



*International Civil Aviation Organization*

**Aerodrome Safety & Planning Implementation Group**

**First Meeting (ASPIG/1)**  
*(Cairo, Egypt, 19-21 November 2019)*

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**Agenda Item 6: Coordination between RASG-MID and MIDANPIRG in the area of Aerodromes**

**6.2 GANP: ASBUs Implementation for AOP & AGA/ANS Coordination matters**

ASBUs IMPLEMENTATION FOR AOP (A-CDM & SURF)

*(Presented by the Secretariat)*

**SUMMARY**

This paper presents an update on the ASBUs Implementation particularly the Airport Collaborative Decision Making (A-CDM) and the Surface Operations (SURF) threads.

Action by the meeting is at paragraph 3.

**REFERENCES**

- ICAO GANP 6<sup>th</sup> Edition
- MID Air Navigation Plan/ MID eANP

**1. INTRODUCTION**

1.1 The GANP drives the evolution of the global air navigation system to meet the ever growing expectations of the aviation community. The purpose of the GANP is to equitably accommodate all airspace users operations in a safe, secure and cost-effective manner while reducing the aviation environmental impact. To this end, the GANP provides a series of operational improvements to increase capacity, efficiency, predictability, flexibility while ensuring interoperability of systems and harmonization of procedures.

1.2 The global technical level of the GANP supports technical managers in planning implementation of basic services and new operational improvements in a cost-effective manner and according to specific needs, while ensuring interoperability of systems and harmonization of procedures. It contains the ASBU framework included in the global technical level of the GANP, for scalable implementation, provides the aviation community with the performance benefits expected from the implementation of specific air navigation operational improvements.

1.3 The regional level addresses regional and sub-regional needs aligned with the global objectives. As such, it contains the ICAO Regional Air Navigation Plans (ANPs) and considers other regional initiatives. The MID eANP Volume I, II and III are available on the ICAO MID website: (<http://www.icao.int/MID/Pages/MIDeANP.aspx> ). However, the ICAO eANPs web-based platform is accessible through the ANP application under SPACE/iSTARS : (<https://portal.icao.int/space/anp/Pages/newanp.aspx#> )

## 2. DISCUSSION

### *Operational thread: A-CDM (Airport Collaborative Decision Making)*

#### Baseline

2.1 All stakeholders involved in aerodrome operations have their own processes that are conducted as efficiently as possible. However, there is not enough effective information sharing among them. Some basic coordination between ATC and ramp control (which may also be provided by ATC) exists. The aerodromes operate in isolation from the ATM network and aircraft operators manage their operations independently from each other.

#### Block 0: (ACDM-B0/1 and ACDM-B0/2 Elements)

2.2 Aerodrome operators, aircraft operators, air traffic controllers, ground handling agents, pilots and air traffic flow managers share live information that may be dynamic, in order to make better and coordinated decisions. This applies notably in day to day operations and also in case of severe weather conditions or in case of emergencies of all kinds; for these cases A-CDM procedures are referred to in the snow plan, the aerodrome emergency response plan and the aerodrome manual. In some cases, aerodromes are connected to the ATM network via the ATFM function or to ATC through data exchange.

2.3 The meeting may wish to raised concern about the slow progress of implementation of the Block 0. The meeting may wish to recall that the MIDANPIRG Steering Committee the meeting agreed to the following MSG Conclusion:

*MSG CONCLUSION 6/6: SURVEY ON ACDM IMPLEMENTATION*

*That,*

- a) concerned States (according to the B0-ACDM applicability area included in the MID Air Navigation Strategy) be urged to provide the ICAO MID Office with the contact details of their designated ACDM Focal Points; and*
- b) a Survey on ACDM implementation be carried out for the monitoring of ACDM implementation, using the template at Appendix 5.3A.*

2.4 The meeting may wish to note that ICAO MID Office carried out a Survey for the monitoring to the level of A-CDM implementation by the concerned International Aerodromes, as at **Appendix A**, through State Letter AN5/23-19/072 dated 28 February 2019 and a Reminder AN5/23-19/184 dated 24 June 2019, in order to update Table B0-ACDM 3-1 included in the MID ANP Vol III, as at **Appendix B**. However, the ICAO MID Office did not receive any response from any State.

