International Civil Aviation Organization

Third Meeting of the Asia/Pacific Airport Collaborative Decision Making Task Force (APA-CDM/TF/3)

Bali, Indonesia, 13 to 16 August 2018

Agenda Item 6: APA-CDM/TF Deliverables and Task List

FINAL REPORT ON ICAO APAC A-CDM SURVEY

(Presented by India and CANSO)

SUMMARY

This paper presents the results from the "ICAO APA-CDM Survey Questionnaire" and provide a general overview of the A-CDM status and plans at an airport level and provide conclusions on the survey results.

1. INTRODUCTION

1.1 India and CANSO presented in APA-CDM/TF/2 meeting held in Hong Kong, China from 29 November to 1 December 2017 a summary of the results from responses to ICAO APA-CDM Survey Questionnaire received from 13 Administrations and conclusions drawn from the survey results.

1.2 13 Administrations that responded to ICAO APA-CDM Survey Questionnaire were Australia, Bhutan, Hong Kong China, Fiji, India, Japan, New Zealand, Pakistan, Philippines, Singapore, Thailand, USA and Viet Nam.

1.3 Noting that the performance expectations of the Asia/Pacific Seamless ATM Plan include A-CDM implementation at all high density aerodromes (i.e. more than 100,000 aircraft movements per annum), China (22 high density aerodromes), Indonesia (four high density aerodromes), Malaysia (one high density aerodrome) and Republic of Korea (three high density aerodromes) had not responded to the survey. Consequently, the report of survey results presented an interim conclusion based on inputs received.

1.4 The meeting agreed to re-circulate the survey to non-respondent Administrations, and to send a request for clarification in cases where the information provided was not clear. The expected response date for these activities was 31 January 2018. In addition, the questionnaire for the survey (i.e. in MS Word file) would also be made available in the webpage for APA-CDM/TF/2.

2. UPDATES TO THE REPORT FROM APA-CDM/TF/2

2.1 The ICAO APAC Office had sent out the letters to Australia, Fiji, India, Japan and New Zealand with supplementary questions for clarification on issues where information provided in their completed questionnaires was not clear. However, responses were received from Australia, Fiji and Japan only. Australia, Japan and Thailand provided completed survey questionnaires with revision. The inputs has been taken into account when updating the Survey Report (see **Appendix A** and **Appendix B).**

2.2 China and Republic of Korea provided completed survey questionnaires, providing valuable input that are all taken into account in the update Survey Report (see **Appendix A** and **Appendix B).**

3. HIGH LELVEL REPORT CONCLUSIONS

3.1 The implementation of A-CDM in the APAC region is moving forward and already up to date 16 airports have implemented A-CDM according to responses from the member states. According to the survey, 16 more will have implemented A-CDM in the next 3 years. However, some indicates very aggressive time plans in relation to where they are in the process, according to their responses, which could indicate some underestimation of the complexity and time actually needed to implement A-CDM.

3.2 The responses to the survey indicates some areas where further investigations might be needed, or where more clear guidance material and also training would be of help. These areas are:

- **Relationship between the A-CDM conceptual elements and milestones** - There are discrepancies in the responses indicating that the implementation of milestones and their purpose might be difficult to comprehend.
- **How to measure the success of an A-CDM implementation** - All respondents indicated very clear objectives related to implementation A-CDM but at the same time not all have established how to measure that these objectives can be achieved. This holds true for some of the airport that have already implemented A-CDM as well.
    - *NOTE - Many of the airport that have completed their A-CDM implementations have indicated that they are willing to share their "Key Performance Framework". This could be of highest value to all APAC states and airport and help to harmonize the approach as well as how to measure certain Key Performance Indicators.*
- **Getting all stakeholders engaged as well as managing an A-CDM project** – These are two of the areas which, according to the survey result, seems to be the most challenging when implementing A-CDM.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

—END—

A-CDM SURVEY REPORT

Version 01.00
Date 18/08/06

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REVISIONS

Version	Date	By who	Comments
00.01	17/10/13	Fredrik Lindblom/CANSO/SAAB	New document
00.02	17/10/17	Fredrik Lindblom/CANSO/SAAB	Internal review
00.03	17/10/19	Fredrik Lindblom/CANSO/SAAB	Feedback from Chairman
00.10	18/02/16	Fredrik Lindblom/CANSO/SAAB	New inputs from ROK and Thailand
00.11	18/03/01	Fredrik Lindblom/CANSO/SAAB	Updates from Australia
00.12	18/04/03	Fredrik Lindblom/CANSO/SAAB	Updates from Japan and minor updates to errors in the data.
00.20	18/07/11	Fredrik Lindblom/CANSO/SAAB	Updates after input from China
01.00	18/08/06	Fredrik Lindblom/CANSO/SAAB	Finalizing report in preparations for ICAO A-CDM Task force Meeting #3

Introduction

Purpose of this document

The purpose of this document is to:

1. Summarize the results from the "ICAO APA-CDM Survey Questionnaire" and provide a general overview of the A-CDM status and plans at an airport level and;
2. Provide conclusions on the survey results, where applicable.

Structure of the document

The document is dived into this "Introduction Section" and the "Survey Results" section that provide the summary as per the questions areas in the survey, i.e.:

- Approach To A-CDM Implementation
- Status of A- CDM Implementation
- A-CDM Project Scope
- Local Concept of Operations
- Stakeholder Engagement
- Project Implementation
- Training
- Challenges

Overview of Survey Results

The overall summary is:

- The Survey questionnaire was sent out to 39 States (including USA) and 2 SAR (Hong Kong, China and Macao, China)
- 15 APAC States/Administrations (Australia, Bhutan, China, Fiji, Hong Kong - China, India, Japan, New Zealand, Pakistan, Philippines, Singapore, ROK, Thailand, USA, Viet Nam) responded to survey questionnaire.
- No replies to survey has been received from Indonesia, and Malaysia, where A-CDM needs to be implemented as per above APAC Seamless ATM Plan.
- The percentage of States/Administrations responding to survey questionnaire is 38,5%.
- As per APAC Seamless ATM Plan, Version 2.0, September 2016, all high-density aerodromes (aerodromes with more than 100,000 aircraft movements per annum) should operate an A-CDM system serving the Major Traffic Flow (MTF) and busiest city pairs, with priority implementation for the busiest Asia/Pacific aerodromes. Based on 2015 ICAO data, the 51 busiest Asia/Pacific aerodromes were (Page 41 of APAC Seamless ATM Plan, Rev. 2.0 refers):
    1. Australia (Sydney, Melbourne, Brisbane);
    2. China (Beijing, Shanghai Pudong and Hong Jiao, Guangzhou, Hong Kong, Xi'an, Shenzhen, Chengdu, Kunming, Hangzhou, Chongqing, Xiamen, Wuhan, Zhengzhou, Changsha, Nanjing, Qingdao, Urumqi, Dalian, Guiyang, Tianjin, Haikou, Sanya);
    3. India (New Delhi, Mumbai, Chennai, Bangalore);
    4. Indonesia (Jakarta, Surabaya, Bali, Makassar);
    5. Japan (Haneda, Narita, Fukuoka, Osaka, Sapporo, Naha);
    6. Malaysia (Kuala Lumpur);
    7. New Zealand (Auckland)
    8. Philippines (Manila);
    9. Republic of Korea (Incheon, Jeju, Seoul);

10. Singapore (Changi);
11. Thailand (Suvarnabhumi, Don Mueang);
12. United States (Honolulu); and
13. Viet Nam (Ho Chi Minh, Hanoi).

- The percentage of States/Administrations responding to survey questionnaire, where A-CDM is recommended to be implemented, is ~85%.

With the high percentage in response rate of approx. 85% the survey is considered to be finalized.

In Table 1 a detailed summary is presented that includes who has replied to the survey, what airports are part of the current implementation scope and by what year.

IMPORATNS NOTEs:

- *Bhutan and Pakistan have no plans for A-CDM as it is deemed by the states that their airport will not implement A-CDM. They are therefore not considered as part of the survey results.*
- *Philippines indicates implementation of extended ATFM but not how that specifically relates to what airport/airports. Due to ambiguous replies to the survey questions these replies are not included as part of the survey results.*
- *Survey replies from U.S. are not included in the report. They are adapting Surface CDM. A dialogue on how to include their inputs is needed.*
- *The legend for the table is as follows:*
  - *A Year value of "0" indicates that no data was provided by the respondent*
  - *Green marked airports indicates that implementation is completed.*
  - *Yellow marked states/airport indicates they are not included in the Survey results in this version of the document.*

Member State	Airport	Year
Australia	**Brisbane**	2019
	Sydney	2020
	Perth	2020
	Melbourne	2020
Bhutan	**No info**	0
China	**Kunming Changshui**	2014
	Beijing Capital	2017
	Shanghai Hongqiao	2013
	Shanghai Pudong	2016
	Chengdu Shuangliu	2017
	Guangzhou Baiyun	2016
	Xi'an Xianyang	2017
	Shenzhen Baoan	2106
Fiji	**Nadi**	2018
Hong Kong	**HKIA**	2017
India	**Bengaluru**	2013
	Delhi	2013
	Mumbai	2015
	Kolkata	2018
	Chennai	2018
	Shamshabad	0
Japan	**Chitose (Sapporo)**	2018
	Narita	2020

	Haneda	2020
New Zealand	**Wellington**	2015
	Auckland	2016
	Christchurch	2019
Pakistan	**No info**	0
Philippines	**Expanded ATFM (assumed one airport)**	0
Singapore	**Changi**	2016
ROK	**Incheon**	2017
Thailand	**Suvarnabhumi**	2019
	Don Muang	2019
Vietnam	**Tan Son Nhat**	2020
	Noi Bai	2020
	Da Nang	2021

Table 1 – Summary of ICAO States that replied to the A-CDM SurveyDetailed Survey Results

Approach to A-CDM Implementation

The question related to this subject aims to get a better understanding what the approach is when implementing A-CDM.

Is the A-CDM implementation a national/project or local airport-by-airport project?

NOTE: The data set for this question includes replies from 11 states (for details see explanation in the "Overview"). The pie chart presents both absolute values and percentage values.

The results (see Figure 1) clearly shows that a majority (82%) of the respondents do have a plan for how A-CDM shall be implemented from the standpoint of how the program/project should be managed which is really good.

NOTE - For the states that still do not have a plan they have still indicated implementation by either 2018 or 2019 which could be a concern as the average implementation time for A-CDM is 2 ½ years (based on data from European implementations).

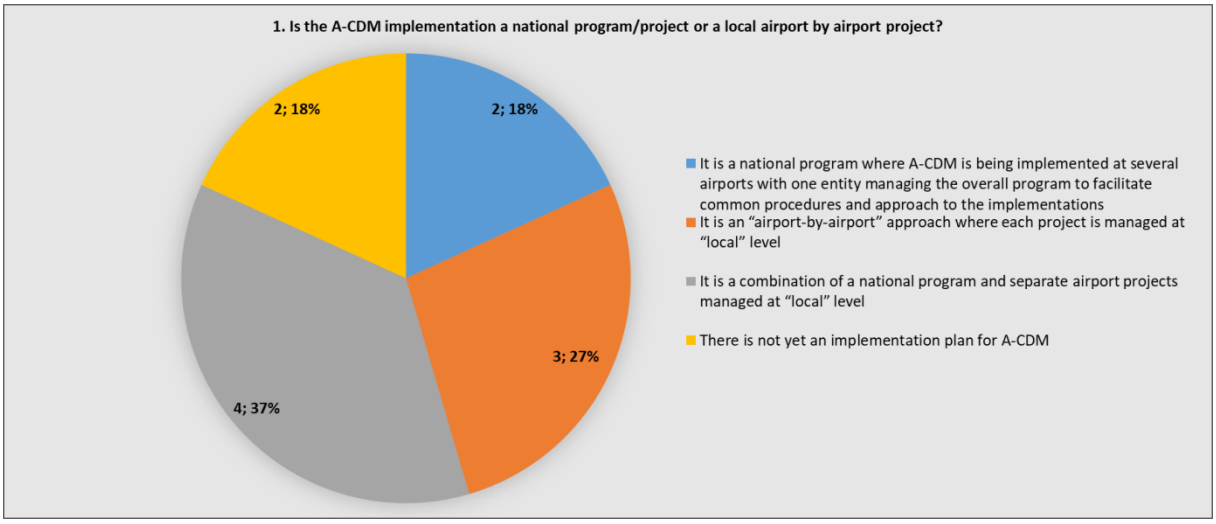


Figure 1 – Result on Question 1

Status of A-CDM Implementation

The question related to this subject aims to get a better understanding in which phase the airports are in their A-CDM implementation.

In which of the following phases is the A-CDM implementation?

NOTE: The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.

The results show (see Figure 2) that the majority of the airports have already implemented A-CDM or are either well underway or ready to launch the A-CDM program/project.

