



AIRPORT – COLLABORATIVE DECISION MAKING (A-CDM): IATA RECOMMENDATIONS

Recommendations for A-CDM implementation authored by the IATA Airline A-CDM Coordination Group ('AACG'). AACG is an IATA working group comprising airlines and industry observers with expert knowledge and experience in A-CDM Implementation.

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Chairman's Foreword



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The Airline Airport Collaborative Decision Making Group ('AACG') was initially formed in 2015 with the support of IATA, to tackle many unharmonised A-CDM European processes and procedures that quite simply added complexity, and in some cases inefficiencies and delay within airline operations. The group consists of ten major airlines from long haul to short haul, including low cost and legacy organizations. Initially the group focused on the European Network, but now addresses interfaces globally, as many international airports come on line with A-CDM, and with many more planned over the coming years. The overall aim of the AACG is to harmonise A-CDM procedures, but also to influence implementations so that the appropriate procedures are in place to streamline and add value to airline operators.

A-CDM and what it is capable of delivering is essential in an expanding market, as demand for air travel increases. Globally airports and airspace are becoming ever busier, both for traditional traffic flows and also for emerging networks with recently capacity constrained airports. The current situation is not sustainable without incurring increased flight delays, unless action is taken. Improved data and coordination between all airline stakeholders providing clear, accurate and transparent information, as should be delivered by A-CDM, is essential in creating an end to end process connecting the airport to the airspace to reduce delays and ultimately provide a seamless and efficient travel experience to airline customers.

Airport – Collaborative Decision Making (A-CDM)

Overview

A-CDM can reduce airport and en route delay and optimize airport operations, by increasing an efficient turnaround process and improving flight predictability through real time data exchange for air navigation services¹. A-CDM also potentially helps to improve gate management, reduce apron, taxiway, and holding point congestion. A-CDM involves sharing accurate and timely information amongst airport partners, and implementing a set of operational procedures and automated processes for the benefit of all operating at the airport. Overall, A-CDM is about making more efficient use of existing capacity and resources, offering resilience and potentially better recovery from disrupted days. Implemented correctly, A-CDM can in some cases reduce operating cost attributed to fuel burn, which should contribute to environmental targets.

Any implementation of A-CDM must be based on assessment of current operational constraints, and the value an A-CDM implementation will generate to mitigate such constraints and / or improve current operations. There is no one size fits all solution for A-CDM, and each implementation must be based on careful engagement across all airport stakeholders, but primarily the airport, the airlines using the airport, handling agents and the air traffic service provider.

Prior to A-CDM, airports and airlines worked on the basis of first come first served for their pre-departure sequence. In essence this potentially meant that the best, optimized sequence was not always realized. A-CDM works on the premise of best planned best served, with more accurate and timely Target Off Block Times (TOBT), the pre-departure sequence is optimal. It is a collaborative approach, and airlines need to be able to understand the rationale and accuracy of TOBT, and the requirement to update TOBT in a timely manner. The TOBT drives all of the targeted departure milestones and so is hugely important in the CDM process.

When should A-CDM Implementation be considered?

Airport operations encountering the following issues may prompt consideration of an A-CDM implementation:

- Inefficiency on the airport due to non-optimised turnaround and sequencing performance
- Poor punctuality and performance (such as airport start delays)
- Poor compliance to Estimated Off Block Time (EOBT) and non-compliant ICAO Filed Flight Plans (FPL)
- Lack of transparency on overall airport plan, or lack of a 'single version of the truth'
- First come first served principles for start-up which specifically lead to poor sequencing that adversely impacts airport throughput
- Poor data into network (where existing) resulting in high regulation to airport
- Poor recovery of airport after disruption.
- Start-up delay due to false demand
- Poor interface with handling agents where airlines do not have access to real time systems on turnaround and delay status.

¹ Which would include network managers in regions that they exist

Airport – Collaborative Decision Making (A-CDM)

What are the evaluation steps to be considered?