2.5 The meeting may wish to recall that, in order to raise awareness on the Airport Collaborative Decision-Making process, an A-CDM Implementation Workshop has been successfully organized by the ICAO Middle East Regional Office in Cairo, Egypt, 20-22 October 2019. The total number of participants who attended the Workshop are seventy-eight (78) Participants from seven (7) States and four (4) International Organizations.

***Operational thread: SURF (Surface Operations)******Baseline***

2.6 Traditional surface movement guidance and control system (SMGCS) implementation (visual surveillance, aerodrome signage, lighting and markings). Surface operations are comprising all operations on the platform including those dedicated to airport maintenance functions.

***Block 0 (SURF-B0/1, SURF-B0/2 and SURF-B0/3 Elements)***

2.7 This module aims to enhance the situational awareness of Air Traffic Controllers and pilots during ground operations by the provision of the aerodrome surface situation on their respective displays being A-SMGCS for the controller or electronic maps in the cockpit. Some initial alerting services for prevention of runway incursions are proposed to the controller.

2.8 The meeting may wish to note that the Table B0-SURF 3-1 included in the MID ANP Vol III needs to be updated to match the complete rewritten version of the operational thread: Surface Operations included in the 6<sup>th</sup> Edition of the GANP.

2.9 The meeting may wish to highlight that there is a need to raise awareness on Surface operation concept through capacity building initiative.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) urge States to populate the Survey on A-CDM Implementation as at **Appendix A**, and communicate it to the ICAO MID Office;
- b) urge States to update the current Table B0-ACDM 3-1 included in the MID ANP Vol III, as at **Appendix B**; and
- c) review and agree on the following Draft Conclusion:

<b>Why</b>	to raise awareness about the Surface Operations Implementation within the ASBU Framework
<b>What</b>	organize an A-SMGCS Implementation Seminar
<b>Who</b>	ICAO MID Office
<b>When</b>	Q2 of 2020

***DRAFT CONCLUSION I/XX: A-SMGCS IMPLEMENTATION SEMINAR***

*That, in order to raise awareness about the Surface Operations Implementation within the ASBU Framework:*

- a) *ICAO to organize an A-SMGCS Implementation Seminar; and*
- b) *States are encouraged to participate actively in this event.*

d) review and agree on the following Draft Decision:

<b>Why</b>	MID ANP Vol III be updated to in the 6 <sup>th</sup> Edition of the GANP in the field of Aerodrome Operations
<b>What</b>	Update the Table B0-SURF 3-1 and Table B0-ACDM 3-1 included in the MID ANP Vol III in line with the 6 <sup>th</sup> Edition of the GANP
<b>Who</b>	ICAO MID Office
<b>When</b>	Q1 of 2020

***DRAFT DECISION 1/XX: MID ANP VOL III A-CDM/SURF TABLES UPDATE***

*That, in order to update the MID ANP, in line with the 6<sup>th</sup> Edition of the GANP in the field of the Aerodrome Operations, ICAO MID Office to update Table B0-SURF 3-1 and Table B0-ACDM 3-1 accordingly.*

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**APPENDIX A**

MID Region Airport Collaborative Decision Making  
(MID A-CDM) Survey Questionnaire

Name of the State/Administration:

Approach to implementation

1. Is the A-CDM implementation a national program/project or a local airport by airport project?  
*(Please select the applicable box)*

It is a national program where A-CDM is being implemented at several airports with one entity managing the overall program to facilitate common procedures and approach to the implementations	
It is an "airport-by-airport" approach where each project is managed at "local" level	
It is a combination of a national program and separate airport projects manager at "local" level	
There is not yet an implementation plan for A-CDM	

*Please add free text comments if needed:*

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2. If A-CDM has been/is going to be implemented, please indicate at which airports and by what year:

Airport	Year

*Add additional lines as needed*

**For EACH airport mentioned above, please provide separate responses to QUESTIONS 3 to 22:**

Status of A-CDM implementation

3. In which of the following phases is the A-CDM implementation?  
*(Please select the box that is the most suitable option)*

No planning, i.e. nothing in relation to A-CDM has started yet	
Initial planning, i.e. collecting information about guidance material etc. to set the scope of the projects	
Planning well underway, i.e. scope set, engaged with stakeholders etc.	
Ready to launch A-CDM implementation project	
A-CDM implemented, i.e. procedures are in place and used in the "day-to-day" operations (Please indicate number of years for A-CDM used in day-to-day operations.	