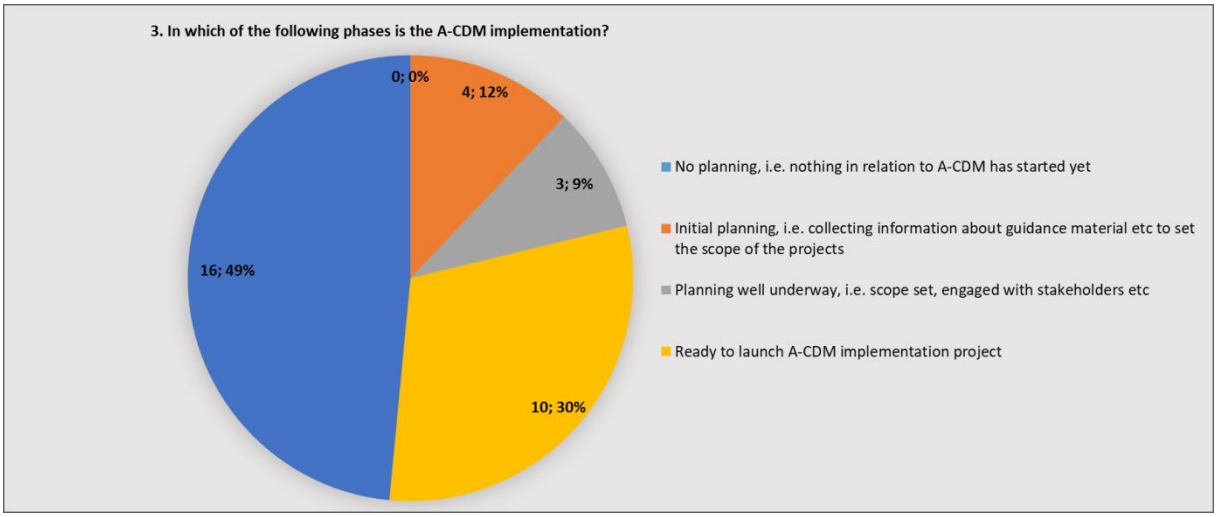


Figure 2 – Result on Question 3

A-CDM Project Scope

The questions related to this subject aims to get a better understanding of the scope of the A-CDM implementation. In total, there are 15 questions and seven sub-questions helping to clarify the scope of each airport's A-CDM implementation.

Which one of the A-CDM conceptual elements are being implemented as part of the A-CDM project?

NOTE: The data set for this question includes 33 airports. The graph presents absolute values.

The results show (see Figure 3) some very interesting results from an A-CDM implementation perspective. Out of 33 airports, 33 have indicated that they plan to implement information sharing but for the other conceptual elements of A-CDM the level of implementation is cascading. From an A-CDM implementation perspective the expected results would be that at least elements "Information Sharing", "Milestone Management", "Variable Taxi Times" and "Pre-Departure Sequence" should be implemented at all airports planning to implement A-CDM but that is not the case. **The reason for this discrepancy should be further investigated.**

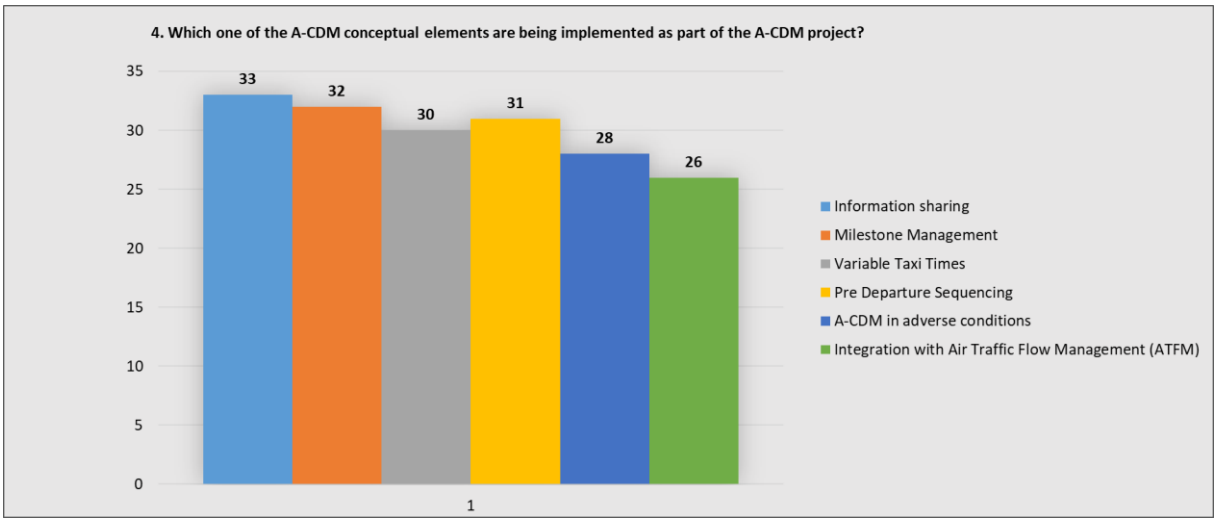


Figure 3 – Result on Question 4

How is Information sharing implemented as par to the solution/planned A-CDM solution?

***NOTE:** The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.*

The results show (see Figure 4) that an equal number of the airports are or will be using solely an information sharing platform or a combination of an information sharing platform and manual exchange of information.

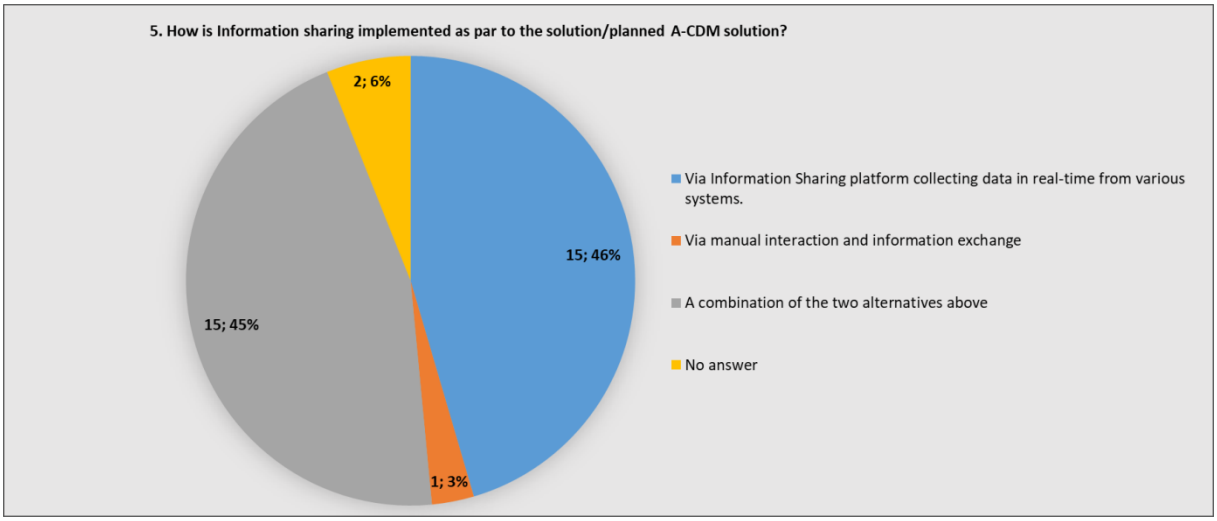


Figure 4 – Result on Question 5

What Milestones (based on the Eurocontrol model) are captured/planned to be captured for the Milestone Management?

***NOTE:** The data set for this question includes 32 airports. One is excluded from the data set due to their reply. The graph presents absolute values.*

The results show (see Figure 5) some very interesting results from an A-CDM implementation perspective. Out of the 32 airports, they all indicate that Milestones 1, 9, 15 and 16 are or will be implemented. This is a slight divergence from the Eurocontrol model that HIGHLY RECOMMENDS that Milestone 1-7, 10 and 15-16 are implemented. Not implementing Milestones 3-7 will make automatic updates to Target Off Block Times (TOBTs) difficult/impossible hence predictive calculations of Target Start-up Approval Times (TSATs) will also be difficult/impossible.

Another interesting observation is that 31 airports have indicated implementation of Milestone 2, which is related to integration with Air Traffic Flow Management (i.e. the sixth conceptual element of A-CDM). However, only 26 airport have indicated that they will implement this conceptual element (see question 4 for details). **The reason for this discrepancy should be further investigated.**

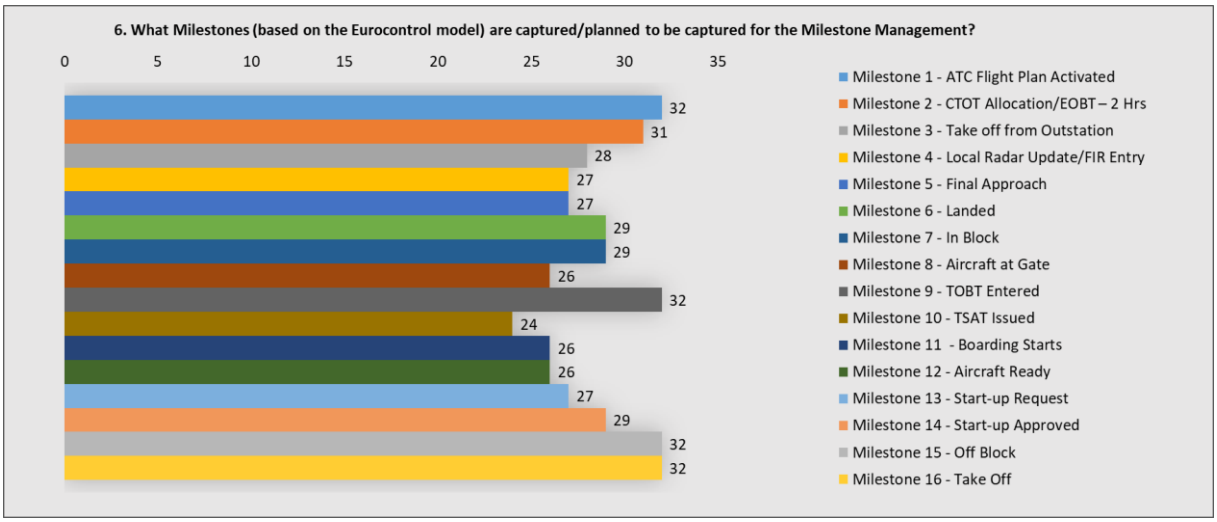


Figure 5 – Result on Question 6

Are you planning to apply the concept of Target Off Block Times?

NOTE: The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.

The results show (see Figure 6) that the majority (97%) of the airport are assigning the responsibility of TOBT updates to the airlines/ground handlers, which is in-line with the A-CDM concept.

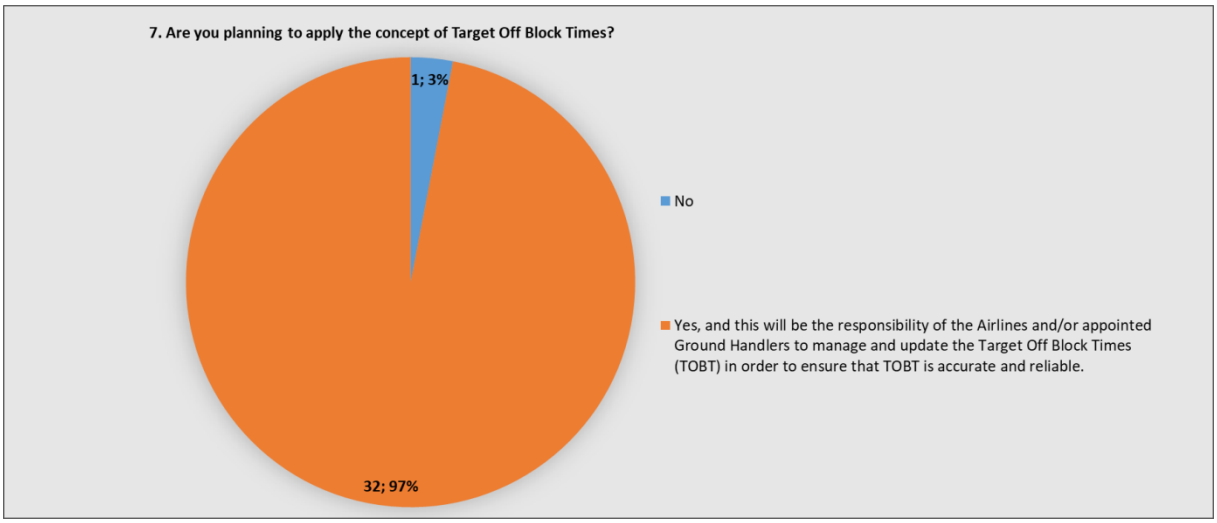


Figure 6 – Result on Question 7

If yes, will the project provide a solution that facilitates predictive TOBT calculations?

NOTE: The data set for this question includes 32 airports. One airport did not give any inputs The pie chart presents both absolute values and percentage values.

The results show (see Figure 7) that 25 airports have or will have a capability to facilitate predictive TOBT calculations.

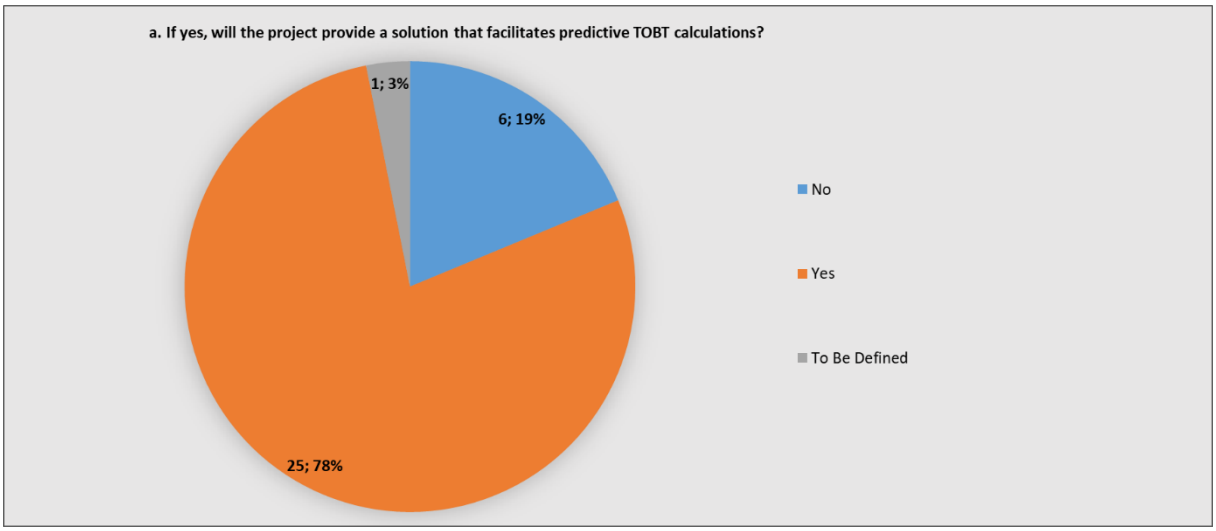


Figure 7 – Result on Question 7a

What methodology is applied/going to be applied for calculating Variable Taxi Time?

