERS / FBOS

**Ensure Target Off Block Time (TOBT) for client aircraft is accurate within -5/+5 mins.**

- If not, you are responsible for updating it on behalf of your client.
- Updating TOBTs can be done via the A-CDM portal or mobile app.

**Client flight crews to call 'ready' for ATC clearance within the TOBT window (-5/+5 mins).**

- If they call ***before*** their TOBT window (early non-compliant), ATC will advise them to wait or monitor frequency and issue pushback / start up clearance once they're within the TSAT window.
- If they call ***after*** their TOBT window (late non-compliant), ATC will advise to contact their operations centre to get a new TOBT.

**Ensure client flight crews are aware of their TOBT and TSAT times** – via your operations centre or other local airport mechanism.

**KEY BENEFITS**

- For your operations – enhanced situational awareness of aircraft movements at your airport.
- Flight crews will know when to expect startup / pushback clearance from ATC (TSAT).
- Less waiting (reduced fuel burn / emissions) at the threshold for aircraft due to an optimised departure sequence.

# What this means for you

## Key changes for ATC TOWERS (BN, ML, PH)

**A shift to how departures are processed based on A-CDM milestones (TOBT / TSAT)**

- FROM ‘first come, first served’ TO ‘best planned, best served’
- Flight crews call ready in TOBT compliance window (with new phraseology re. early & late non-compliance)
- Pushback / start up clearance for flight crews once in TSAT window
- Pushback and hold available for departures (to ensure compliance with TOBT) if gate required for incoming arrival
- Changes to INTAS FDE to assist A-CDM compliance monitoring
- New gate assignment data and mismatching alerts via INTAS FDE

**Set up and configuration tasks in the A-CDM workspace (Tower Shift Managers only)**

- Resetting queue lengths, runway settings, flow restrictions to reflect day of operations conditions and enable the smooth operation of A-CDM

**Improved situational awareness of airport movements**

- Real time view of upcoming arrivals and departures, detailed flight information, airport and terminal maps

**KEY BENEFITS**

✓ Smoother workload due to more orderly departure sequence.
✓ Improved situational and strategic awareness to inform decision making.

# What this means for you

## Key changes for NOMC (Overall)

**Improved situational awareness through new A-CDM workspace**

- Overall visibility of aircraft movements (arrivals and departures) at Brisbane, Perth, Sydney and Melbourne airports
- For ATMDs – strategic visibility of departures to enable departure traffic management initiatives to be put in place
- Ability to provide more timely and proactive information to industry

**A-CDM procedures to support effective operation of A-CDM system (particularly the Pre-Departure Sequencer)**

- Incl. of departure rates in MET CDM process (not published to industry)
- Setting departure rates and entering forecast flow restrictions into the A-CDM workspace (pre-tactically / day prior)
- Entering runway & flow config changes into the A-CDM workspace (tactically / day of ops) for Towers (if asked)

**New compliance regime, industry reporting & KPIs**

- TOBT / TSAT compliance
- A-CDM KPIs – to be included in Weekly Network Operations Briefing & Monthly Network Operations Report

**KEY BENEFITS**

- Improved network outcomes
- Enhanced situational awareness facilitating improved proactive advice and information to industry

# Timing

## When we'll be implementing A-CDM

# When is A-CDM coming

**A staged implementation, one airport at a time, fully operational by end 2025.**

## Further information

If you have questions, please reach out to:

- George Poulopoulos, A-CDM Program Manager, Airservices Australia
- Suzie Bourne, A-CDM Change Manager, Airservices Australia