## A-CDM Project Scope

4. Which one of the A-CDM conceptual elements are being implemented as part of the A-CDM project? *(Please select the applicable box(es))*

Information sharing	
Milestone Management	
Variable Taxi Times	
Collaborative Management of Flight Updates	
Pre Departure Sequencing	
A-CDM in adverse conditions	
Integration with Air Traffic Flow Management (ATFM)	

*Please add free text comments if needed:*

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5. How is Information sharing implemented as par to the solution/planned A-CDM solution? *(Please select the applicable box(es))*

Via Information Sharing platform collecting data in real-time from various systems.	
Via manual interaction and information exchange	
A combination of the two alternatives above	

*Please add free text comments if needed:*

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6. What Milestones (based on the Eurocontrol model) are captured/planned to be captured for the Milestone Management? *(Please select the applicable box(es) and please indicate if the implementation/planned implementation uses any other names for the milestones)*

Eurocontrol Milestones	Applied	Alternative name
Milestone 1 - ATC Flight Plan Activated		
Milestone 2 - CTOT Allocation/EOBT – 2 Hrs		
Milestone 3 - Take off from Outstation		
Milestone 4 - Local Radar Update/FIR Entry		
Milestone 5 - Final Approach		
Milestone 6 - Landed		
Milestone 7 - In Block		
Milestone 8 - Aircraft at Gate		
Milestone 9 - TOBT Entered		
Milestone 10 - TSAT Issued		
Milestone 11 - Boarding Starts		
Milestone 12 - Aircraft Ready		
Milestone 13 - Start-up Request		
Milestone 14 - Start-up Approved		
Milestone 15 - Off Block		
Milestone 16 - Take Off		

*Please add free text comments if needed:*

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7. Are you planning to apply the concept of Target Off Block Times? *(Please select the applicable box)*

No	
Yes, and this will be the responsibility of the Airlines and/or appointed Ground Handlers to manage and update the Target Off Block Times (TOBT) in order to ensure that TOBT is accurate and reliable.	

a. If yes, will the project provide a solution that facilitates predictive TOBT calculations? *(Please select the applicable box)*

No	
Yes	

8. What methodology is applied/going to be applied for calculating Variable Taxi Time? *(Please select the applicable box)*

“Table look up” utilizing fixed taxi time from gates to runways.	
Dynamic Variable Taxi Time using self-learning algorithms based on real-time and statistical surveillance data	

9. How is Target Start-Up Approval Time (TSAT) being calculated as part of Pre-Departure Sequencing? *(Please select the applicable box)*

Manual TSAT calculations	
Automatic TSAT calculations utilizing a Pre Departure Sequence or full Departure Management system/capability	

a. If TSAT is calculated automatically, at what key milestones are the TSAT calculated/re-calculated? *(Please select the applicable box(es))*

Milestone 1 - ATC Flight Plan Activated	
Milestone 2 - CTOT Allocation/EOBT – 2 Hrs	
Milestone 3 - Take off from Outstation	
Milestone 4 - Local Radar Update/FIR Entry	
Milestone 5 - Final Approach	
Milestone 6 - Landed	
Milestone 7 - In Block	
Milestone 8 - Aircraft at Gate	
Milestone 9 - TOBT Entered	
Milestone 10 - TSAT Issued	
Milestone 11 - Boarding Starts	

10. How TSAT information is shared to Airlines operators/Ground Handling Agencies? *(Please select the applicable box(es))*

Via A-CDM portal/web interface/application	
Via mobile application	
Via Automatic Parking Aid displays at gate	
Data link	
Radio communication	

11. What are the key parameters for data exchange between ACDM and ATFM? *(Please specify in free text in the text box)*

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12. To establish the A-CDM project, has any guidance material been used to facilitate the scope and objectives? *(Please select the applicable box)*