NOTE: The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.

The results show (see Figure 8) that the majority (58%) will be using a "table look-up" for Variable Taxi Times. Now, what is interesting from the survey results is that in question 4, 30 airports indicated they will implement Variable Taxi Times, but in this question all 33 airports clearly indicate how they will do it, i.e. there is a discrepancy between the two questions. **The reason for this discrepancy should be further investigated**.

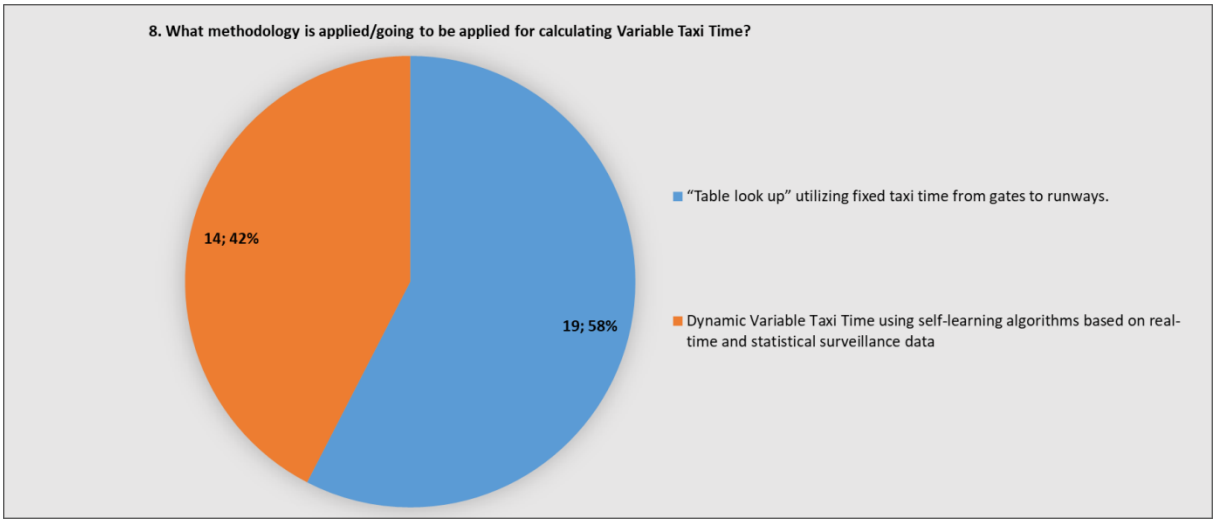


Figure 8 – Result on Question 8

How is Target Start-Up Approval Time (TSAT) being calculated as part of Pre-Departure Sequencing?

NOTE: The data set for this question includes 24 airports, and 9 did not provide any information. The pie chart presents both absolute values and percentage values.

The results show (see Figure 9) that the majority (79%) are having or will have an automatic calculations of TSAT by utilizing a PDS/DMAN capability. Comparing these results with results in question 4 there is a clear discrepancy. Question 4 indicates that 31 airports are to implement the Pre-Departure Sequencing

but the answer in this question only shoes that 24 will do it. Expected result would be that the answers should match. **The reason for this discrepancy should be further investigated.**

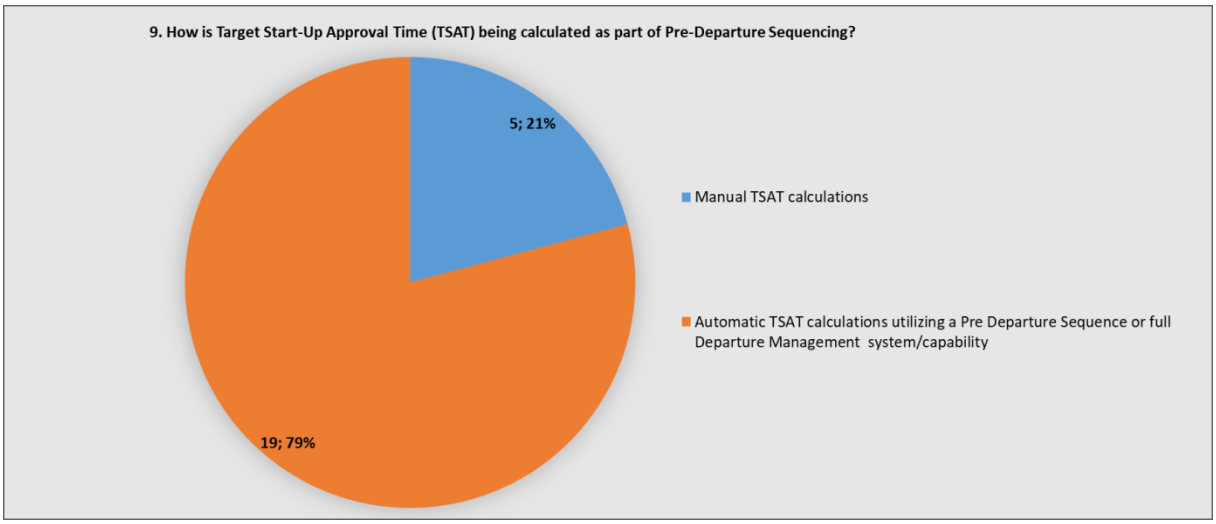


Figure 9 – Result on Question 8

If TSAT Is calculated automatically, at what key milestones are the TSAT calculated/re-calculated?

NOTE: The data set for this question includes answers from 21 airports, where four indicated "to be defined" and eight did not provide any information. The graph presents absolute values.

The results show (see Figure 10) that quite a few of the A-CDM implementations are using or plan to use information from the early milestones to calculate the TSATs values. Interesting is however that a few airports indicates that even Milestone 11 will drive TSAT updates. **This would be an interesting topic to investigate further to understand the thinking behind.**

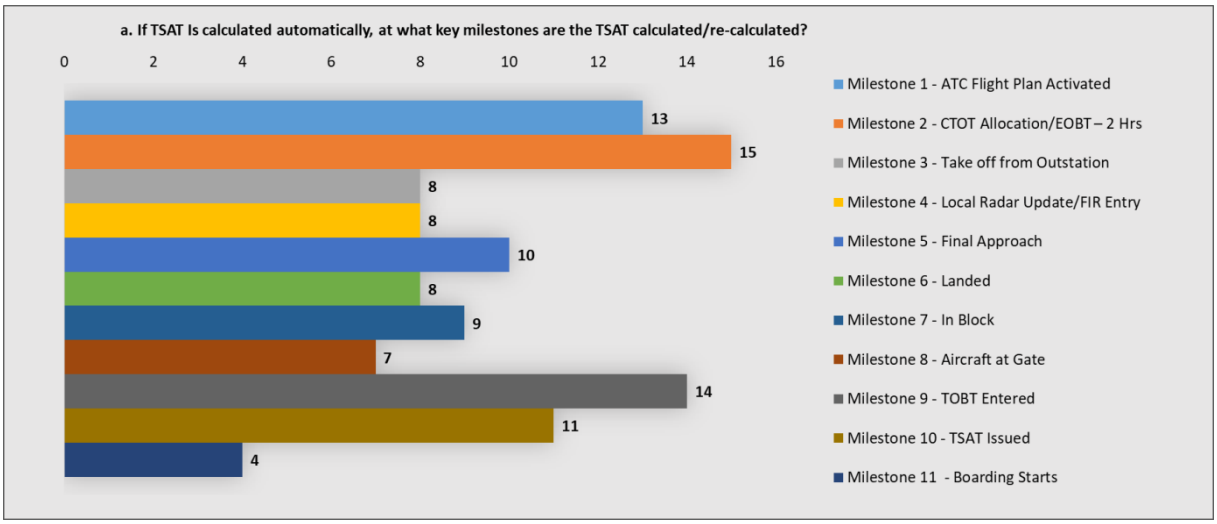


Figure 10 – Result on Question 8a

How TSAT information is shared to Airlines operators/Ground Handling Agencies?

NOTE: The data set for this question includes 33 airports but nine provided no answers. Each bar represent an airport and each sub-bar represents how TSATS are shared, i.e. an airport can have one or multiple sub-bars.

The results show (see Figure 11) that the airports have or are going to distribute the TSAT information in various ways, where utilizing an A-CDM portal is the most common. Many of the airports are also going to utilize multiple channels for the distribution where both Data Link and via the gate displays are common

solutions. Based on best practices in Europe successful implementations are based on multiple ways to disseminate the TSAT (and also TOBT) information. The way to make sure that the flight crew gets the information is of particular importance from about 30 minute prior TOBT and in the start-up and push back phases of the flight.

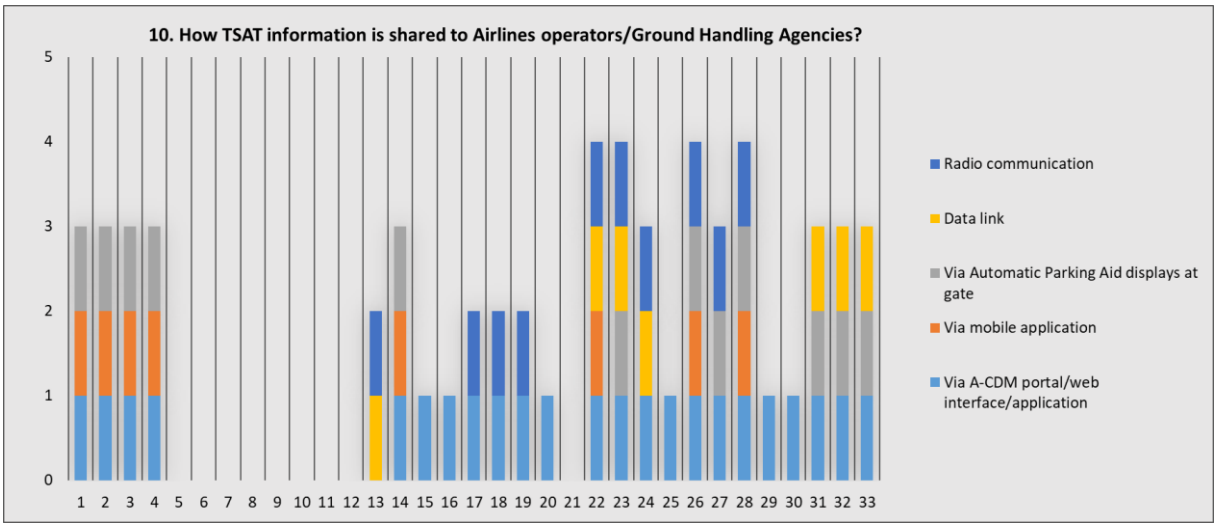


Figure 11 – Result on Question 10

To establish the A-CDM project, has any guidance material been used to facilitate the scope and objectives?

***NOTE:** The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.*

The results show (see Figure 12) reference material has been or are being used by airport implementing A-CDM.

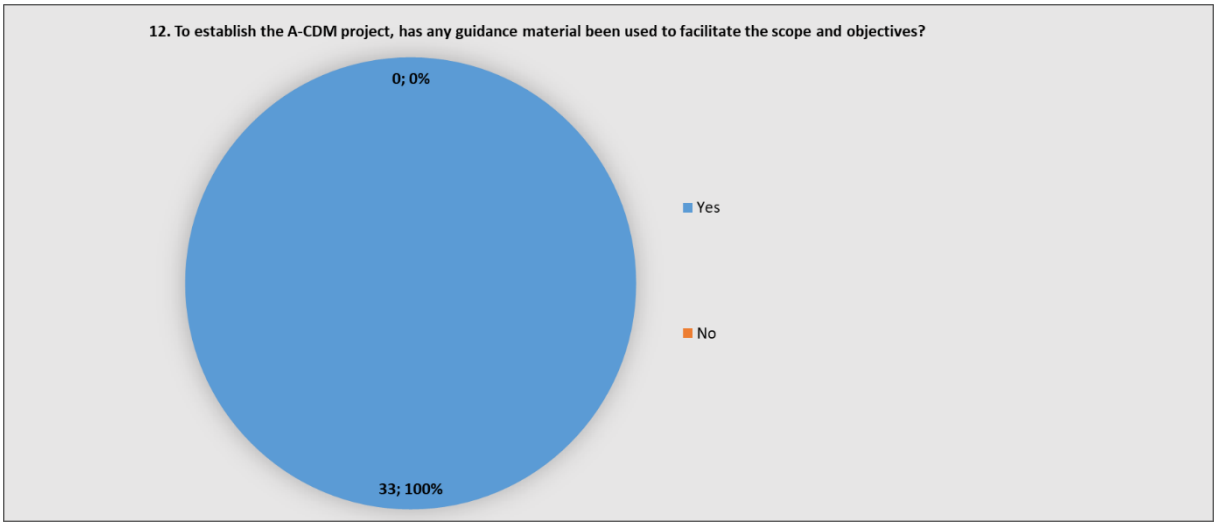


Figure 12 – Result on Question 11

If yes, please indicate what guidance material has been used.

***NOTE:** The data set for this question includes 33 airports. Each airport is indicated by their own stacked graph.*

The results show (see Figure 13) all airports are using, or have used, the Eurocontrol A-CDM Manual as the reference guidance. The ICAO Doc 9971 together with CANSO's A-CDM guidance document are also used by some. Some airport are also or have been using specific airport "operational guidelines".

