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SHAPING OUR FUTURE SKIES

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Airports preparedness for the Airport Collaborative Decision Making (ACDM) Implementation

21 November 2023

What is ACDM
Why we need ACDM?
Who should Implement it?

Presenter

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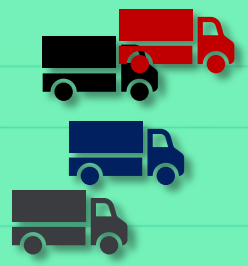
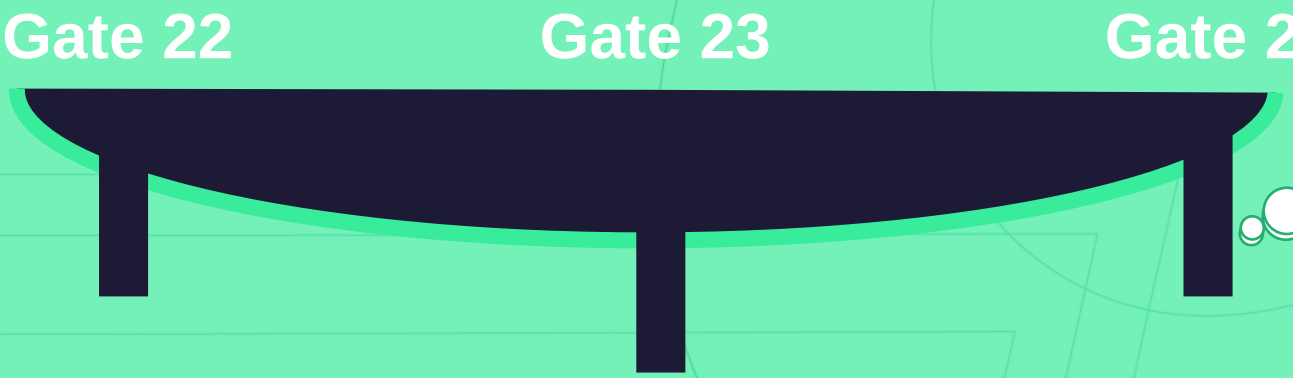
A- CDM expert with experience in:

- ATC Operations
- A-CDM program establishment
- A-CDM program implementation

What is A-CDM

We've all seen this before.....





I am going to be late……..

What are the indicators?

No optimal use of infrastructure

Not using all available data

Being reactive rather than pro-active

Keeping our operations to ourselves

We have a blaming culture

Information & organization silos

Incomplete situational awareness

Buffering of planning

Lack of procedures among partners

What are the indicators?

No optimal use of infrastructure

- How often do aircraft arrive, and then have to hold on the taxiway/apron waiting for their gate to be available?
- Result:
  - Taxiway/apron congestion
  - Wasted fuel burn
  - CO_2 emissions

What are the indicators?

Incomplete situational awareness

- GHA ground crews do not know when aircraft will actually arrive or depart the parking location?
- Result:
  - Sub-optimal planning for resources such as
    - GSE
    - Staff
    - Staff scheduling

What are the indicators?

Buffering of planning

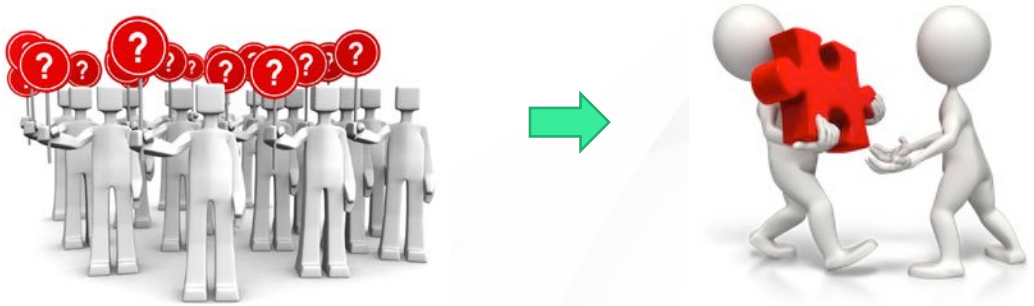
- Airlines do not know how long a sector will take as they must plan expecting delays-
- Result:
  - Airlines include buffers in their schedule to accommodate delay- Buffers increase fuel usage
  - ATC expects taxiway congestion during peaks – traffic is spaced to accommodate the delay- Buffers increase fuel usage
  - GHA expect that aircraft may arrive early or depart late- resources are planned around the longer time- Buffers increase resource requirement

Who knows the plan?

- Airport & ATC do not know when an aircraft is ready for pushback
  - Ground handler & Airline know

- Airlines do not know when aircraft will receive start up clearance
  - ATC know

- Airport & GHA know ETA only when aircraft is close to the stand
  - Airline & ATC know well in advance



But together there is a complete picture…

Situational awareness

Sample Situations	Airlines	ATC	Ground handler	Airport
Aircraft is ready for pushback	Know	Do not know	Know	Do not know
Aircraft receive start up clearance	Do not know	Know	Do not know	Do not know
Aircraft Estimated Time Arrival (ETA)	Do not know	Know	Do not know	Do not know
Parking Stand	Do not know	Do not know	Do not know	Know

No common language

Do we have a common language?