The following checklist should be considered before a decision is made on any A-CDM implementation:

- Stakeholder coordination group established including an Airline Steering Group
- Clear roadmap produced for 'what does success look like' which is clear and accepted to all stakeholders
- Clear, agreed performance metrics with airlines, airport and ATC provider, handling agents and Network Manager where applicable.
- Comprehensive communications plan for all stakeholders before, during and after implementation
- Meaningful consultation with airlines on investment costs and agreed benefits
- Information technology systems are proven robust, but not the only focus of project, as the majority of effort is concentrated on human factors and behavioural change.
- Appropriate A-CDM Data will be available to airlines (such as TOBT, TSAT, TTOT, TT)
- Any portal that is designed has airline and Ground Handlers input
- Messages and communications reach appropriate levels of stakeholder organisations
- Implementation plan is not rushed as failure will create no confidence, but is based on a phased approach across the airport schedule
- Ensure that the TSAT algorithm considers equity, performance and stability
- Detailed plan to work with airlines and ground handlers to increase TOBT and EOBT compliance to work at optimum critical mass for A-CDM to be effective

The following IATA Recommendations provide a more detailed guidance on:

- A-CDM Implementation
- Roles and Responsibilities
- Stakeholder Access to A-CDM Data
- Achieving an Effective and Efficient A-CDM Turnaround Process
- Building a Continuous Improvement Culture
- Evolution of A-CDM
- Standardization of A-CDM Procedures
- Common Objectives and Performance Metrics
- Standard Documentation for Pilots

These Recommendations should be considered before and during any implementation. Any questions should be addressed to the IATA A-CDM Coordination Group at: AACG@iata.org

References:

More details and information on A-CDM can be found at the following sources. IATA supports the content of these publications in conjunction with this paper.

- ICAO Doc 9971, Third Edition 2018
- EUROCONTROL A-CDM Implementation Manual, Version 5 March 2017

A-CDM Implementation

Any A-CDM implementation decision should be subject to comprehensive consultation with all airline customers at the airport.

Situation

A-CDM implementation is being pursued in different ways around the world. While there are some good examples of consultation with airlines and the joint determination of objectives for the implementation, in other cases either consultation with airlines is less than optimal, or there remain issues concerning whether the A-CDM implementation is best targeted for the needs of the specific airport.

IATA Recommendation

The introduction of any major change to an airport operation, and its relevant ATM procedures, should not be underestimated in terms of the impact to the operation of each airline and its need to optimize aircraft fleet operations. Clear consultation with airline stakeholders is essential during any A-CDM concept assessment to ensure all parties agree and support the objectives.

Ensuring early engagement with stakeholders and instilling a collaborative culture will support the success of an A-CDM implementation. This process should create clarity across airport stakeholders on the objectives of the implementation, and the expectations from each party. Without clear and agreed objectives across all key stakeholders, A-CDM implementation may not yield assumed benefits and, in certain cases, may result in sub-optimal operations or inefficient investment for the airport.

Key enablers for success

- 1) As A-CDM is a cultural change which systemizes ATC, airport and airline procedures, it can also be a behavioral change for all parties which ultimately can be difficult to manage through the transition. The human element of A-CDM and the impact it can have on an organization and its employees, should not be underestimated; this is by far the most challenging aspect of an implementation. Compliance and adherence to agreed process will ultimately drive performance and efficiency for all the stakeholders in the A-CDM chain. However, demonstrating the rationale for change showing the wider benefits to ensure all parties are aligned and understand the reason for change, is of paramount importance.
- 2) Any A-CDM implementation must ensure consideration of airline and airport priorities, including customer perception, measurement of punctuality and environmental performance. Through the collaborative approach, airlines and airports must agree on objectives, trade-offs and the measurements for performance which will govern the A-CDM implementation.
- 3) An airline steering group should be set up before any implementation, with the responsibility to agree on the A-CDM processes, procedures and measurement targets with the airport.
- 4) Implementation should be in a phased approach with a minimum of disturbance to operations, and agreed with the airline steering group. Attention should be given to airline schedules when testing implementation. Avoiding peak periods is advised. Any testing of IT systems should be done outside the live operation where possible.
- 5) A framework of reviews to track progress should be created between the airport, the airline steering group and other airport stakeholders. Ultimately, this process should aim to ensure that compliance of procedure, performance and resilience is quantified and in-line with project timelines and objectives.
- 6) After implementation is complete, it is important for focus to remain on continuous improvement of systems and processes to ensure best practice, procedural discipline and optimization of ATC procedures and runway utilization.