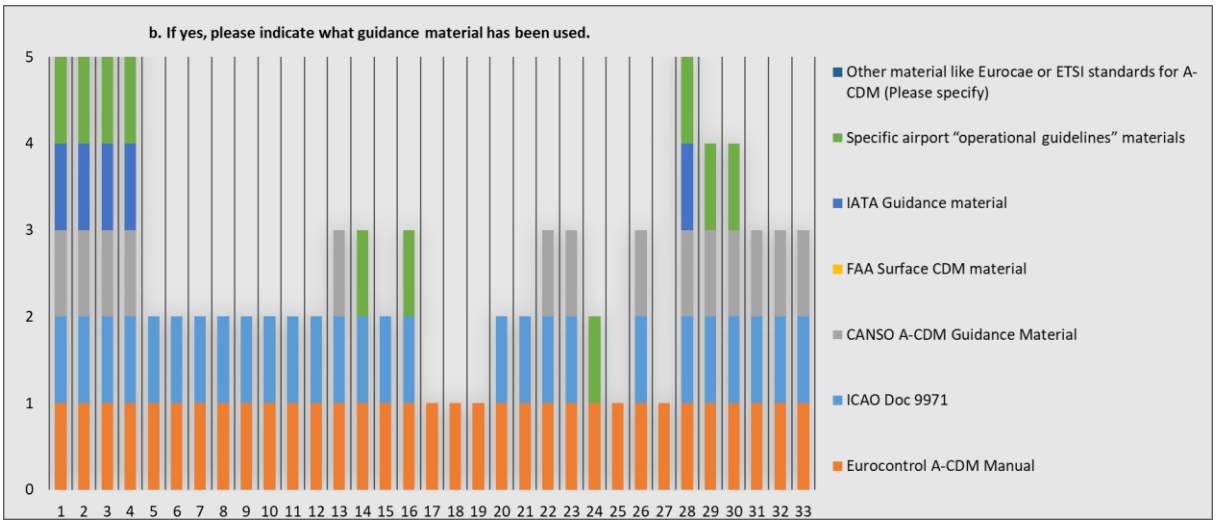


Figure 13 – Result on Question 12b

Local Concept of Operations

Has a "Local Concept of Operations" document for the A-CDM implementation been established?

NOTE: The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.

The results show (see Figure 14) most of the airports that are planning to implement A-CDM have established a "Local concept of Operations". It should also be pointed out that (despite the fact that it is not depicted in the graph below) all airports that have implemented A-CDM have also established a "Local concept of Operations".

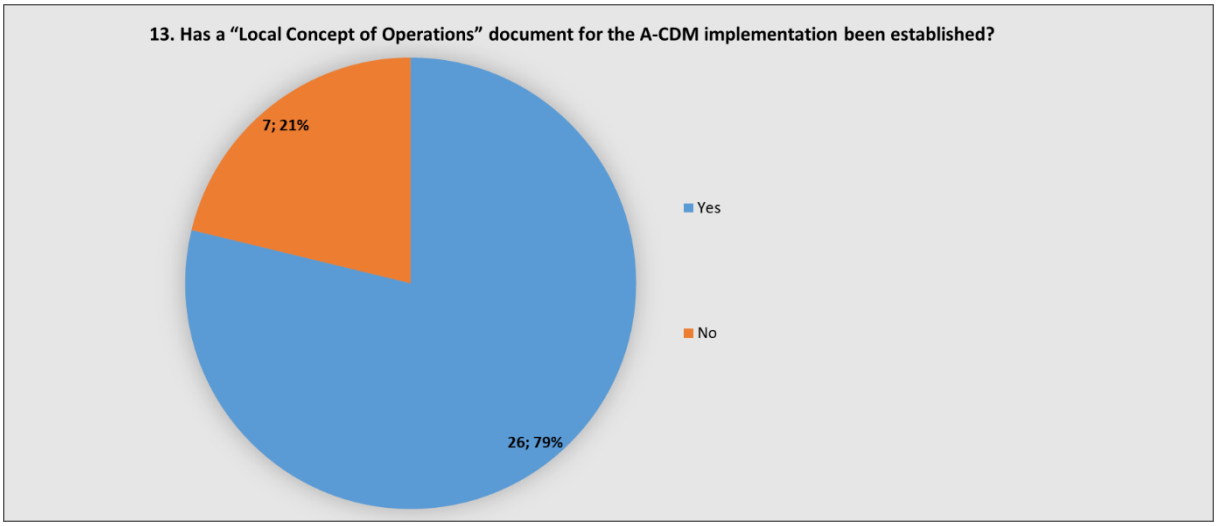


Figure 14 – Result on Question 13

If yes, please indicate the scope of the document.

NOTE: The data set for this question includes 33 airports, but six of these did not provide any inputs. Each airport is indicated by their own stacked graph.

The results show (see Figure 15) shows that all of the developed "Local Concept of Operations" covers objectives, common vocabulary, information sharing and Milestones as well as the roles of the stakeholders. Related to irregular operations, process descriptions and how to measure the results of A-CDM not all have this covered. Based on experience from Europe it is recommended that these parts are documented in the "Local Concept of Operations" to ensure successful implementation of A-CDM.

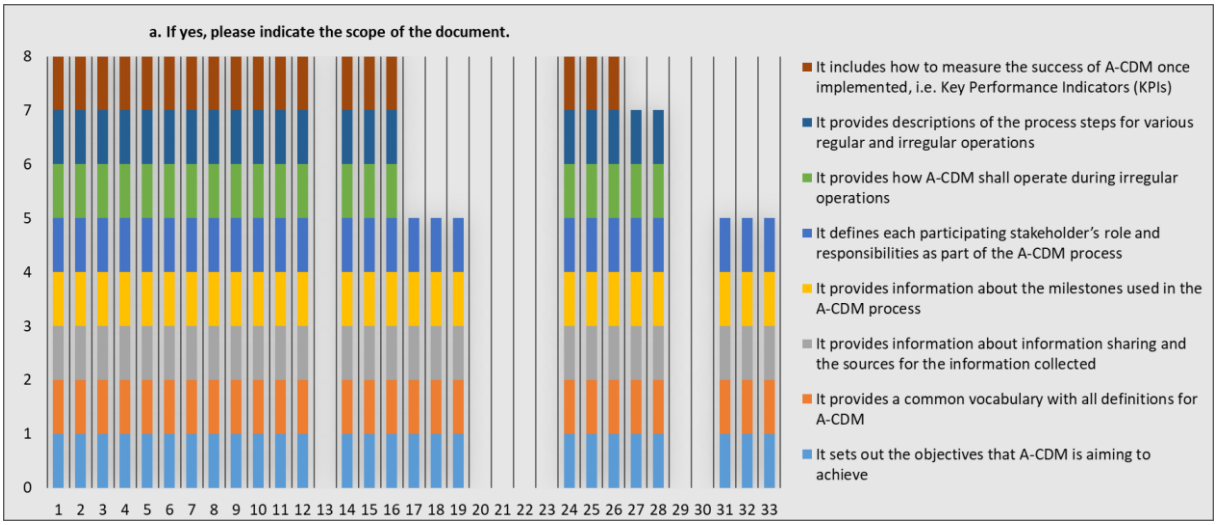


Figure 15 – Result on Question 13a

Stakeholder Engagement

Which stakeholders are involved in the A-CDM implementation?

NOTE: The data set for this question includes 33 airports. Each airport is indicated by their own stacked graph.

The results show (see Figure 16) that the airports that provided answers have all engaged or plan to engage with the key stakeholders for a successful A-CDM implementation, which is extremely good.

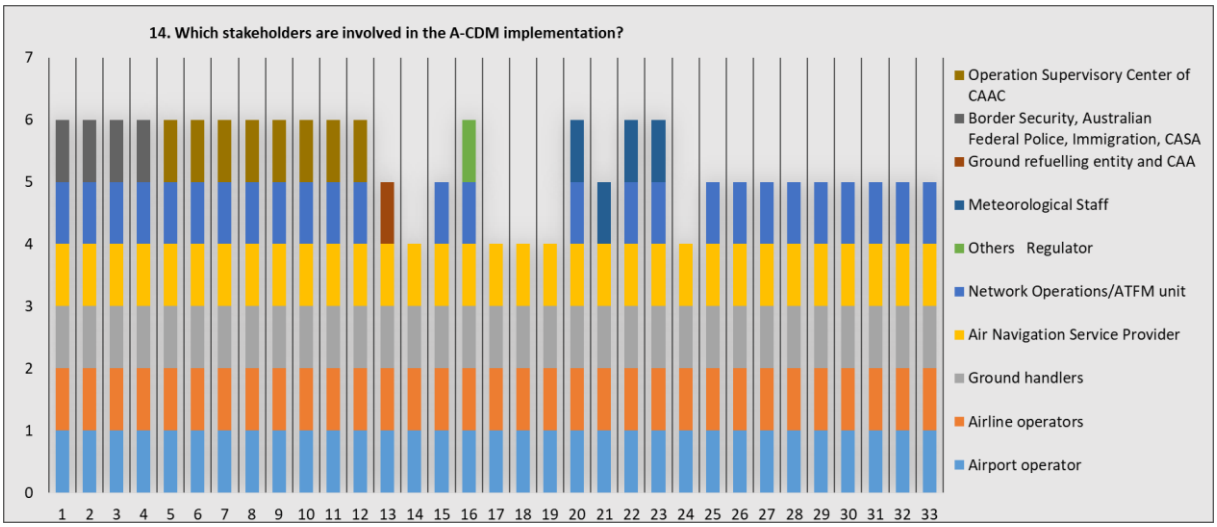


Figure 16 – Result on Question 14

Has a Memorandum of Understanding (MOU) been established between the stakeholders?

NOTE: The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.

The results show (see Figure 17) that the majority (61%) of airports that have or are planning to implement A-CDM have not established an MOU. Based on best practices and experience from Europe this is recommended to establish an MOU between stakeholders as the basis for the implementation. The survey results also shows that out of the 16 airport that have implemented A-CDM, 12 have an MOU in place whereas the other four successfully have implemented A-CDM without the MOU in-place.

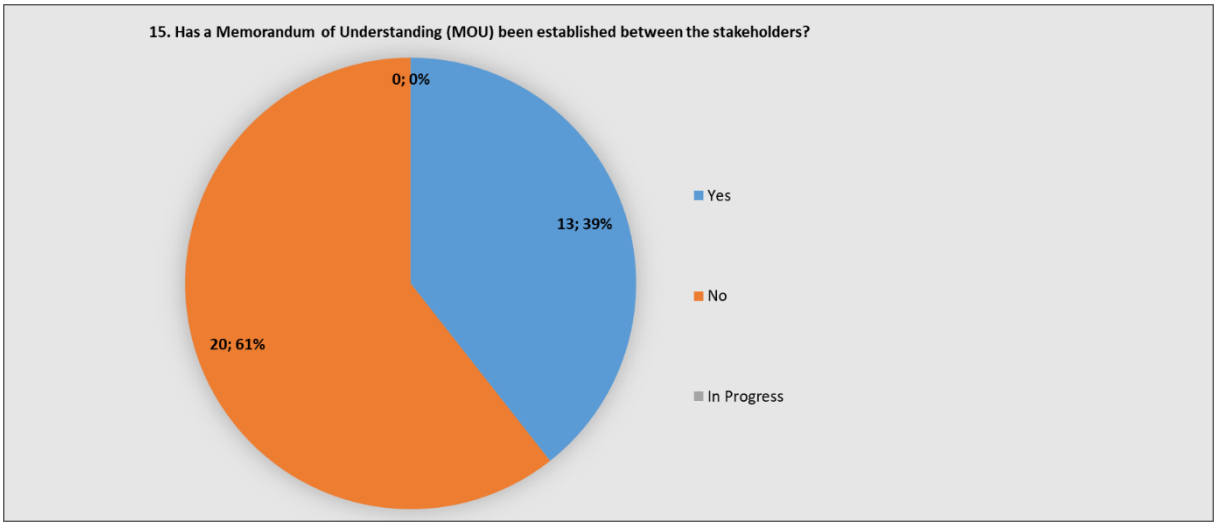


Figure 17 – Result on Question 15

Project Implementation

Has a project group been established with all stakeholders involved?

NOTE: The data set for this question includes 32 airports, as one did not provide answers. The pie chart presents both absolute values and percentage values.

The results show (see Figure 18) the majority (75%) have established a project group with all stakeholders involved. That is very good as this is key to the successful implementation of A-CDM

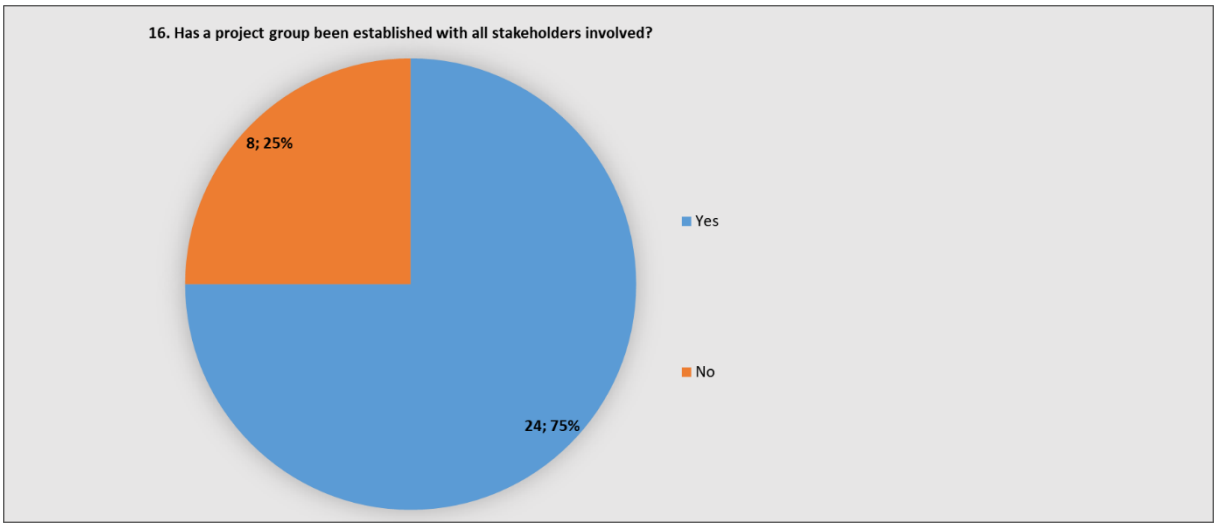


Figure 18 – Result on Question 16

Is there a shared leadership or is the project management led by one organization?