Yes	
No	

a. If yes, please indicate what guidance material has been used. *(Please select the applicable box(es))*

ICAO Doc 9971	
Eurocontrol A-CDM Manual	
CANSO A-CDM Guidance Material	
FAA Surface CDM material	
IATA Guidance material	
Specific airport "operational guidelines" materials	
Other material like Eurocae or ETSI standards for A-CDM <i>(Please specify)</i>	

*Please add free text comments if needed:*

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### Local Concept of Operations

13. Has a "Local Concept of Operations" document for the A-CDM implementation been established? *(Please select the applicable box)*

Yes	
No	

a. If yes, please indicate the scope of the document. *(Please select the applicable box(es))*

It sets out the objectives that A-CDM is aiming to achieve	
It provides a common vocabulary with all definitions for A-CDM	
It provides information about information sharing and the sources for the information collected	
It provides information about the milestones used in the A-CDM process	
It defines each participating stakeholder's role and responsibilities as part of the A-CDM process	
It provides how A-CDM shall operate during irregular operations	
It provides descriptions of the process steps for various regular and irregular operations	
It includes how to measure the success of A-CDM once implemented, i.e. Key Performance Indicators (KPIs)	

*Please add free text comments if needed:*

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## Stakeholder Engagement

14. Which stakeholders are involved in the A-CDM implementation? *(Please select the applicable box(es))*

Airport operator	
Airline operators	
Ground handlers	
Air Navigation Service Provider	
Network Operations/ATFM unit	
Others <i>(Please specify)</i>	

15. Has a Memorandum of Understanding (MOU) been established between the stakeholders? *(Please select the applicable box)*

Yes	
No	

*Please add free text comments if needed:*

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## Project Implementation

16. Has a project group been established with all stakeholders involved? *(Please select the applicable box)*

Yes	
No	

*Please add free text comments if needed:*

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17. Is there a shared leadership or is the project management led by one organization? *(Please select the applicable box)*

Shared leadership	
Leadership is appointed from one organization	

a. Please explain why one of the options is applied:

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18. Is the project group meeting held on a regular basis or ad-hoc? *(Please select the applicable box)*

Regular	
Ad-hoc	

a. Please explain why one of the options is applied:

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19. What are the objectives identified in the project that A-CDM is aiming to achieve?

*(Please select the applicable box(es))*

Increase predictability	
Increase on-time performance	
Improve resource utilization	
Reduce taxi times	
Increase airport efficiency	
Reduce environmental nuisance	
Optimise the use of available capacity	
Improved safety	
Other <i>(please indicate what other objectives are identified in box below)</i>	

*Please add free text comments if needed:*

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20. Has the project identified a more detailed Key Performance Framework with Key Performance Indicators to facilitate the measurements of the A-CDM implementation? *(Please select the applicable box)*

Yes	
No	

a. If yes, would the project team be willing to share this work with the ICAO Regional officer for Aerodromes and Ground Aids (AGA) to aid in its future work such as the establishment of more detailed A-CDM guidelines? *(Please select the applicable box)*

Yes	
No	

*Please add free text comments if needed:*

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## Training

21. Has the project established training in any of the following areas for the implementation of A-CDM? *(Please select the applicable box(es))*

Initial training for stakeholders to “what is A-CDM”	
Advanced training for stakeholders to “what is A-CDM”	
Training on how to operate under A-CDM procedures for all stakeholders	
Specialized/tailored training for each user in relation to “what do I need to do when A-CDM is operational at the airport”?	

*Please add free text comments if needed:*

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Challenges

22. Please rank what hold most true in relation to your A-CDM implementation. (Please use 1-5 where 1 indicates “no, do not agree at all” and 5 is “yes, agree completely”).