Roles and Responsibilities

The set of processes in an A-CDM implementation should be assigned to well defined roles, each with their own responsibilities, clearly understood by airline stakeholders, and contributing to the implementation objectives established.

Situation

Stakeholder roles and responsibilities may vary between A-CDM implementations, as they are adapted to local requirements of an airport. Some airports may assume many of the roles that are conducted by individual stakeholders at other airports. An increase in the number of A-CDM implementations brings with it complexity in the understanding and mapping of differences between implementations.

IATA Recommendation

Whilst variations may be required to adapt A-CDM to individual airports, the overall roles and responsibilities should conform to generally accepted goals for A-CDM. Any differences in roles and responsibilities from the norm should also be well documented to avoid any confusion and misunderstanding amongst airline stakeholders. Differences in roles and responsibilities should have valid reasons for existence, and should not contribute to any reduction in the performance of A-CDM processes.

Key Considerations

- 1) TOBT, which is owned by the airline, is a critical component of A-CDM, and the responsibility for accurate and timely updates is extremely important. It is important that all stakeholders have a good understanding of TOBT, and the interaction between parties caused by a change in TOBT. If an airline delegates responsibility for the update of TOBT to a ground handler, a robust SLA should assure timeliness and accuracy of the update, and a link to airline OCC's to ensure flight plans are updating via the TOBT. The SLA shall also cover the adjustment of the on-time performance measurement when necessary.
- 2) The policy for the alignment of TOBT and EOBT, and the role for updating each, must be made clear in an A-CDM implementation. Wherever possible, a common approach to handling dissimilar TOBT and EOBT should be advocated.
- 3) A pre-departure sequencer that is fit for purpose is of paramount importance, whether it is the responsibility of the airport alone, or the airport in collaboration with the ATC provider. All stakeholders should be satisfied that the sequencer delivers performance, stability and equity.
- 4) The responsibility for when the pilot is to call for start-up must be clear. This should be published in relevant documentation.
- 5) The role of a network manager (or an entity performing a similar role) provides more transparency both to a local A-CDM implementation, and between A-CDM implementations, so it is recommended that such entities will help with local procedures, and offer their opinion for the airport and its engagement with their stakeholders.

Roles and Responsibilities

Aircraft Operator

The Aircraft Operator is responsible for:

- Providing the Flight Plan and any subsequent updates, i.e. DLA/CHG messages in coordination with the airline OCC, and local rules published in relevant documentation.
- Providing an accurate TOBT directly via the OCC, or in coordination with a Ground Handling Agent
- Ensuring that their flight crew are aware of the need to call for start-up at TSAT \pm 5 minutes and, where applicable, to call ready at TOBT \pm 5 minutes.

Ground Handling Agent

The Ground Handling agent is responsible for:

- Providing an accurate TOBT in coordination with the airline OCC, and local rules published in relevant documentation.
- Ensuring the flight crew is aware of the TOBT
- Ensuring the aircraft is ready for departure at TOBT

Airport Operator

The Airport Operator is responsible for:

- Providing airport schedule information
- Providing stand and gate planning/allocation
- Overall coordination of the A-CDM process during implementation and operations, including monitoring of performance of CDM operations

Air Traffic Service Provider (Tower)

The ATS is responsible for:

- Establishing, maintaining and executing the pre-departure sequence
- Providing the TSAT and TTOT for departing flights
- Ensuring that start-up is issued in accordance with TSAT, e.g. TSAT \pm 5 Minutes
- Ensuring that flights depart within their Calculated Take Off Time (CTOT) window if and where applicable
- Ensuring that flights depart where possible within their Slot Tolerance Window CTOT and TTOT, as defined by ICAO recommendation
- Definition and verification of Variable Taxi-Times (VTTs)

Air Traffic Flow Management Unit²

The ATFM unit is responsible for:

- Coordination of the Network it has responsibility for
- Disseminating Flight Plan Data
- Coordination of Balancing Demand & Capacity through the provision of Calculated Take Off Times (CTOTs/ATFM slots) along with DPI data
- Providing updated arrival information, e.g. Estimated Landing Time (ELDT) via Flight Update Message (FUM)
- Sharing relevant A-CDM data from Airports with Network Stakeholders

De-icing Operator

The De-icing Operator is responsible for:

- Providing the de-icing status of the aircraft
- Prediction of the Estimated of De-icing Times such as ECZT, EEZT

² Network Manager in Europe, FAA in U.S.