NOTE: The data set for this question includes 31 airports, as two did not provide answers. The pie chart presents both absolute values and percentage values

The results show (see Figure 19) that the majority (74%) of the airport are planning or have leadership from one appointed organization. Out of the 16 airport that have implemented A-CDM already, six had shared leadership and ten had one organization as appointed leader.

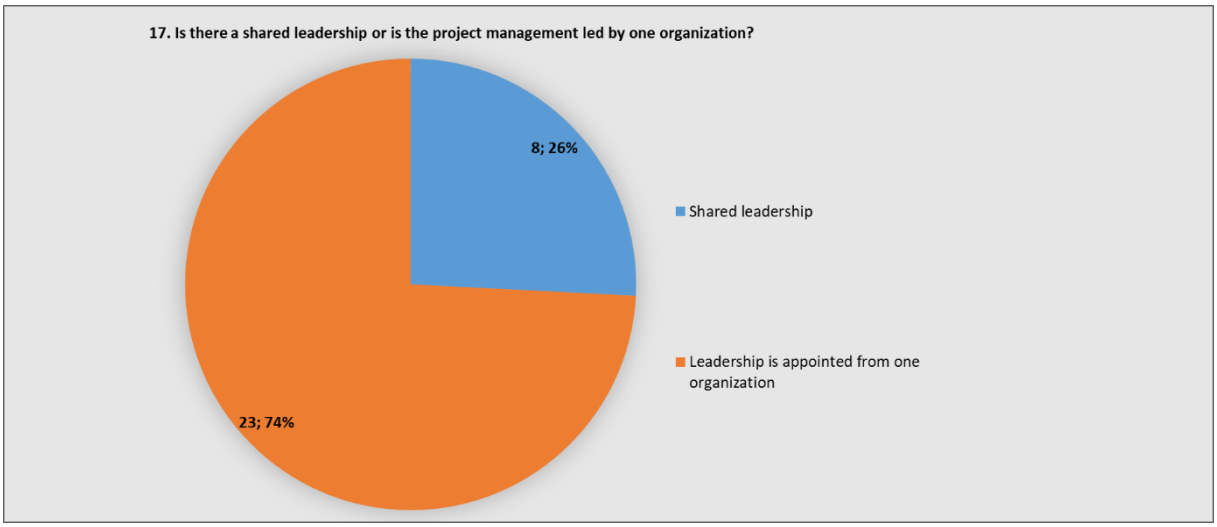


Figure 19 – Result on Question 17

Please explain why one of the options is applied:

Figure 22 below provides more information about various motivations to why certain approached are being applied or was applied.

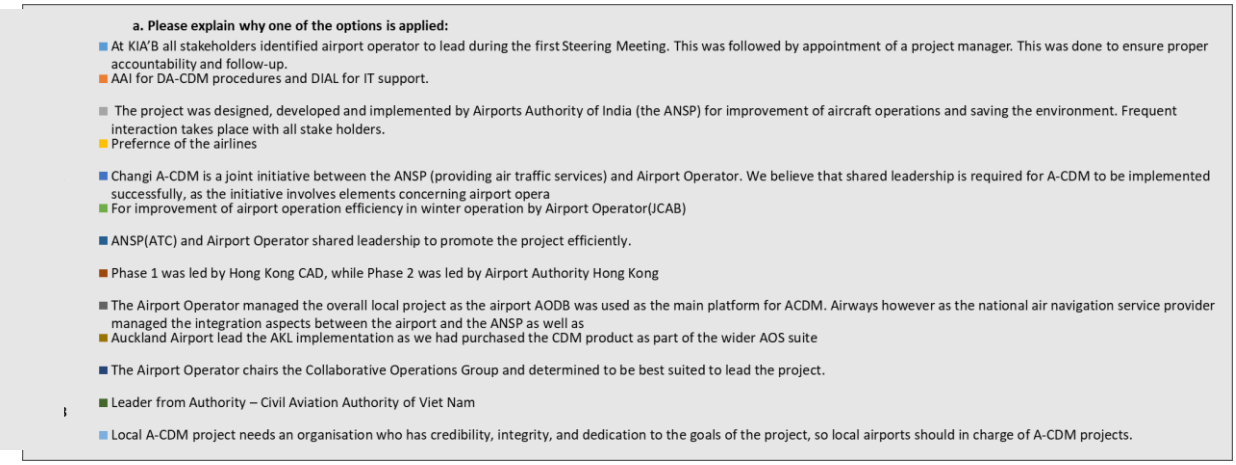


Figure 20 – Result on Question 17a

Is the project group meeting held on a regular basis or ad-hoc?

***NOTE:** The data set for this question includes 31 airports, as two did not provide any inputs. The pie chart presents both absolute values and percentage values.*

The results show (see Figure 21) shows that a majority (71%) have set-up, or are planning to set-up, a project group that will meet on a regular basis. Out of the airports that already have A-CDM implemented, the split is 13 to 3 between regular and ad-hoc project meetings.

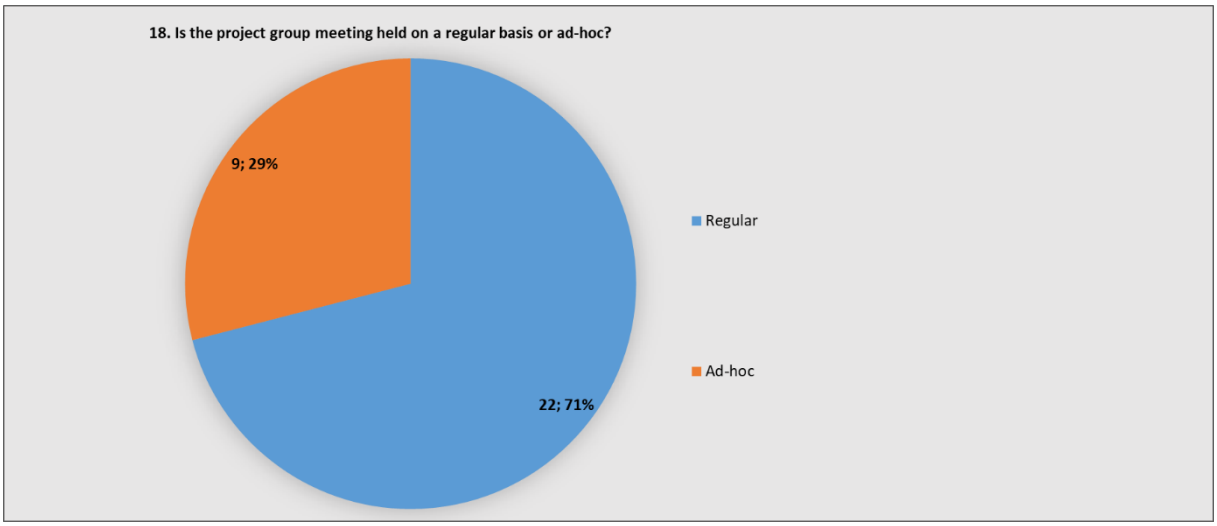


Figure 21 – Result on Question 18

Please explain why one of the options is applied:

Figure 22 below provides more information about various motivations to why certain approaches are being applied or was applied.

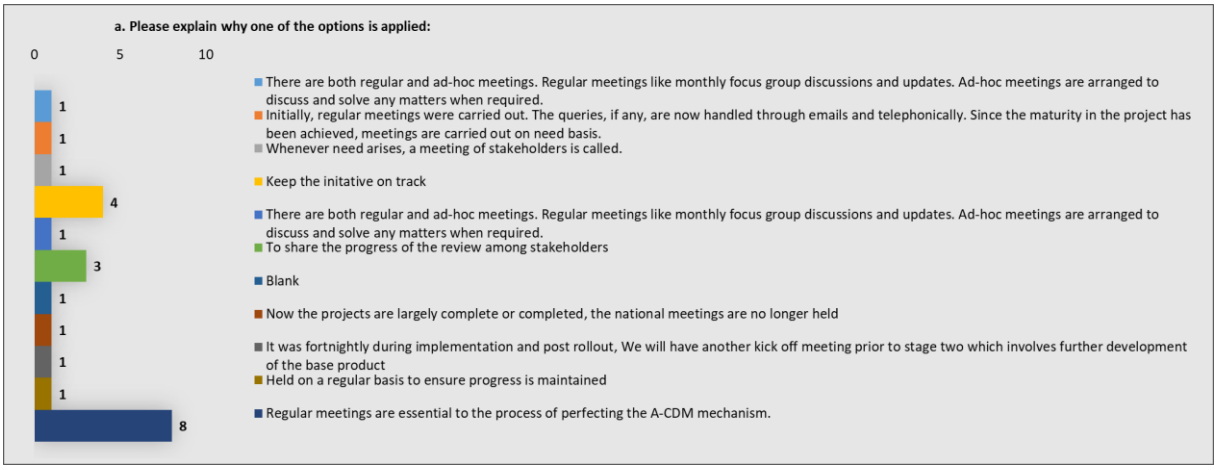


Figure 22 – Result on Question 18a

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

NOTE: The data set for this question includes 33. The graph presents absolute values.

The results show (see Figure 23 and Figure 24) that increased predictability, improvement in resource utilization, increased airport efficiency, and optimize the use of available capacity are prioritized objectives by all airports that provided answers.

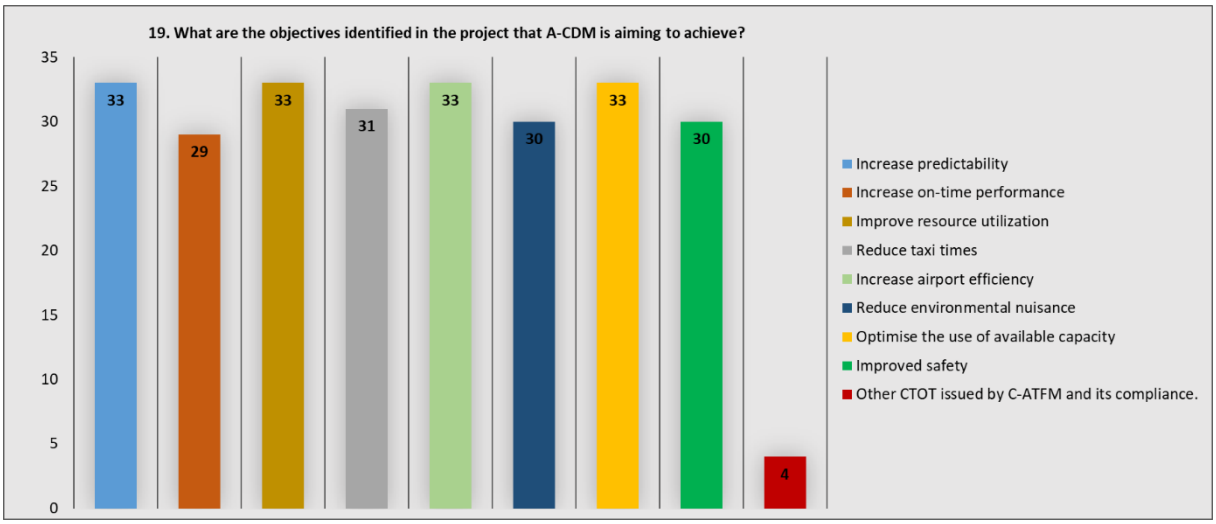


Figure 23 – Result on Question 19

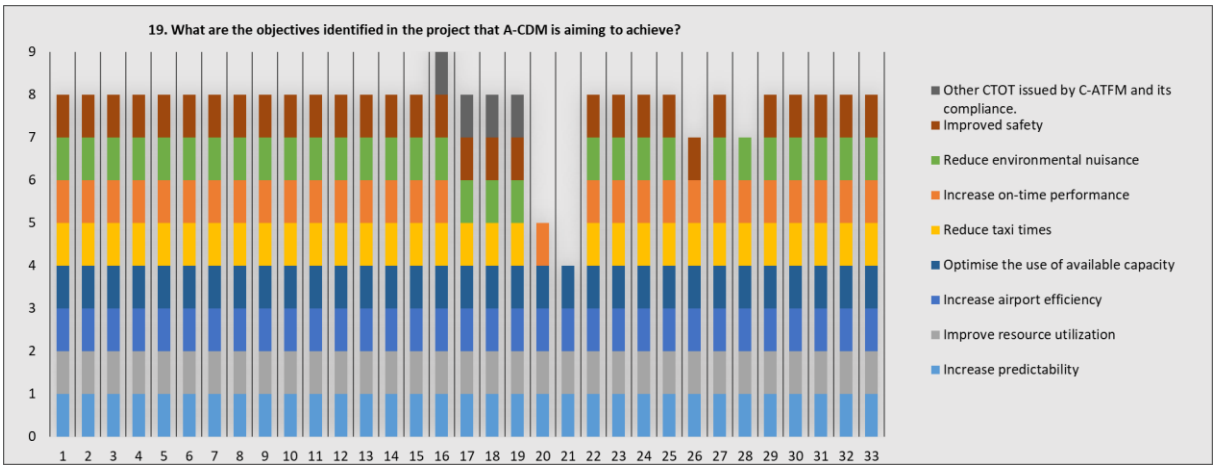


Figure 24 – Result in detail on Question 19

Has the project identified a more detailed Key Performance Framework with Key Performance Indicators to facilitate the measurements of the A-CDM implementation?