- What is estimated time arrival (ETA)?
  - ATC Area Control Center: arrival time on Terminal Control Area entry
  - ATC Tower Control: landing time on runway
  - Ground handler / Airport / Airline: arrival time on stand
- What is estimated time departure (ETD)?
  - ATC Tower Control: take off time
  - Ground handler / Airport / Airline : pushback from stand

Missing and/or inaccurate Information

- Changes to Estimated Off-Block Time (EOBT) in flight plan are not updated by Airlines, despite knowledge of delay
- Taxi time calculated based on standard taxi times
- Many flights plan the same EOBT even though capacity cannot accommodate this
- Take off time unpredictable due to large holding queue

What could we do?

What if we shared and planned together?

- **Airport** could resolve gate conflicts in advance, improve passenger experience
- **Ground handlers** could deploy resources more efficiently
- **ATC** could determine departure sequence earlier.
  - Traffic congestion can be managed in a better way.
  - aircraft holding at stand instead of taxiway, save fuel.
- **Pilot** would know in advance when to start engines
- **Airline** OCC could plan for un-forecast fleet impacts earlier

Airport CDM is a way to resolve operational inefficiencies

A-CDM will improve…

1. Situational awareness
2. Operational predictability
3. Stakeholder Decision making
4. Infrastructure use
5. Resources use

Summary

- All stakeholders are confronted with operational inefficiencies.
- Working in a silo environment can result in sub-optimal decision making.
- There is a need and benefit to collaborate and achieve optimal decision making, and optimal use of resources
- A-CDM provides mitigation and allows operational stakeholders to work in a more efficient way

What is A-CDM

Putting it simply

Right information

Putting it simply

Right information

Right People

Putting it simply

Right information

Right People

Right time

Putting it simply

Right information

Right People

Right time

Right Decision

Putting it simply

When all this comes Together…….

Putting it simply

So, what is the Airport-CDM concept?

Aims to

- Improve the overall efficiency of airports

- Focus on turn around process

Simple architecture

Landing time (ALDT)

In-block time (AIBT)

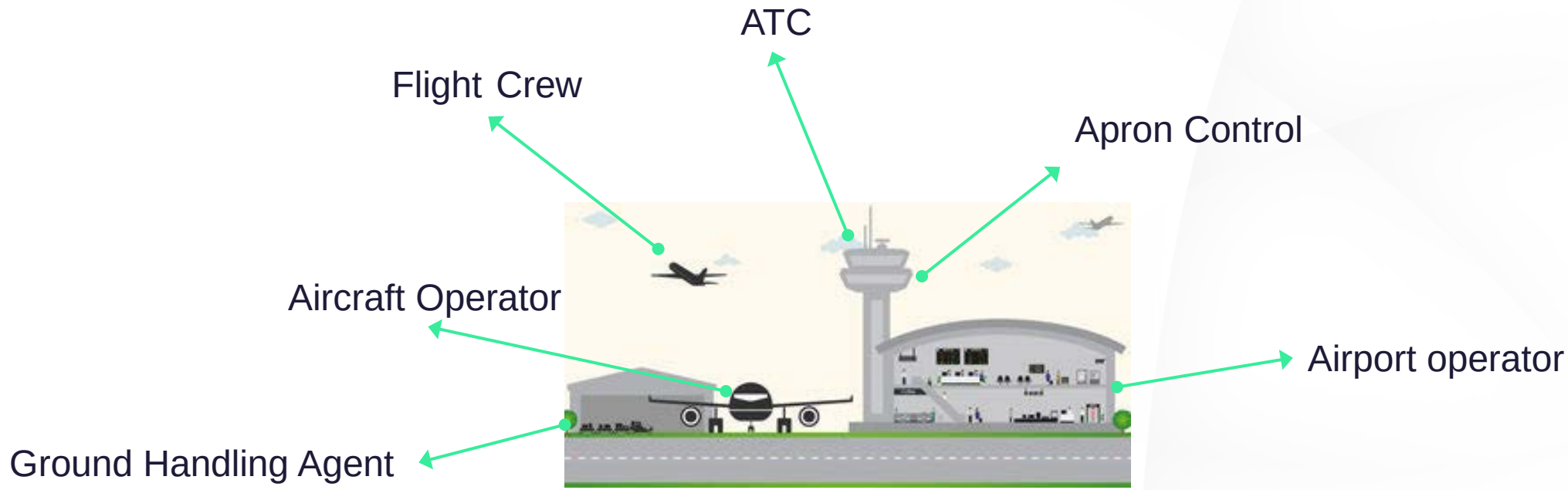
Target Off-block Time (TOBT)

Target Start Approval Time (TSAT)

Airport-CDM Partners

Every one must participate.