Stakeholder Access to A-CDM Data

A-CDM requires airport stakeholders to exchange timely operational information which enables collaboration in the efficient management of operations at an airport.

Situation

A-CDM processes describe the data that is required to be exchanged within the local airport community, to keep all stakeholders situationally aware. A-CDM processes also describe the data that is required to be exchanged in messages between airports and ATC/ATFM (Departure Planning Information and Flight Update Messages) to support ATC and ATFM management of flights in and out of an A-CDM airport. A-CDM additionally envisages the implementation of an A-CDM Information Sharing Platform (ACISP) to enable the required local data exchange. A-CDM implementations around the world have developed different ACISPs, typically as web based portals, with differing ancillary data exchange capabilities.

IATA Recommendation

Airlines operate globally, between multiple airports. Airline network operations require access to A-CDM data where airports have implemented A-CDM, to optimize their networks. Airlines and/or their contracted ground handlers also need to be able to update data in an airport ACISP, and receive the corresponding appropriate alerts, as part of their role in implementing timely data exchange.

Some airport groups are supported by a network manager which manages flow control for the group, whereas other airports operate in a standalone fashion. Where there is a network manager in place, and some of the airports in the managed group have implemented A-CDM, the network manager will have access to those group member's A-CDM data. In this circumstance, airlines should be able to access A-CDM centrally via the Network Manager, rather than implementing connectivity to multiple individual airports.

Airlines and their stakeholders should be able to access A-CDM data in a standard format and through a robust platform.

Key Considerations

- 1) A-CDM implementations should support a common API to allow airline stakeholders access to A-CDM data. The same API should be supported by either a network manager, for central access to A-CDM airports, or individual airports where there is no network manager.
- 2) Regional airports lacking a network manager but wishing to cooperate between A-CDM implementations, could enable a distributed ACISP supporting the common API to provide centralized data.
- 3) Data exchanges via the common API should support the entire domain of A-CDM data and not be limited in scope. Full scope messaging will provide context to enhance situational awareness.
- 4) The format of the message payload should adhere to standards. The IATA Aviation Information Data Exchange (AIDX) standard message supports full A-CDM data and as such is an ideal candidate format.
- 5) Multiple proprietary interfaces to A-CDM data exchange mechanisms should be discouraged. The adoption of an open source platform for an ACISP should reduce the license cost of airline stakeholders wishing to implement data exchange via the common API.
- 6) Airline fleet management systems may pre-date any A-CDM implementation. As such, they may base rotation calculations on reference data that conflicts with enhanced reference data from A-CDM implementations.
- 7) Transaction speed is extremely important between stakeholder systems in an A-CDM implementation. Message communication should be sub-second to reduce any delay in data sharing, as there may be legacy Airport Operational Database (AODB) and fleet management systems in the connectivity chain. This is especially important for TSAT generation in a live operation where updates should be instantaneous across all stakeholder systems so there is no 'lag' generated in the system, and therefore inefficiency for the airport and airlines.

Achieving an Effective and Efficient Turnaround Process

The turnaround process encompasses the complete management of an aircraft from the arrival at an airport gate to the departure from an airport gate, and as such needs to be effective and efficient in order to contribute to a successful A-CDM implementation.

Situation

The A-CDM turnaround process involves stakeholders, operational services, data points and algorithms that choreograph the successful turnaround of an aircraft. Individual operational services, although functionally distinct, may not be identified by the A-CDM process, which may group some services under a logical ground handling service umbrella. Suboptimal efficiency occurs in the turnaround where stakeholders, individual services, data points and algorithms are not managed to the fullest extent possible.

IATA Recommendation

Prior to the introduction of an A-CDM implementation, the turnaround process may not involve the same level of structured interaction between stakeholders. An implementation should not underestimate the impact and degree of behavioral change required from stakeholders at the outset to support this; attention should be given to not overload the startup of an implementation. Standardization of the A-CDM turnaround process should be introduced, incorporating all stakeholders and services.