A-CDM as a concept is too complicated and vague	
Developed guidelines are not enough to understand how A-CDM shall be implemented successfully	
It is challenging to understand what an A-CDM implementation is, i.e. what has to be achieved to say “yes, we have A-CDM at our airport”	
The challenge is to understand what system(s) is(are) and information are needed to implement A-CDM	
It is challenging to get all stakeholders engaged and committed to the A-CDM project	
It is challenging to manage the A-CDM project	
It is challenging to understand what value A-CDM will bring	
It is very complicated to establish how to measure the success of A-CDM	

*Please add free text comments if needed:*

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**APPENDIX B**

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***B0 – ACDM: Improved Airport Operations through Airport-CDM***

**Description and purpose**

To implement collaborative applications that will allow the sharing of surface operations data among the different stakeholders on the airport. This will improve surface traffic management reducing delays on movement and manoeuvring areas and enhance safety, efficiency and situational awareness.

**Main performance impact:**

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	N

***Applicability consideration:***

Local for equipped/capable fleets and already established airport surface infrastructure.

***B0 – ACDM: Improved Airport Operations through Airport-CDM***

<b>Elements</b>	<b>Applicability</b>	<b>Performance Indicators/Supporting Metrics</b>	<b>Targets</b>	<b>Timelines</b>
A-CDM	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA	Indicator: % of applicable international aerodromes having implemented improved airport operations through airport-CDM  Supporting metric: Number of applicable international aerodromes having implemented improved airport operations through airport-CDM	50%	Dec. 2018

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**TABLE B0-ACDM 3-1**


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**EXPLANATION OF THE TABLE**

## Column

- 1- Name of the State
- 2- Aerodrome and Location Indicator
- 3 & 4 Fundamental ACDM Elements
- 3-Information Sharing:  
 FI – Fully Implemented  
 PI – Partially Implemented  
 NI – Not Implemented  
*Note 1- Information Sharing is essential since it forms the foundation for all the other subsequent elements.*
- 4-The Milestones Approach (Turn- Round Process)  
 FI – Fully Implemented  
 PI – Partially Implemented  
 NI – Not Implemented  
*Note 2- The Milestones Approach (Turn- Round Process) aims to achieve common situational awareness by tracking the progress of a flight from the initial planning to the take off.*
- 5 – 8 Other ACDM Elements
- 5- Variable Taxi Time  
 FI – Fully Implemented  
 PI – Partially Implemented  
 NI – Not Implemented  
*Note 3- Variable Taxi Time is the key to predictability of accurate take-off in block times especially at complex airports.*
- 6-Collaborative Management of Flight Updates  
 FI – Fully Implemented  
 PI – Partially Implemented  
 NI – Not Implemented  
*Note 4- Collaborative Management of Flight Updates enhances the quality of arrival and departure information exchanges between the Network Operations and the CDM airports.*
- 7-Collaborative Pre-departure Sequence  
 FI – Fully Implemented  
 PI – Partially Implemented  
 NI – Not Implemented  
*Note 5- (Collaborative) Pre-departure Sequence establishes an off-block sequence taking into account operators preferences and operational constraints.*
- 8-ACDM in Adverse Conditions

FI – Fully Implemented  
PI – Partially Implemented  
NI – Not Implemented

*Note 6- ACDM in Adverse Conditions achieves collaborative management of a ACDM during periods of predicted or unpredicted reductions of capacity.*

9- Action Plan — short description of the State’s Action Plan with regard to ACDM Implementation, especially for items with a “PI” or “NI” status, including planned date(s) of full compliance, as appropriate.

10- Remarks — additional information, including detail of “PI” or “N”, as appropriate.

State	Aerodrome Location Indicator	ACDM IMPLEMENTATION ELEMENTS								
		Fundamental ACDM Elements		Other ACDM Elements				Action Plan	Remarks	
		Information Sharing	Milestones Approach	Variable Taxi Time	Collaborative Management of Flight Updates	Collaborative Pre-departure Sequence	ACDM in Adverse Conditions			
1	2	3	4	5	6	7	8	9	10	
<b>Bahrain</b>	OBBI									
<b>Egypt</b>	HECA									
<b>Iran</b>	OIII									
<b>Kuwait</b>	OKBK									
<b>Oman</b>	OOMS									
<b>Qatar</b>	OTBD									
	OTHH									
<b>Saudi Arabia</b>	OEJN									
	OERK									
<b>UAE</b>	OMDB									
	OMAA									

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