Cultural change



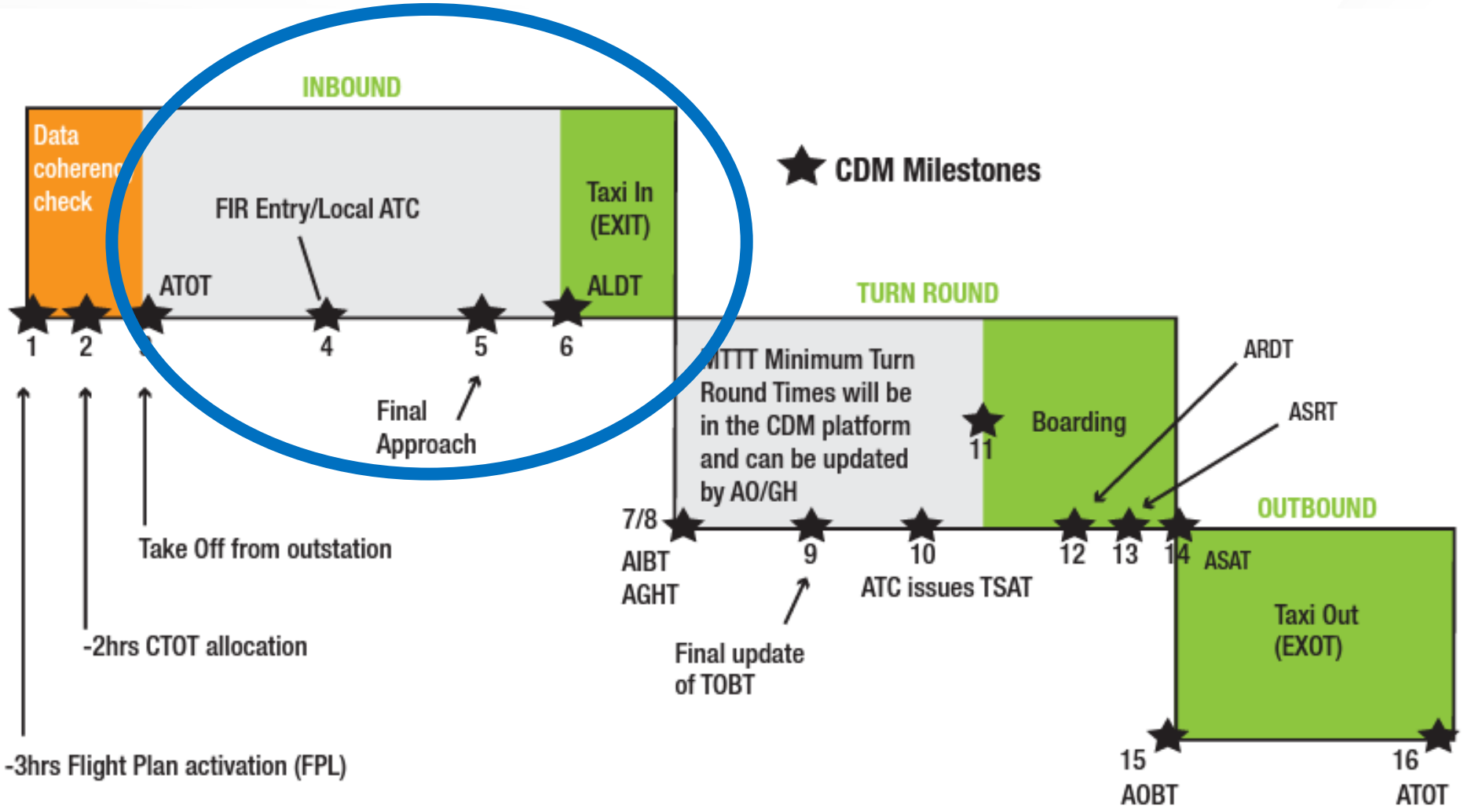
Other users

Customs

Security

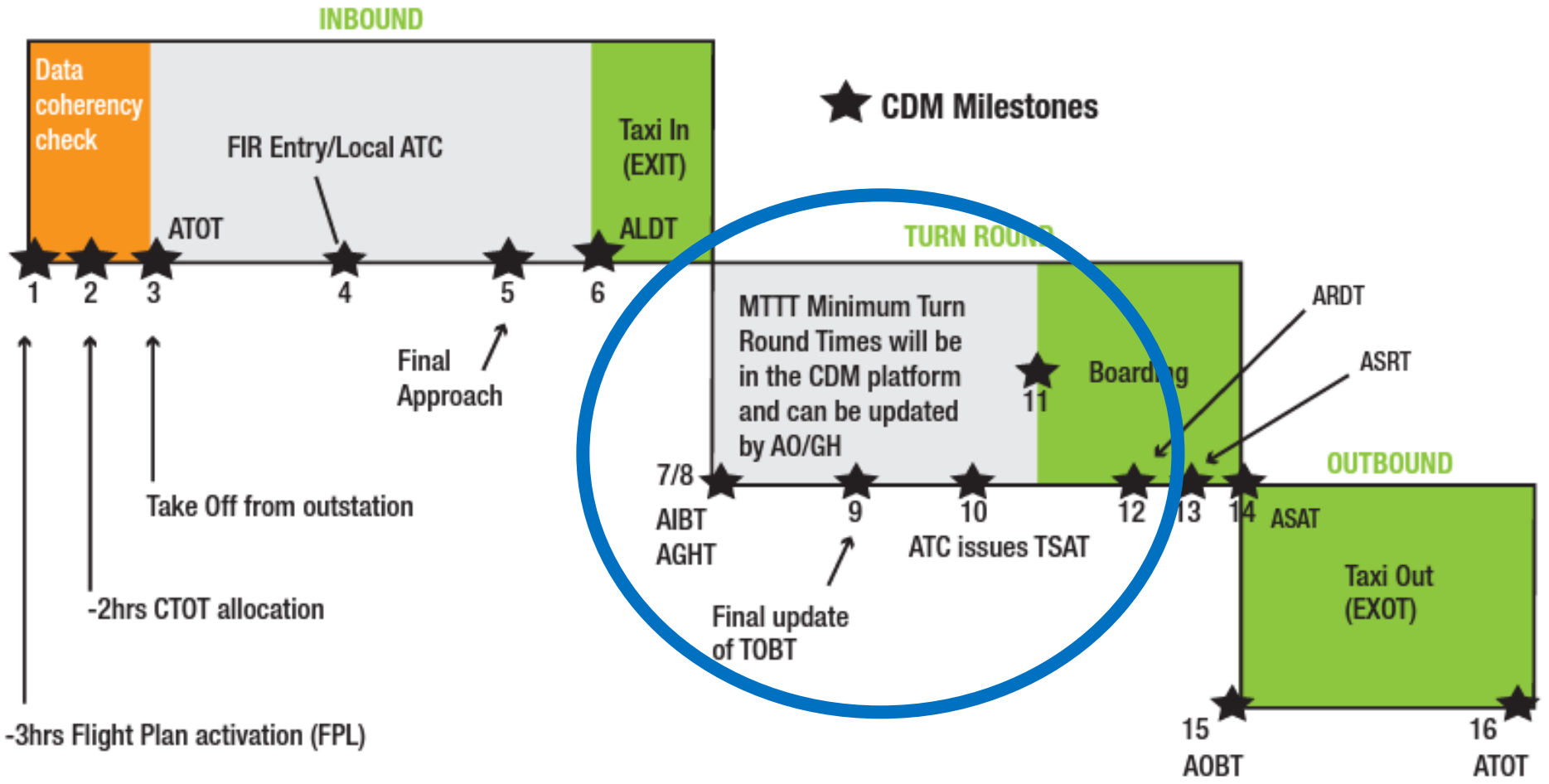
Immigration

Milestone approach ANSP/ATC



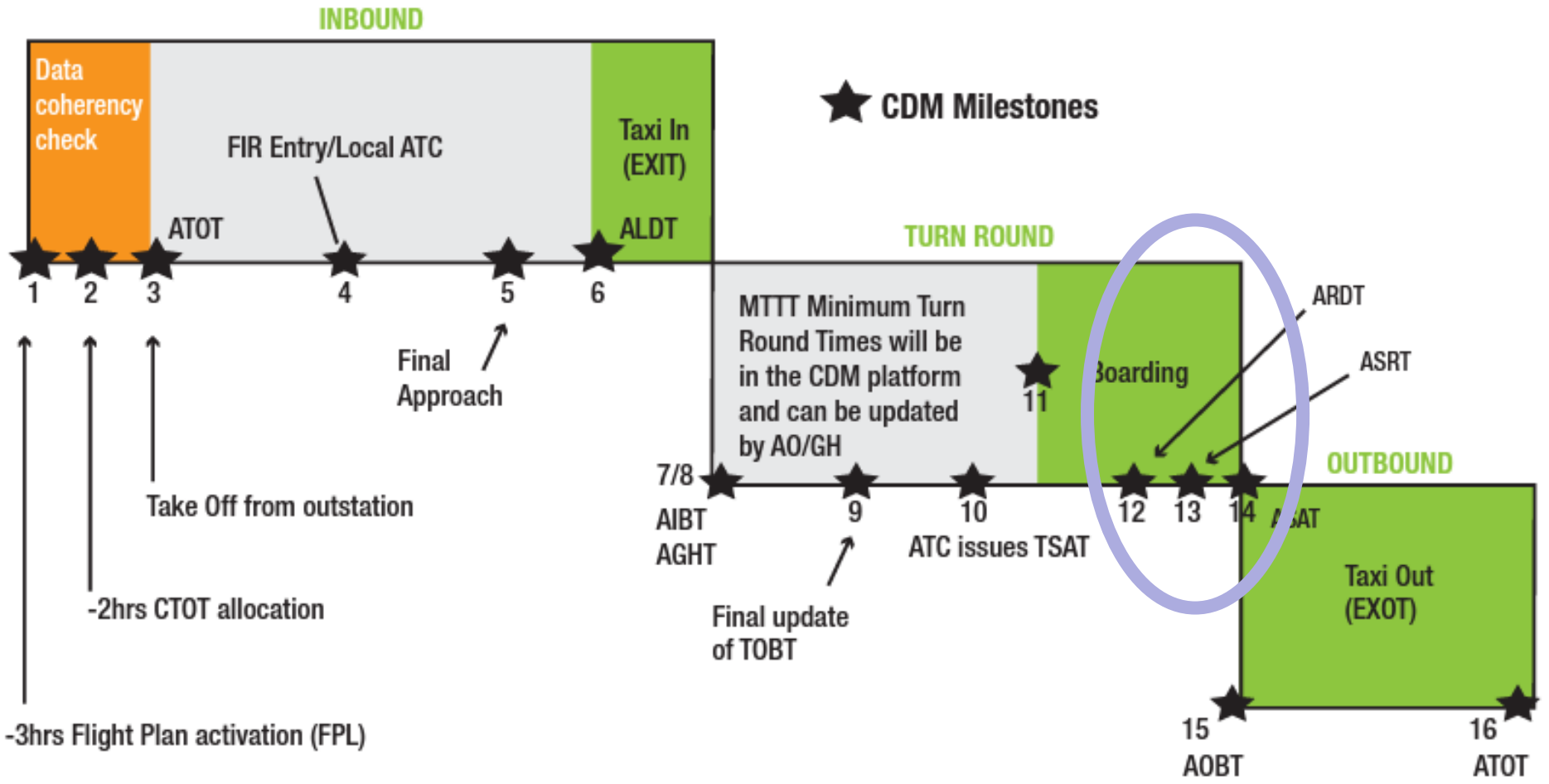
Milestones - Eurocontrol

Milestone approach Ground Handling



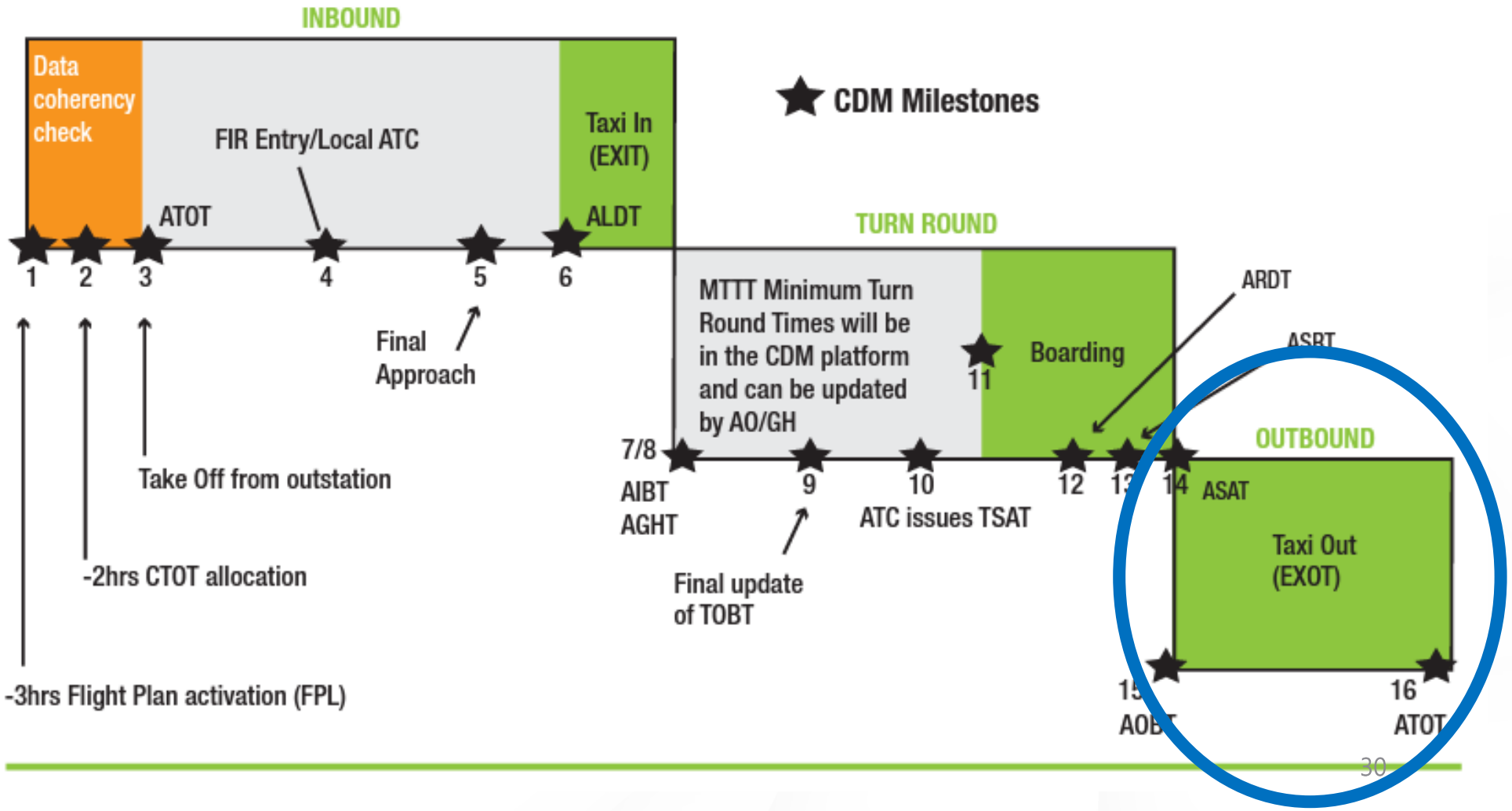