Key enablers for success

- 1) Ensure good interaction between all parties and an understanding of the importance of TOBT. Increasing ownership of processes by airlines and their Handling Agents will improve performance of the turnaround.
- 2) A pre-departure sequence algorithm should be introduced that delivers transparency, efficiency, and stability. The algorithm should be fit for purpose, meet requirements and should evolve with the A-CDM implementation.
- 3) Variable taxi times are generally 'static' variable times, and as such should be adjustable to the operational circumstances and reviewed frequently to ensure their accurate contribution to the overall turnaround process.
- 4) Many ground handling services involve resource allocation optimizers (Fueling, Catering, Cleaning, Cargo Loading, Baggage Loading, Crew and Passenger Bussing, Aircraft Movements). Each of these services are integral to the calculation of TOBT. Where applicable, the A-CDM process would benefit from the development of a standard API to resource allocation optimizers, so that resource issues may be systematically identified earlier in the turnaround process.

Building a Continuous Improvement Culture

An A-CDM implementation involves the interaction of multiple stakeholders, processes and systems. Projects of such complexity require the building of expectations for a culture of continuous improvement amongst all stakeholders, from the outset.

Situation

Some A-CDM implementations have been shown to lack the expectation of a culture of continuous improvement, and stakeholders have had difficulty in supporting the concept following A-CDM introduction. This results in implementations that may not deliver the improved airport performance expected, as initial project shortcomings may prevail. Further, following introduction, the environment at an airport may change and require adjustments in the A-CDM process. Without a culture of continuous improvement in place these adjustments may not be supported, resulting in a degradation of performance.

IATA Recommendation

After A-CDM implementation it is important that focus still remains on continuous improvement and developing the overall A-CDM system, to ensure optimization and utilization of airport infrastructure. Given the many permutations and variables within the airport environment, only continued focus and development in conjunction with a clear roadmap of success will deliver required results.

The process of continuing evolution of A-CDM following introduction may be handled differently by individual stakeholders. For those that view the evolution of A-CDM as keeping the business current, continuous improvement may be relatively easy to deliver. Stakeholders who implement A-CDM as a finite delivery project with no contingency for follow on work, may find themselves in a more difficult position. This can be mitigated if the delivery project is able to hand over to support that holds a suitable remit.

Key Considerations

- 1) Airline stakeholders should be able to monitor improvements from an A-CDM implementation. This should consist of:
 - a) Regular exchange of experience (including best practices from other A-CDM implementations) with the airport, ATC and ground handlers at least two times a year.
 - b) Ad-hoc meetings before any major release of new software or update of the A-CDM implementation (procedural or functional). Ideally this should be supported by a change control process that requires approvals from impacted stakeholders.
 - c) The IATA A-CDM Airline Coordination Group, should be utilized to solicit views on new implementations or improvement opportunities.
- 2) In any implementation, the pre-departure sequencer will be able to improve in performance over time. Such developments should also be coordinated with the airline steering group, and other airport stakeholders.
- 3) ³Where a network exists (comprising either a network of airports or Air Navigation Service Providers) the airport should collaborate with the entity that coordinates or controls air flow within the region, to improve and monitor all aspects of A-CDM including:
 - a) Development of the Airport Operating Plan and demand capacity planning.
 - b) Alerting all stakeholders to any performance degradation a particular airport.
 - c) Continuous monitoring and improvement of data from airports is required to ensure that data is fit for purpose for that airport, and provides overall value to the network

³ Within the European framework this is managed by the Network Manager (formerly known as CFMU).

The Evolution of A-CDM

A-CDM is the foundation for the use of better data and technology to make airline and airport operations more efficient, and resilient to some of the external factors that may presently have an impact on punctuality. Individual airport success through concepts such as the Airport Operating Plan⁴ is a natural evolution, but wider potential for success lies in integrating the network. The two are intrinsically linked, therefore connectivity and data sharing amongst a constellation of ATM stakeholders will ultimately deliver optimal performance; the wider benefits of A-CDM should be considered in addition to local enhancements.

The evolution of A-CDM, and the manner in which the implementation process is introduced throughout the world, should be considered very important in the airline industry. The most replicated model of A-CDM is the European version, interfacing with Eurocontrol. However not all regions have such a central ATM network, so the processes may be different in other regions and where applicable, comply with ICAO directives. In order for the A-CDM concept to be successful, it must be adaptable to regional ATFM environments, and at the same time comply with a certain degree of harmonization, to provide consistency for flight crews and airline operating centres.

