International Civil Aviation Organization

AN-Conf/12-WP/138
31/10/12
English only

WORKING PAPER

TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 2: Aerodrome operations – improving airport performance
2.1: Airport capacity

AIRPORT-COLLABORATIVE DECISION MAKING

(Presented by the Airports Council International)

SUMMARY

ACI fully supports the recommendations in AN-Conf/12-WP/4. This paper presents the views of airport operators on airport-collaborative decision making (A-CDM).

Action: The Conference is invited to recommend that ACI and ICAO work together to provide appropriate guidance on A-CDM implementation, including best practices and global technical standards.

Reference: AN-Conf/12-WP/4, Appendices E and J.

1. INTRODUCTION

1.1 As the Explanatory Notes to the agenda states: *"Increased runway infrastructure and advances in air navigation and aircraft systems are fundamental to increasing airport capacity, but are to little avail if overall airport surface operations are not also optimized to improve airport performance"*. ACI fully agrees with this statement, but would extend it to all airport operations, including landside and passenger terminal operations.

1.2 Airport operators face multiple challenges, including capacity constraints, congestion, aircraft delays, environmental impacts, managing real-time airport operations, and irregular operations which may be caused by severe weather or other factors outside their control. Moreover, these challenges are expected to increase with projected traffic growth.

1.3 The activity of every stakeholder in the airport value-chain (airport operators, aircraft operators, ATC, ground handlers, etc.) is inter-related and unless this activity is closely coordinated, service at the airport level becomes fragmented because no single party has a complete picture. Airport-collaborative decision making (A-CDM) is needed to meet this challenge.

1.4 A-CDM enables airport partners to work together more efficiently and transparently. It is an important cultural change aimed at facilitating improved information sharing among stakeholders, enabling optimised use of local capacity and informed decision-making under rapidly changing operating conditions – which is especially useful during deviations from normal operations (irregular operations). The use of available

resources can be constantly optimized, thus improving predictability, capacity, performance resilience and efficiency. It enables all stakeholders to monitor network demand, capacity and constraints, helping them take better informed decisions under a constantly changing operating environment.

1.5 ACI agrees with the Explanatory Notes to the agenda (in WP/2) that read, under Agenda Item 2, "The Conference will be invited to a) endorse the ASBU modules related to aerodrome operations…", which include Modules B0-80 and B1-80 on A-CDM.

1.6 ACI also concurs with WP/4: **Recommendation 2/x - ICAO aviation system block upgrades (ASBUs) relating to airport capacity**, which, inter alia, recommends the Conference to:

a) urge States, according to their operational needs, to implement the aviation system block upgrade modules relating to airport capacity included in Block 0, as presented in Appendices A through E;

b) endorse the aviation system block upgrade modules relating to airport capacity included in Block 1, as presented in Appendices F through K, and recommend that ICAO use them as the basis of its work programme on the subject;

1.7 ACI proposes to add a further recommendation as described below, requesting ICAO to work with ACI and other interested parties on guidance material to promote the globally-harmonized implementation of A-CDM, including best practices and global technical standards.

2. BACKGROUND

2.1 ACI notes, with approval, the grouping of modules under the Performance Improvement Area "Airport Operations". ACI has reviewed the airport collaborative decision making (A-CDM) Modules B0-80 and B1-80, which represent the interface between the air and ground phases of flight with the aircraft turnaround process.

2.2 Module B0-80 describes the current use of A-CDM in Europe – based on the comprehensive A-CDM concept adopted by EUROCONTROL, in association with ACI-EUROPE, as well as trials in the USA related to surface movement of aircraft, reflecting that particular State's needs and regulatory environment. ACI believes that ICAO guidance and standards for A-CDM need to recognize a diversity of approaches. ACI also believes that it will be ultimately necessary to integrate the entire system, from airspace and runway use, to airfield management, to parking stand use, to passenger terminal flows, in order to optimize performance and system efficiency.

2.3 ACI recognizes that while fully integrated A-CDM solutions are the most beneficial, nearer-term solutions that address some of the components may provide important and tangible benefits to airports, aircraft operators and other stakeholders. ACI also recognizes a need to scale A-CDM as appropriate to meet particular airport and aircraft operator needs and legal and regulatory environments.

3. DRIVERS FOR A-CDM

3.1 The main drivers for implementing A-CDM are:

a) the operational benefits that can be expected for the airport operators, aircraft operators, ground handlers, the air navigation service provider, and the travelling public, (see list in annex);

b) the need to maximize efficiency and increase throughput at airports with little spare capacity (at peak periods or throughout the day), and where physical capacity increases may take years to achieve;

c) the need to handle and recover quickly from flight disruptions and irregular operations caused by external events, both predicted (for example, maintenance and repairs, industrial action, forecast weather), and unpredicted - for example, equipment failure, aircraft accidents and incidents, security incidents, and weather conditions (e.g. storms, low visibility);

d) the particular need at hub airports to facilitate connectivity between flights, as well as intermodal connections to ground transportation at all airports;

e) the need for individual operators to resolve operational problems by means of swaps of ATC slots and reallocating the priority of flights; and

f) the need to contribute to sustainability and reduce aviation's environmental impact.