Milestones - Eurocontrol

Milestone approach Airline



Milestones - Eurocontrol

Milestone approach ANSP/ATC



Combination of Business Rules and Technology

Why we need ACDM?

Ground Handler benefits

- Predictability of operations
- Resources management
- Minimise impact of delays
- Optimise turn-round time
- Improve staff engagement

Aircraft operator benefits

- Improve predictability of operations and meet OTP
- Improve airline resources
- Minimise impact of delays
- Optimise turn-round time
- Improve staff involvement

Airport operator benefits

- Optimise infrastructure usage
- Improve public information data quality
- Reduce and remove late stand and gate changes
- Meet airport slot obligations
- Improve operational staff involvement
- Reduce emissions at the airport

Network benefits

Network Operations

- Balance Demand and Capacity

ANSP’s

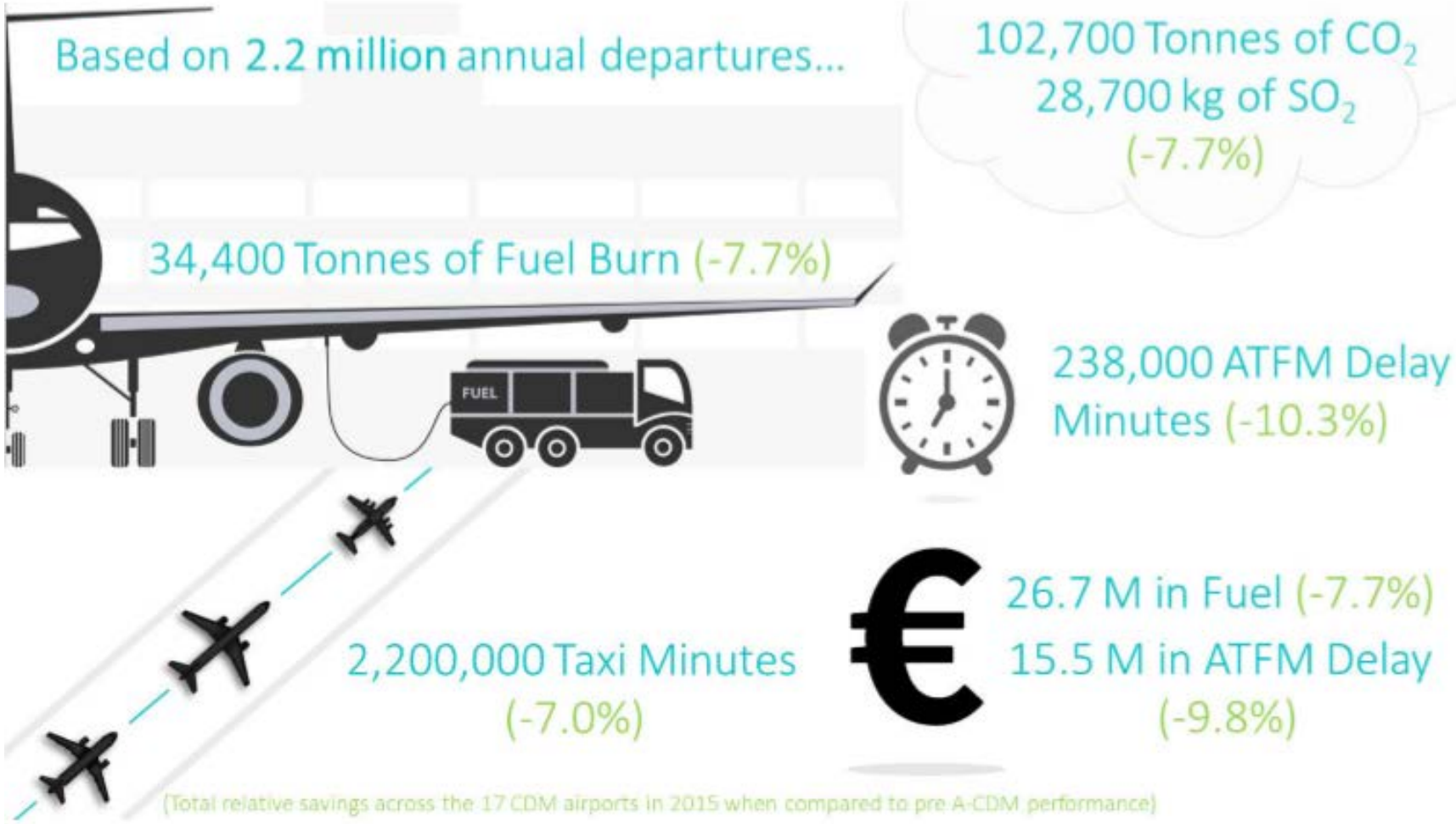
- Runway Throughput
- Less queuing
- Improve staff involvement