NOTE: The data set for this question includes 33 airports. The pie chart presents both absolute values and percentage values.

The results show (see Figure 25) that most have identified a Key Performance Framework or are in the progress of doing so, to be able to measure how well the implementation of A-CDM is going. Out of the airports that have implemented A-CDM, 14 have established this and two have not. In relation to question 19 this results is interesting and raises the question of *"how will the stakeholders be able to measure if A-CDM contributes to the objectives that has been set?"*. **This should be further investigated.**

NOTE – Many of the airports are also willing to share their Key Performance Framework. This could be of highest value to all APAC states and airport and help to harmonize the approach as well as how to measure certain Key Performance Indicators.

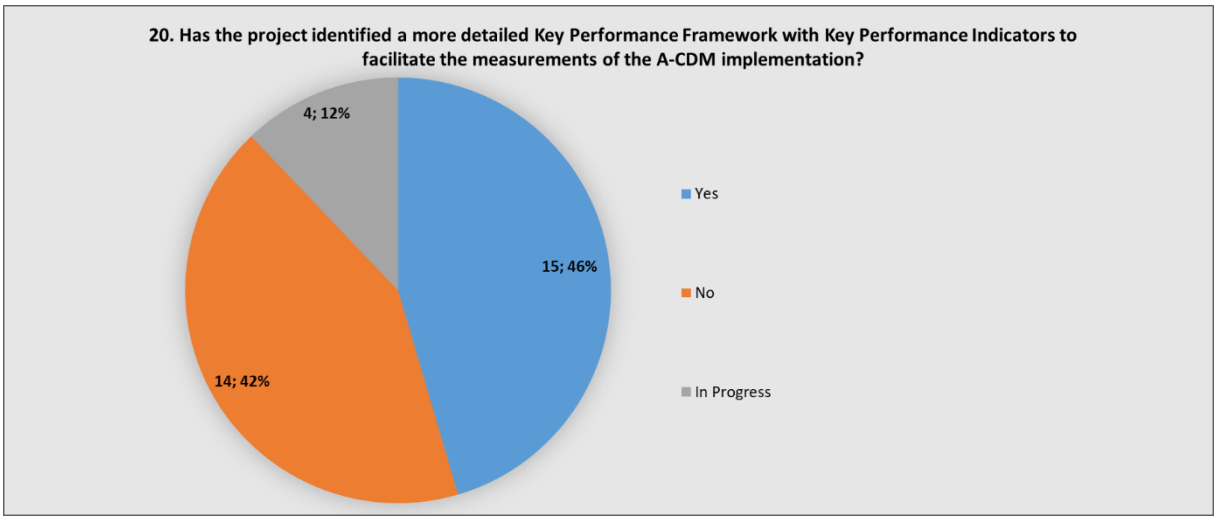


Figure 25 – Result on Question 20

Training

Has the project established training in any of the following areas for the implementation of A-CDM?

NOTE: The data set for this question includes 33 airports but six provided no answers. Each airport is indicated by their own stacked graph.

The results show (see Figure 26) that the majority of the airports have done initial training for A-CDM. The graph also show that 12 airports have done training down to the specialized training for specific users. Important to note is that these are the airports that have implemented A-CDM already. A concern is of course that six airport have not conducted any training on what A-CDM is. **The fact might be an area to address via the ICAO A-CDM Task Force.**

Figure 26 – Result on Question 21

Challenges

Please rank what hold most true in relation to your A-CDM implementation.

Figure 27 provides a ranking of the challenges with implementing A-CDM. The conclusion drawn from the results are that the engagement, management and measurement stands out and could be areas that needs further guidelines or other mechanisms to help aid an A-CDM implementation. **This could be an area for the ICAO Task Force to further investigate.**

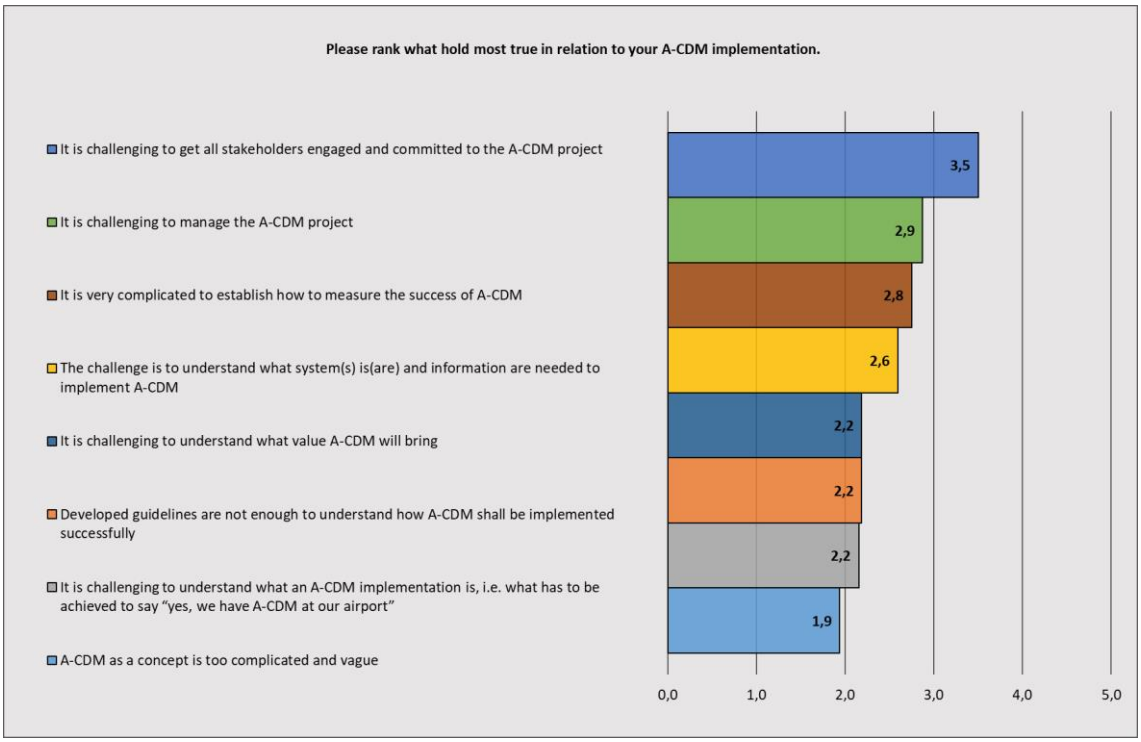


Figure 27 – Result on Question 22

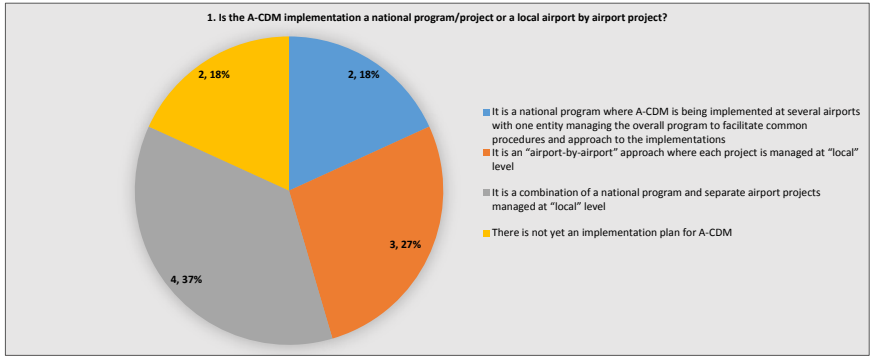
Conclusions

The implementation of A-CDM in the APAC region is moving forward and already up to date 16 airports have implemented A-CDM according to responses from the member states. According to the survey, 16 more will have implemented A-CDM in the next 3 years. However, some indicates very aggressive time plans in relation to where they are in the process, according to their responses, which could indicate some underestimation of the complexity and time actually needed to implement A-CDM.

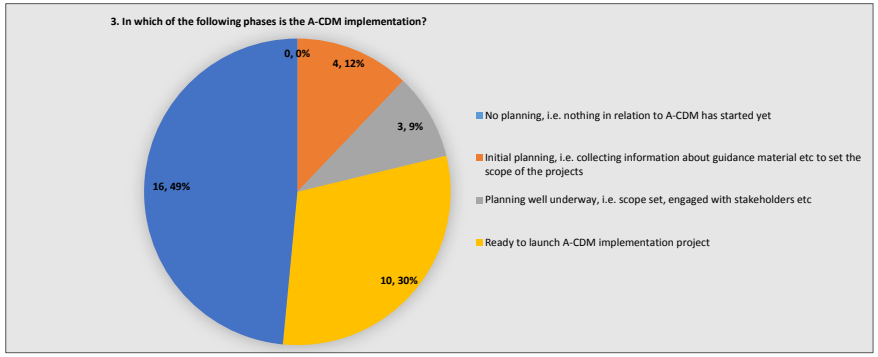
The responses to the survey indicates some areas where further investigations might be needed, or where more clear guidance material and also training would be of help. These areas are:

- **Relationship between the A-CDM conceptual elements and milestones -** There are discrepancies in the responses indicating that the implementation of milestones and their purpose might be difficult to comprehend.
- **How to measure the success of an A-CDM implementation -** All respondents indicated very clear objectives related to implementation A-CDM but at the same time not all have established how to measure that these objectives can be achieved. This holds true for some of the airport that have already implemented A-CDM as well.
    - NOTE - Many of the airport that have completed their A-CDM implementations have indicated that they are willing to share their "Key Performance Framework". This could be of highest value to all APAC states and airport and help to harmonize the approach as well as how to measure certain Key Performance Indicators.
- **Getting all stakeholders engaged as well as managing an A-CDM project** – These are two of the areas which, according to the survey result, seems to be the most challenging when implementing A-CDM.

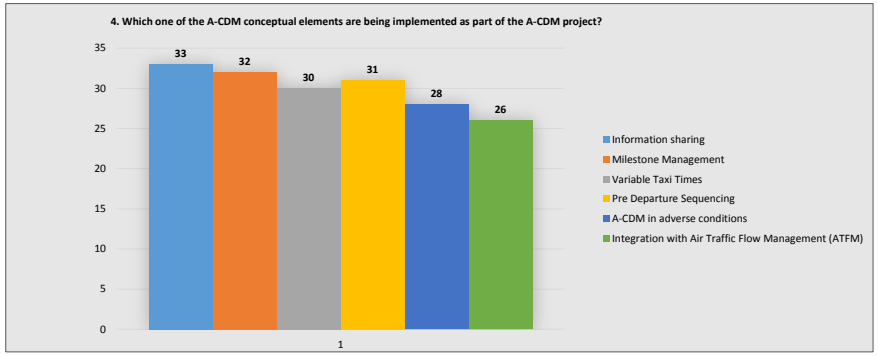
Approach to A-CDM Implementation



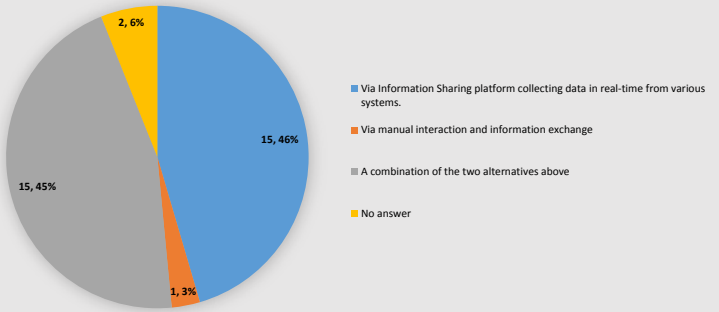
Status Of A-CDM Implementation



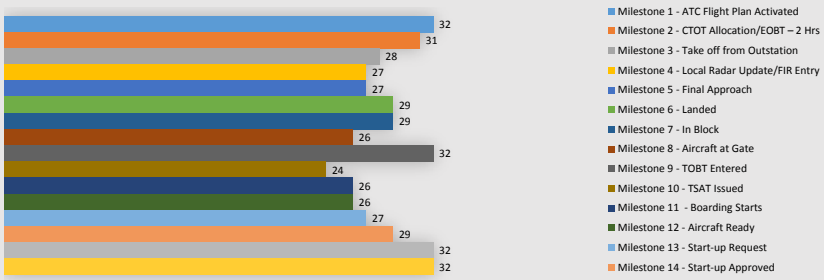
Project Scope



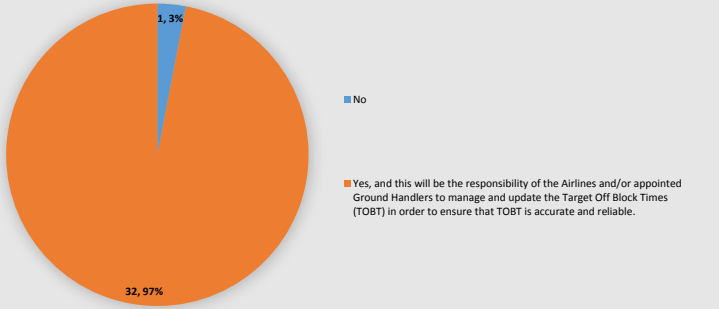
5. How is Information sharing implemented as par to the solution/planned A-CDM solution?