3.2 In order to address the aforementioned drivers, a collaborative approach that enables all parties to have access to the information required to efficiently manage an aircraft turnaround, from landing to next take-off is a critical enabler.

4. ISSUES

4.1 There are a number of significant issues to be explored, including :

a) assessing the differences in various states' approaches to A-CDM development and implementation;

b) assessing the differences in the regulatory framework from state-to-state which can have an impact on the manner in which A-CDM can be implemented;

c) defining the common operational data needed to support A-CDM implementation;

d) developing common definitions of operational data necessary for A-CDM (e.g. target off-block time -TOBT); and

e) defining the roles and responsibilities of the airport operators, aircraft operators, ANSP, ground handlers, and other partners in A-CDM development, operation, and refinement.

5. PLANS

5.1 Airport operators (represented by ACI) have a strong interest in promoting system efficiency, and are central to the provision of A-CDM, as they are best placed to act as coordinators for data exchange between all parties at an airport. ACI has therefore taken a strategic decision to promote airport efficiency by encouraging the development of standardized A-CDM at airports worldwide, using a set of standard milestones for critical information (e.g. TOBT).

5.2 ACI entered into a Memorandum of Cooperation with CANSO in June 2012 to work on guidelines for worldwide application of A-CDM, and on pilot projects to prove the value of a consistent worldwide approach, including a framework and protocol for data interchange.

5.3 ACI plans to reinforce the inherent case for “stand-alone” A-CDM systems to link up with en-route CDM. For example, in Europe, regional flow management (also known as network management), enables regional optimization of flights. Moving beyond a single region, inter-regional flow management can be established, and also integrated with Airport CDM.

5.4 The ACI World Assembly in November 2011 approved a resolution entitled “Airport Collaborative Decision-Making To Improve Efficiency And Minimize Delays”, and since then ACI has laid the foundations for a global project under which it plans to develop:

a) a best practices guide for globally-harmonized A-CDM implementation;

b) technical specifications for globally-harmonized A-CDM, including a framework for data interchange between aircraft operators, ANSPs, airport operators and ground handlers; this should include aligning the existing technical standard for interchange of A-CDM data at airports (airport community recommended information services - ACRIS) with other data exchange models for flight CDM such as AIXM, WXXM and FIXM; and

c) pilot projects using the above best practices and technical standards in regions where not previously undertaken.

5.5 To pursue A-CDM as a global solution, ACI intends to work together with other international organizations including ICAO, CANSO, IATA and with ACI regions and members (airport operators), including building on the aviation system block upgrade (ASBU) modules which deal with A-CDM.

6. CONCLUSION

6.1 The Conference is invited to recommend that ICAO work with ACI and other interested parties to develop guidance material and global provisions to promote the globally-harmonized implementation of Airport CDM, including best practices, supported by global technical specifications.

7. RECOMMENDATION

7.1 The Conference is encouraged to support the Conclusions and Recommendations in ICAO WP/4.

7.2 ACI proposes to add a new sub-paragraph to **Recommendation 2/x - ICAO aviation system block upgrades (ASBUs) relating to airport capacity**:

e) requests ICAO to work with ACI and other interested parties on guidance material to promote the globally-harmonized implementation of airport collaborative decision making, including best practices and global technical standards.

— — — — — — — —

APPENDIX

BENEFITS OF AIRPORT CDM TO PARTICIPANTS (NOT AN EXHAUSTIVE LIST)

For the airport o\Operator, improved use of stands / gates would increase capacity. More stable traffic flows and reduced taxi times would lead to fewer queues, less fuel burn and lower emissions at the runway and less congestion on the apron or taxiways.

Air navigation service providers, both at airports and en-route, would benefit from improved runway and capacity planning.

Ground handlers would benefit from more accurate arrival times, which would allow for more accurate planning with more efficient use of resources, and possible benefits to ground handling safety.

Aircraft operators would have an improved awareness about the status and location of the aircraft. Together with sequence information and better arrival times, more accurate fleet predictions would be the result. Fuel burn due to aircraft queuing on taxiways would be reduced, which would have both economic and environmental benefits.

Passengers would benefit from reduced delays, improved service and fewer missed connections. After disruptions recovery would be faster. Also for arrivals more accurate information could be delivered to FIDS and service desks.

— END —