Passenger benefits

A better customer experience

- Predictability
- Less delay

Benefits in figures



Source - Eurocontrol

Who should Implement it?

When should A-CDM be implemented?

The ICAO Global Air Navigation Plan recommends:

ACDM-B0/1 - Airport CDM Information Sharing (ACIS)
The primary purpose of this element is to generate common situational awareness, which will foster improved decision making within aerodromes, by sharing relevant surface operations data among the local stakeholders involved in aerodrome operations.

ACDM-B0/2 - Integration with ATM Network function
This element enriches A-CDM operations with enhanced arrival information from the ATM network and, at the same time, benefits network operations by sharing more accurate departure information.

Who should implement ACDM?

Conduct Research

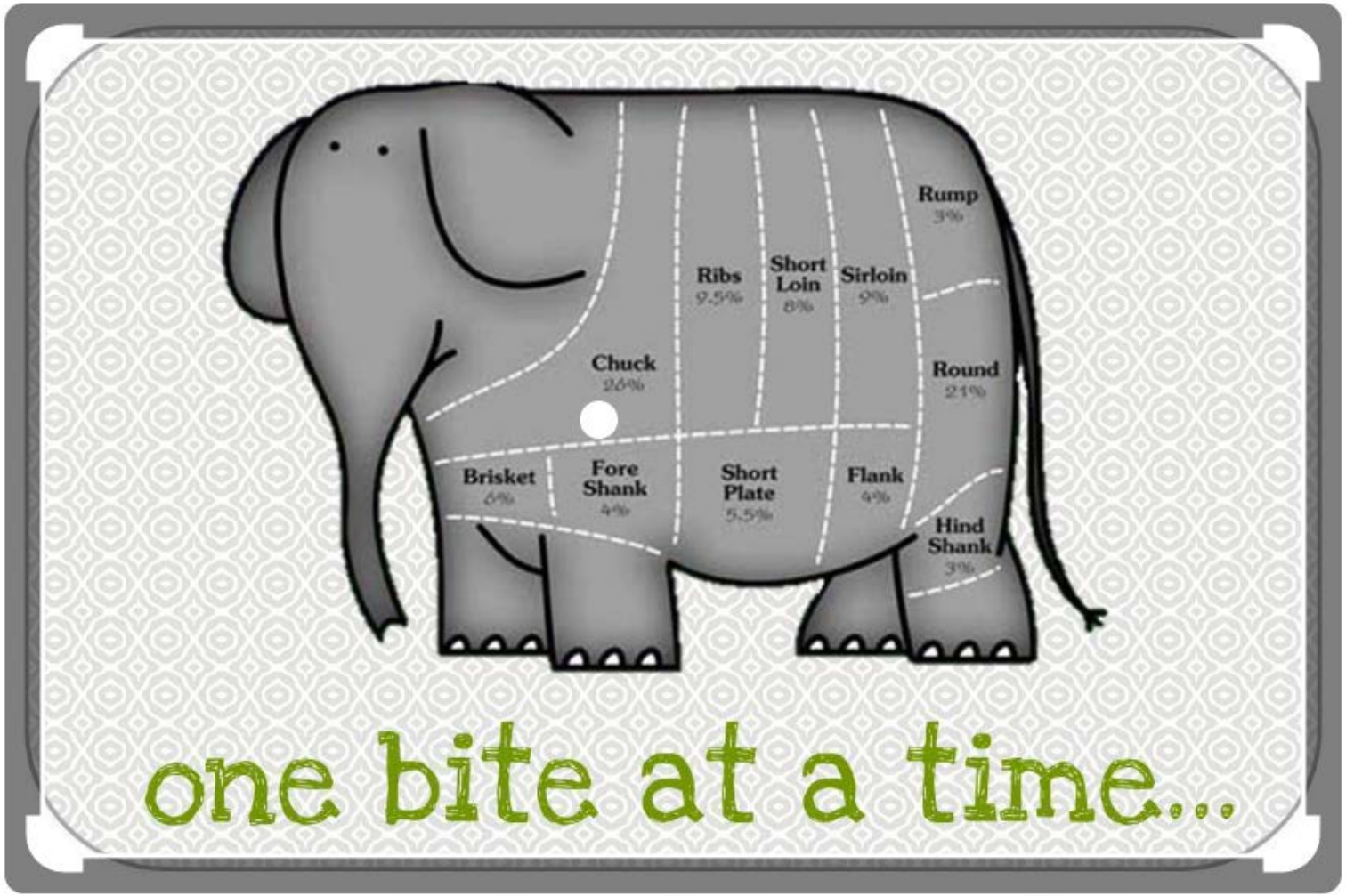
- Obtain a copy of the Eurocontrol A-CDM implementation Manual and read it from cover to cover
- Consult with organisations who have already implemented ACDM
- Read guidance material
  - ACI Manual Airport Collaborative Decision-Making and Total Airport Management Handbook
  - ACDM Key Performance Measures
  - CANSO Guide to ACDM ATFM integration
  - ACDM Optimisation