One of the most important aspects of A-CDM from a global perspective is the architecture that interfaces the airport with a central airspace management system. The European model enables the dissemination or exchange of information by utilizing either portal displays or B2B data exchange. The European A-CDM has also incorporated other data flows such as DPI (departure planning information) to assist with target departure projections, which provides better accuracy for slot coordination and airspace management. This particular design of exchange may not be something that airline operators can expect in all A-CDM implementations.

The industry is seeing other facets of airspace management using A-CDM concepts to provide the required data to fulfil continuity between major traffic flows, and high density aerodromes. This will create other customized type A-CDM processes, that are best suited for regional requirements. One such concept that has been developed in Southeast Asia is known as the Multi-Nodal process. This has been created and designed to adapt to differing ATFM applications, but the primary purpose remains to mitigate airborne flow constraints that contribute to exceedances in ATC sector capacities, and which often result in unanticipated en route delays.

As air traffic management evolves, and additional concepts are introduced by the industry, changes and adjustments to A-CDM may be required. This will most certainly contribute to the complexities of data exchange; however, the industry must not lose sight of harmonizing A-CDM.

IATA Recommendation

As A-CDM evolves to deliver further efficiency, it must be recognized that A-CDM does not change the very nature of airline operations, where last minute events may cause operational difficulties. To support such issues, Airlines will continue to require a degree of operational flexibility as part of the overall collaborative effort.

There are a variety of ATFM initiatives and IT propositions which could enhance and drive efficiency in the ATM sphere, if implemented correctly. It is unclear at this moment whether the overall solution is one over the other or a customized solution. Similarly, in the future, there could be further initiatives, and with the advancement in technology, better ATFM solutions which could even supersede current thinking and methodology for managing ATM interfaces. From an airline perspective, a common solution is sought that is futureproof and cost effective; whatever solution prevails needs to be considered on a collaborative basis, insuring the solution works for all stakeholders.

IATA will monitor the evolution of A-CDM to understand the differences in the design of ATFM/aerodrome architecture in varying geographical regions, and remain involved in promoting global harmonization that meets the demands of airlines, ANSPs, aerodromes, and ground support companies. IATA takes a proactive role in influencing the needs of members and affiliates, in the construction and design of future ATFM initiatives. IATA will continue to work with airlines, airports and other agencies to provide the appropriate support, knowledge and advice regarding all A-CDM implementation types, to its members and affiliates.

⁴ Airport Operating Plan (AOP) is a SESAR concept

Standardization of A-CDM Procedures

Situation

Since the introduction of A-CDM there have been many airports that have adopted the A-CDM philosophy, however the expansion of implementations has led to some differences in procedures and processes. These differences are problematic for airlines and ground handlers. A non-harmonized approach has led to an increase in workload, and although these differences do not constitute a compromise to airline safety, they constitute unnecessary additional layers of complexity to airline operations, and their operating crews.

IATA Recommendation

A-CDM can offer benefits at a local and a network level. A-CDM is expanding and reaching many parts of the globe, so the need to standardize A-CDM procedures and documentation to drive efficiency and improve overall performance is necessary, as global aviation demand continues to grow.

Key Considerations

- 1) The way in which procedures and processes are designed needs to incorporate input from airlines and Ground Handling Agents (GHA). This should be an organic and collaborative approach, which ultimately all stakeholders agree to.
- 2) Non-compliance of procedures may have existed prior to an A-CDM implementation. It is important that all parties are clear as to whether issues are genuinely related to A-CDM, or are pre-existing conditions, that have been highlighted by A-CDM.

Prior to implementing, Airports should look to other A-CDM airports that are considered best in class to leverage experience gained and lessons learned from airports with similar capacity constraints or infrastructure.

Common Objectives and Performance Metrics

A-CDM is designed to improve overall airport and network efficiency through improved turnaround processes, harmonizing sequencing, surface management and departure management.

Situation

Airports that implement A-CDM often report that the hourly/daily amount of traffic they can handle increases, and that per-flight arrival and departure delays decrease. These improvements may bring derived benefits such as reduction in fuel burn.

IATA Recommendation

IATA supports common objectives and performance metrics between all A-CDM stakeholders, based on mutually agreed targets.