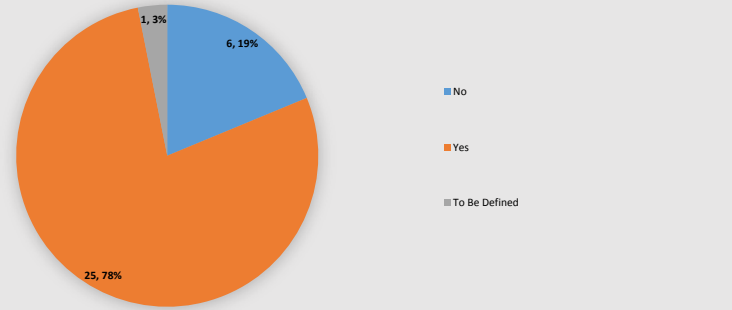
6. What Milestones (based on the Eurocontrol model) are captured/planned to be captured for the Milestone Management?

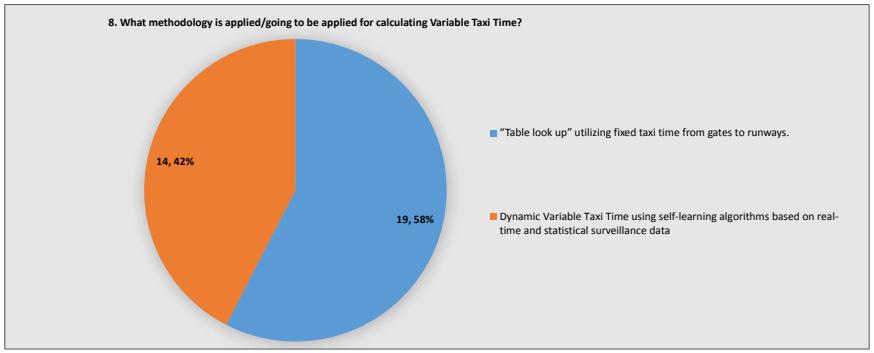


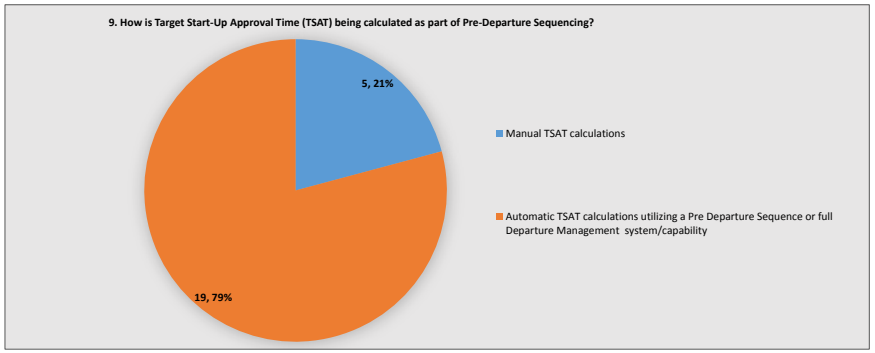
7. Are you planning to apply the concept of Target Off Block Times?

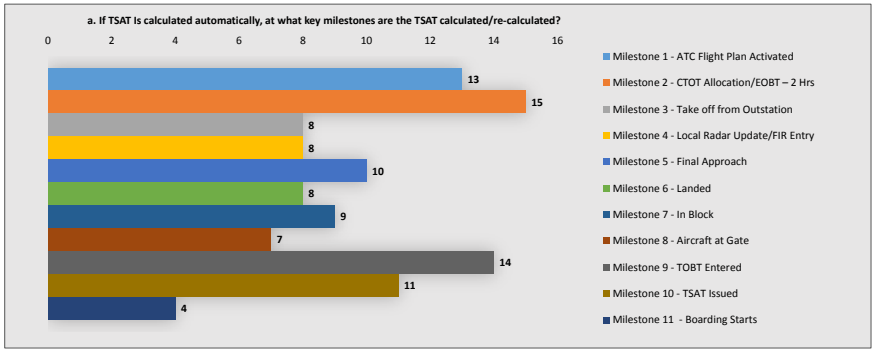


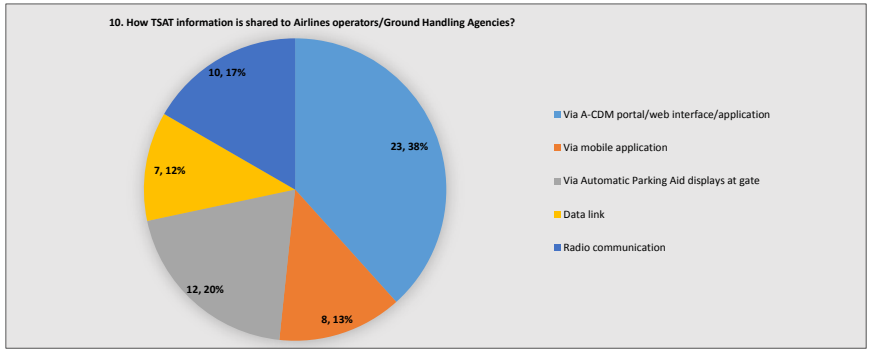
a. If yes, will the project provide a solution that facilitates predictive TOBT calculations?

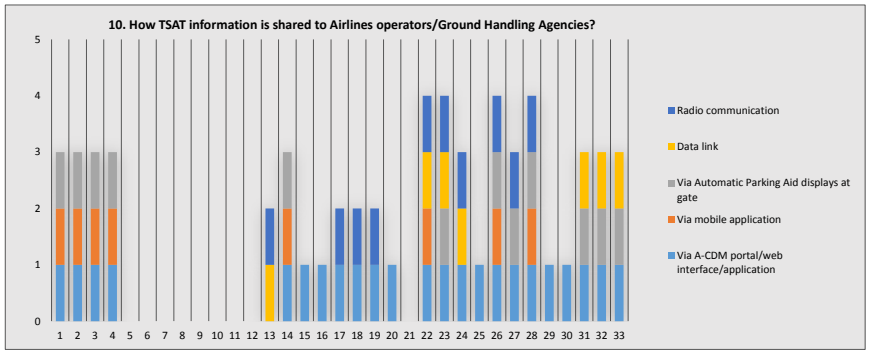


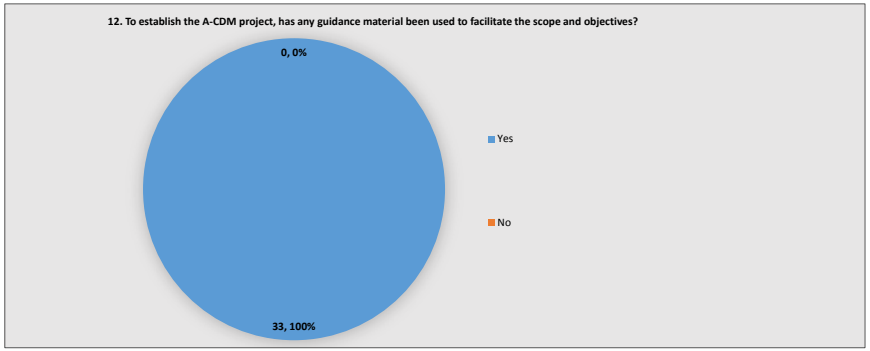

8. What methodology is applied/going to be applied for calculating Variable Taxi Time?
14, 42%
19, 58%
"Table look up" utilizing fixed taxi time from gates to runways.
Dynamic Variable Taxi Time using self-learning algorithms based on real-time and statistical surveillance data

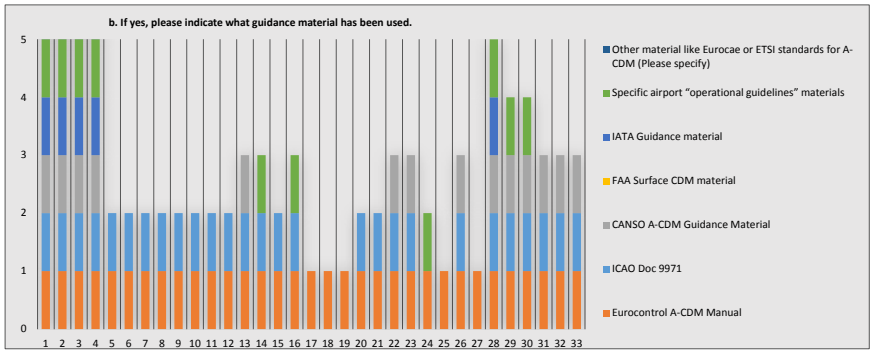

9. How is Target Start-Up Approval Time (TSAT) being calculated as part of Pre-Departure Sequencing?
5, 21%
19, 79%
Manual TSAT calculations
Automatic TSAT calculations utilizing a Pre Departure Sequence or full Departure Management system/capability

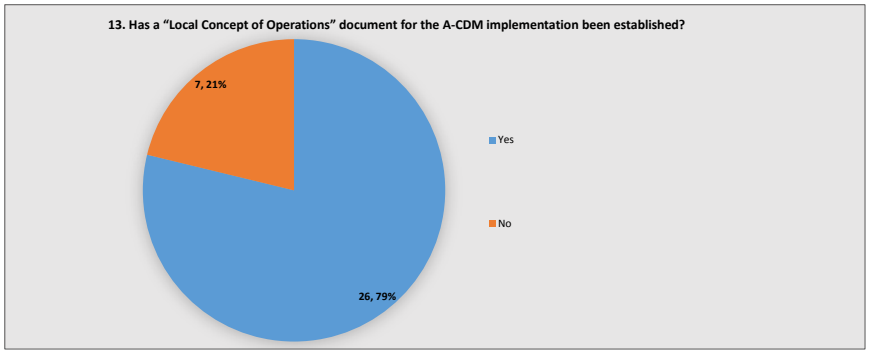

a. If TSAT is calculated automatically, at what key milestones are the TSAT calculated/re-calculated?
0 2 4 6 8 10 12 14 16
13
15
8
8
10
8
9
7
14
11
4
Milestone 1 - ATC Flight Plan Activated
Milestone 2 - CTOT Allocation/EOBT – 2 Hrs
Milestone 3 - Take off from Outstation
Milestone 4 - Local Radar Update/FIR 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

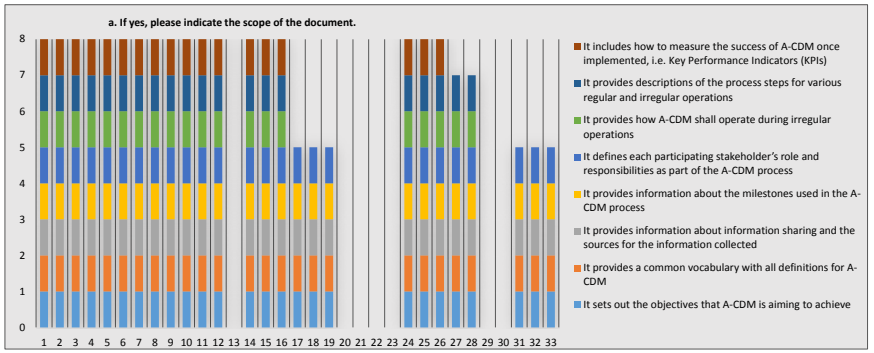

10. How TSAT information is shared to Airlines operators/Ground Handling Agencies?
10, 17%
23, 38%
7, 12%
12, 20%
8, 13%
Via A-CDM portal/web interface/application
Via mobile application
Via Automatic Parking Aid displays at gate
Data link
Radio communication

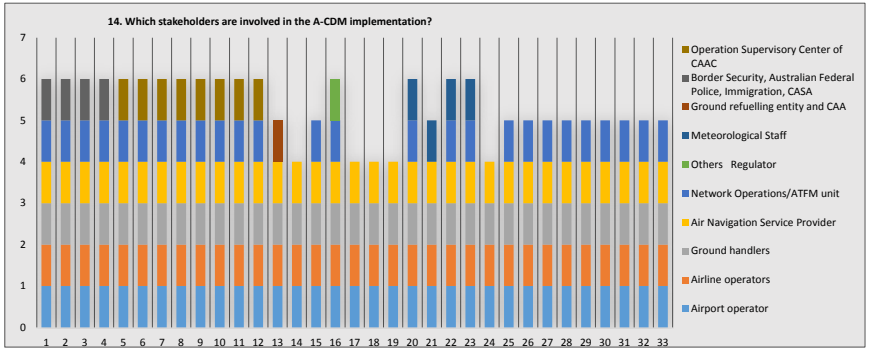

10. How TSAT information is shared to Airlines operators/Ground Handling Agencies?
0 1 2 3 4 5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Radio communication
Data link
Via Automatic Parking Aid displays at gate
Via mobile application
Via A-CDM portal/web interface/application


12. To establish the A-CDM project, has any guidance material been used to facilitate the scope and objectives?
0, 0%
33, 100%
Yes
No


b. If yes, please indicate what guidance material has been used.
Other material like Eurocae or ETSI standards for A-CDM (Please specify)
Specific airport "operational guidelines" materials
IATA Guidance material
FAA Surface CDM material
CANSO A-CDM Guidance Material
ICAO Doc 9971
Eurocontrol A-CDM Manual

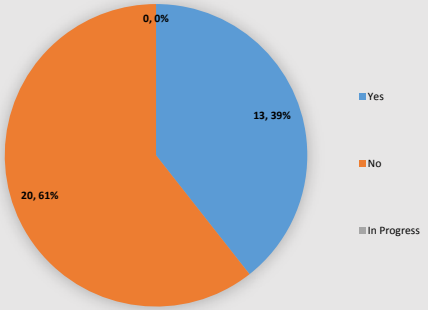

13. Has a "Local Concept of Operations" document for the A-CDM implementation been established?
7, 21%
26, 79%
Yes
No


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

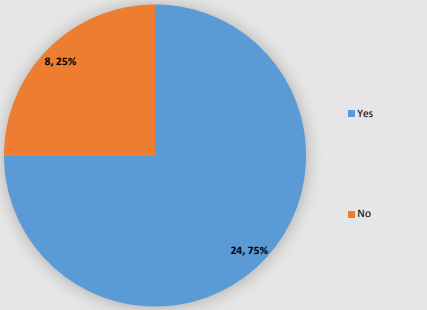

14. Which stakeholders are involved in the A-CDM implementation?
Operation Supervisory Center of CAAC
Border Security, Australian Federal Police, Immigration, CASA
Ground refuelling entity and CAA
Meteorological Staff
Others Regulator
Network Operations/ATFM unit
Air Navigation Service Provider
Ground handlers
Airline operators
Airport operator

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

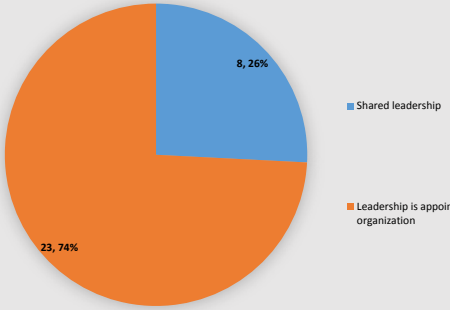
15. Has a Memorandum of Understanding (MOU) been established between the stakeholders?