Who should implement ACDM?

Understand the motivation of each of your stakeholders,

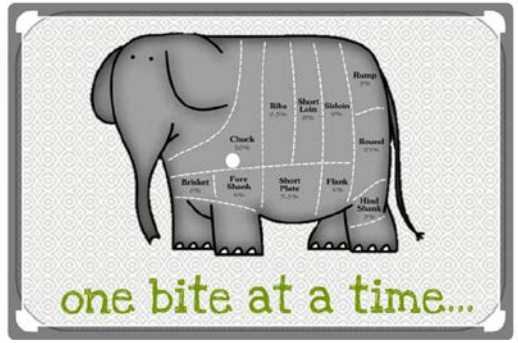
- Consider the best model for your situation
  - ANSP lead initiative
  - Airport led initiative

How do you approach an A-CDM Program?



How do you approach an A-CDM Program?

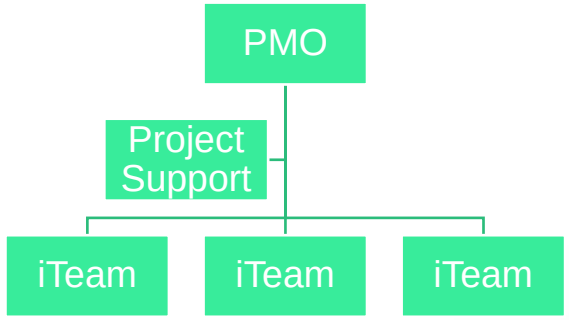
- Initiate the program
- Conduct a feasibility study
  - Conduct a Gap Analysis
  - Develop a Cost Benefit Analysis
  - Make a Business Case
- Prepare for implementation
- Procure systems
- Implement procedures and systems
- Review operation



First Steps Workshop

Now that you have a plan and business case for ACDM…

- Sign a Memorandum of Understanding (MOU) with all Stakeholders
- Create a Program Management Office

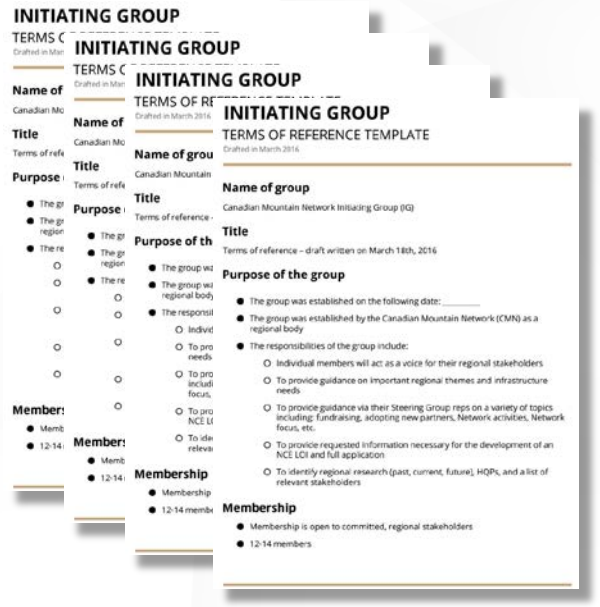


First Steps Workshop

Now that you have a plan and business case for ACDM…

Establish a Governance model

- Develop the Terms of Reference (TORs) for supporting workgroups.
  - Steering Board
  - Project Implementation Team
  - Performance Team
  - Change Management Team



Summary

Planning, establishing buy-in and good education processes for both Management and Operations staff at all stakeholder organisations will provide the best results

ACDM is not a technology system

It is a Cultural Change

QUESTIONS AND ANSWERS

THANK YOU