Airport Operations

- Increased Departures and Arrivals punctuality and airport slot adherence
- Efficient use of infrastructure e.g. stands and gates
- Accelerated operational recovery in adverse conditions or other disruptions
- Reduced environmental impact e.g. emissions and noise

Aircraft Operators

- Daily programs of flight operations and turnaround times on schedule
- Possible schedule disruptions predicted early, thus managed efficiently
- Preferences and priorities taken into account
- Reduce taxi fuel burn

Ground Handling

- Enhanced punctuality of operations
- Maintenance of Service Level Agreements
- Optimized resource management

Air Traffic Services

- Flexible pre-departure planning
- Reduced apron and taxiway congestion
- Smooth flow of traffic reducing air traffic controllers' workload

Air Traffic Flow Management

- Increased predictability
- Enhanced calculated Take-Off Time (CTOT) compliance
- Optimum utilization of available capacity reducing sector (airspace divisions)
- Improved demand and capacity balancing

Common Objectives and Performance Metrics

Key Considerations

1) Background and Context

The introduction of such major change to ATM practice and procedures at an airport should not be underestimated; early stakeholder buy-in and involvement is key in ensuring the overall success of the project. Working with home base carriers promotes all around knowledge sharing, and the critical mass for essential compliance. Further to engagement, collaboration is also key, so working to agree common goals is a must. Clear and concise communications detailing the journey, and the reasons for the change is a priority within the project, to set the tone, the expectations, and the required level of involvement.

Differing priorities may cause the misalignment of objectives between an airport and an airline. For example, airport punctuality is measured at the 15-minute mark, whereas internally in support of their operations, airlines are measured as on time according to scheduled departure time. Similarly, Co2 emissions are valid targets, but airlines generally would prefer not to absorb delay on stand at busy airports, as this again would work against their punctuality targets, and customer perception of on time departures. Through the collaborative approach, airlines and airports must agree on what it is they want to achieve overall, and what the potential trade-offs are.

2) Define and Agree the Organization

As the delivery of A-CDM is ultimately the responsibility of the airport, the majority of control and decision-making rests with the airport. Detailing the roles and responsibilities for the internal chain of command makes for clear accountability within the airport structure, and also helps airlines understand the interdependencies and complexities of the project. An airline steering group within the overall airport structure, is ultimately the body that should collectively agree on process and procedures with the airport. Individual airline representatives are the conduit into their respective airlines, and are consequently responsible for communicating the changes and requirements within their airlines, to ensure adherence to and awareness of A-CDM.

3) Implementation Phase

Implementation should take place in an agreed phased approach, with an associated clearly defined contingency and reversion processes that can be communicated quickly and effectively, that considers minimum impact to on-the-day operations. Any testing to systems and IT hardware should ideally occur outside of the live operation, to avoid potential costly issues in the live environment. Attention should also be given to airline schedules, so that testing and implementation are de-risked by being placed outside busy periods; the overriding priority will be not to disrupt airlines and their customers travel plans. A framework of process reviews to track progress, in association with a robust feedback process, is vital to the development and maturation of the A-CDM concept, and in developing trust, understanding and ultimately a system that all stakeholders support. Transparency in the process, allowing any failure to be subsequently transformed into success, is vital in creating a one team approach that will promote confidence, and ultimately a truly collaborative system and process.

Standard Documentation for Pilots

Situation

Currently, airports which have fully adopted A-CDM processes, exhibit differences in their requirements for when pilots should request their ATC route clearance, be ready for start and push back, and report ready for start and pushback. These differences can cause confusion, and may lead to misunderstanding by the pilots. A-CDM procedures are not fully harmonized between airports. The AIP references and guidance published by some airports can vary from each other and result in different airport A-CDM briefings to pilots. These need to be standardized, as they are very time-consuming and distracting to read during the pilots' pre-flight preparation.

IATA Recommendation

Wherever possible, airports and ANSPs implementing A-CDM should maintain consistency with respect to procedures required of the pilots.

IATA recognizes that there may be a need for local variations, however these should be kept to a minimum to avoid confusion and distraction.

A-CDM procedures should be listed using a consistent order and text, such that pilots can recognize any «local differences» more quickly and easily.

Key Considerations

- 1) Suggested text and sequence for airport authorities and/or ANSPs to disseminate their A-CDM requirements for pilots is listed below. This covers the main components necessary for pilots to adhere to the process.
- 2) Any additional information (such as considerations during remote de-icing procedures) should be added concisely in a following paragraph, and highlighted as necessary.
- 3) Guidance should not include information that is superfluous to the pilots' needs.

Standard Documentation for Pilots

Suggested Order and Text:

1 Airport Collaborative Decision Making (A-CDM)

1.1 Definitions

Target off-Block Time (TOBT) - The time that an AO or GHA estimates that an aircraft will be ready, all doors closed, boarding bridge removed, pushback vehicle available and ready to start-up / pushback immediately upon receipt of ATC clearance.

Target Startup Approval Time (TSAT) - The time provided by ATC that an aircraft can expect start-up / pushback approval.

1.2 Target Off-Block Time (TOBT) and Target Start-Up Approval Time (TSAT) requirements

Irrespective of the TSAT, the aircraft must be ready for departure at the TOBT +/- X⁵ minutes as the TSAT may be revised forward at short notice.

Any time the TOBT or TSAT cannot be met, or an earlier departure is required, the TOBT must be updated expeditiously by the airline operator / ground handler.

1.3 Departure Clearance

Departure Clearance should be requested via Data Link Departure Clearance (DCL) at TOBT/TSAT +/- X minutes.

If DCL is not available, Departure Clearance should be requested via RTF/Clearance Delivery at TOBT/TSAT +/- X minutes.

1.4 Start/ Pushback Clearance

Pilots must report/be ready for start/push-back at the TOBT +/- X¹ minutes.

ATC will approve start/push-back or advise the pilots of the current TSAT.

Pilots should request start/pushback clearance at the TSAT +/- X⁶ minutes.

1.5 Taxi Clearance

Taxi clearance must be requested by the TSAT +X minutes.

⁵ 5 minutes is currently recommended by the A-CDM harmonization taskforce

⁶ 5 minutes is currently recommended by the A-CDM harmonization taskforce

Red highlighted items maintained or deleted as necessary

Notes for Suggested Order and Text (for guidance not chart)

- 1.1 Some airports supply definitions in their A-CDM guidance. Although crew should be educated within their airline with respect to A-CDM terminology, IATA recommends maintaining definitions of TOBT and TSAT in the guidance information as globally many pilots may not be that clear of the definitions, and hence it is an opportune place to remind them concisely of these two most relevant terms.
- 1.2 There is variation as to when the TSAT is published, hence the red «X» can be substituted for the relevant figure. At most airports, the aircraft must be ready for start/pushback at TOBT +/-5 minutes and this should be preferred for consistency, though again the red «X» can be substituted for another figure.
- 1.3 At some airports the timing for when to request departure clearance is given in a different section to the A-CDM guidance. Due to the variability of the time, it is worth clearly noting it in the A-CDM guidance as the departure clearance forms part of the workflow of the pilots, and they need to know clearly where it fits in relative to the TOBT. The red items can be entered/deleted as required.
- 1.4 The guidance under item 1.4 in red can be kept/deleted in order to satisfy all differences.
- 1.5 The guidance under item 1.5 in red can be kept/deleted in order to satisfy all differences.

Acronym Glossary

A-CDM	Airport Collaborative Decision Making
AACG	A-CDM Airline Coordination Group
ACISP	A-CDM Information Sharing Platform
AIDX	Aviation Information Data Exchange
AIP	Aeronautical Information Publication
AODB	Airport Operational Database
AOP	Airport Operating Plan (SESAR)
API	Application Programming Interface
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATS	Air Traffic Services
CFMU	Central Flow Management Unit
CHG	Change Message for Flightplan
CTOT	Calculated Take Off Time
DCL	Datalink Departure Clearance
DLA	Delay Message for Flightplan
ECZT	Estimated Commence of De-Icing Time
EEZT	Estimated End of De-Icing Time
ELDT	Estimated Landing Time
EOBT	Estimated Off-Block Time
FPL	Filed Flight Plan
FUM	Flight Update Message
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
OCC	Operation Control Center
RTF	Radio Telephony
SESAR	Single European Sky ATM Research
SLA	Service Level Agreement
TOBT	Target Off-Block Time
TSAT	Target Start Up Approval Time
TTOT	Target Take Off Time