16. Has a project group been established with all stakeholders involved?



17. Is there a shared leadership or is the project management led by one organization?



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

0

1 At KIA'B all stakeholders identified airport operator to lead during the first Steering Meeting. This was followed by appointment of a project manager. This was done to ensure proper accountability and follow-up.

1 AAI for DA-CDM procedures and DIAL for IT support.

1 The project was designed, developed and implemented by Airports Authority of India (the ANSP) for improvement of aircraft operations and saving the environment. Frequent interaction takes place with all stake holders.

1 Preferrnce of the airlines

4 Changi A-CDM is a joint initiative between the ANSP (providing air traffic services) and Airport Operator. We believe that shared leadership is required for A-CDM to be implemented successfully, as the initiative involves elements concerning airport opera

1 For improvement of airport operation efficiency in winter operation by Airport Operator(JCAB)

2 ANSP(ATC) and Airport Operator shared leadership to promote the project efficiently.

1 Phase 1 was led by Hong Kong CAD, while Phase 2 was led by Airport Authority Hong Kong

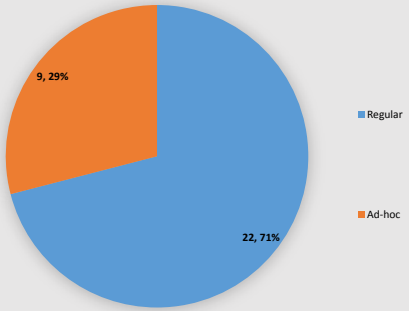
1 The Airport Operator managed the overall local project as the airport AODB was used as the main platform for ACDM. Airways however as the national air navigation service provider managed the integration aspects between the airport and the ANSP as well as

1 Auckland Airport lead the AKL implementation as we had purchased the CDM product as part of the wider AOS suite

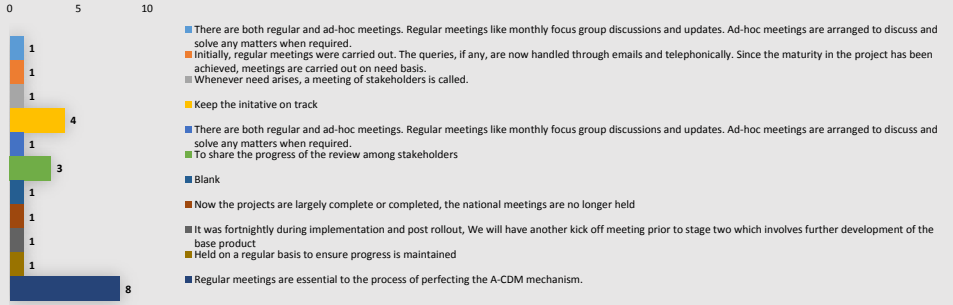
3 The Airport Operator chairs the Collaborative Operations Group and determined to be best suited to lead the project.

8 Leader from Authority – Civil Aviation Authority of Viet Nam

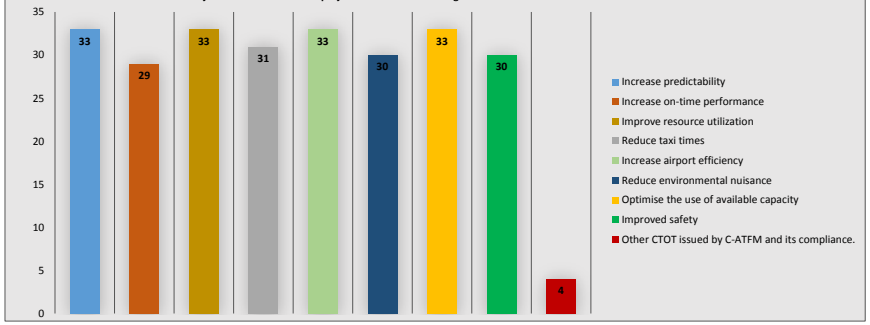
18. Is the project group meeting held on a regular basis or ad-hoc?



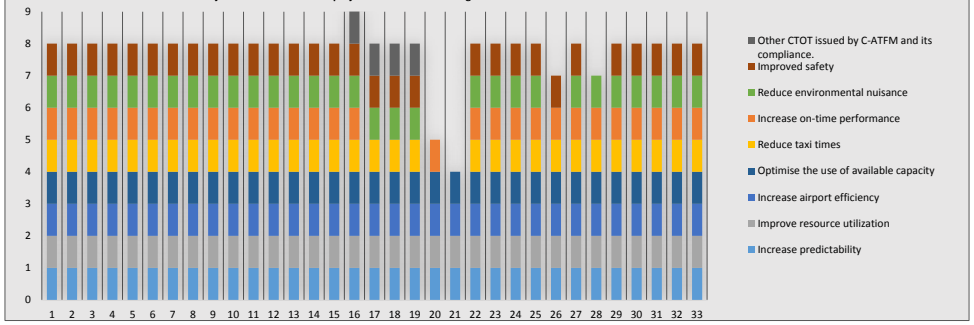
a. Please explain why one of the options is applied:



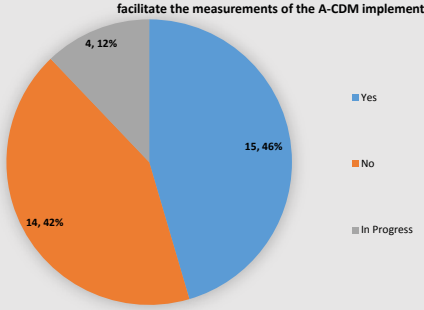
19. What are the objectives identified in the project that A-CDM is aiming to achieve?



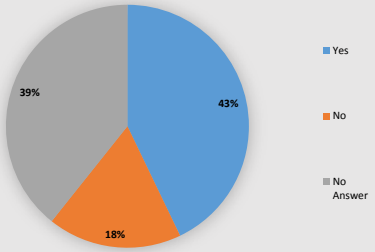
19. What are the objectives identified in the project that A-CDM is aiming to achieve?



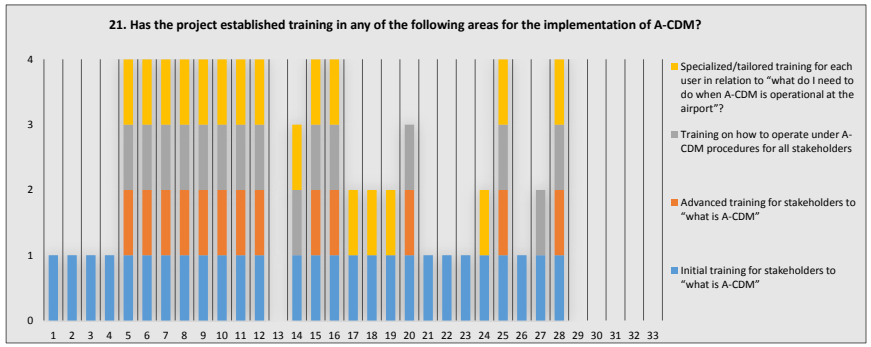
20. Has the project identified a more detailed Key Performance Framework with Key Performance Indicators to facilitate the measurements of the A-CDM implementation?



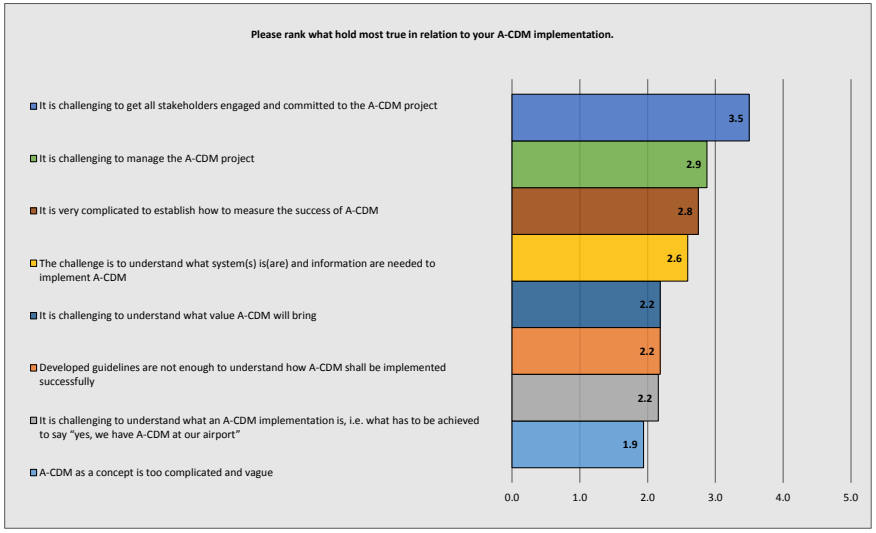
a. If yes, would the project team be willing to share this work with the ICAO APAC A-CDM Task Force to aid in its future work such as the establishment of more detailed A-CDM guidelines?



Training



Challenges



			Australia	Australia	Australia	Australia	China	China	China	China	China	China	China	China	Fiji	Hong Kong	India	India	India	India	India	India	Japan	Japan	Japan	New Zealand	New Zealand	New Zealand	ROK	Singapore	Thailand	Thailand	Vietnam	Vietnam	Vietnam	Number of Airports	Summary	Averages
Area	Question Section	Detailed Questions	Brisbane	Sydney	Perth	Melboune	Kunming Changshui	Beijing Capital	Shanghai Hongqiao	Shanghai Pudong	Chengdu Shuangliu	Guangzhou Baiyun	Xi'an Xianyang	Shenzhen Baoan	Nadi	HKIA	Bengaluru	Delhi	Mumbai	Kolkata	Chennai	Shamshabad	Chitose (Sapporo)	Narita	Haneda	Wellington	Auckland	Christchurch	Incheaon	Changi	Suwarnabhumi	Don Muang	Tan Son Nhat	Noi Bai	Da Nang	33		
Approach to A-CDM Implementation																																						
	1. Is the A-CDM implementation a national program/project or a local airport by airport project?																																					
		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																																				
	2. If A-CDM has been/is going to be implemented, please indicate at which airports and by what year:		2019	2020	2020	2020	2014	2017	2013	2016	2017	2016	2017	2016	2018	2017	2013	2013	2015	2018	2018	0	2018	2020	2020	2015	2016	2019	2017	2016	2019	2019	2020	2020	2021			
Status Of A-CDM Implementation																																						
	3. In which of the following phases is the A-CDM implementation?																																					
		No planning, i.e. nothing in relation to A-CDM has started yet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	33
		Initial planning, i.e. collecting information about guidance material etc to set the scope of the projects	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0		4	
		Planning well underway, i.e. scope set, engaged with stakeholders etc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		3	
		Ready to launch A-CDM implementation project	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0		10	
		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.	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0		16	
Project Scope																																						
	4. Which one of the A-CDM conceptual elements are being implemented as part of the A-CDM project?																																					
		Information sharing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		33	
		Milestone Management	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		32	
		Variable Taxi Times	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1		30	
		Pre Departure Sequencing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1		31	
		A-CDM in adverse conditions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1		28	
		Integration with Air Traffic Flow Management (ATFM)	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1		26	
	5. How is Information sharing implemented as par to the solution/planned A-CDM solution?		1	1	1	1									1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1			
		Via Information Sharing platform collecting data in real-time from various systems	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0		15	33
		Via manual interaction and information exchange	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		A combination of the two alternatives above	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1		15	
		No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0		2	
	6. What Milestones (based on the Eurocontrol model) are captured/planned to be captured for the Milestone Management?																																					
		Milestone 1 - ATC Flight Plan Activated	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		32	
		Milestone 2 - CTOT Allocation/EOBT – 2 Hrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1		31	
		Milestone 3 - Take off from Outstation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1		28	
		Milestone 4 - Local Radar Update/FIR Entry	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1		27	
		Milestone 5 - Final Approach	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1		27	
		Milestone 6 - Landed	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1		29	
		Milestone 7 - In Block	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1		29	
		Milestone 8 - Aircraft at Gate	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1		26	
		Milestone 9 - TOBT Entered	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		32	
		Milestone 10 - TSAT Issued	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		24	
		Milestone 11 - Boarding Starts	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1		26	
		Milestone 12 - Aircraft Ready	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1		26	
		Milestone 13 - Start-up Request	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1		27	
		Milestone 14 - Start-up Approved	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1		29	
		Milestone 15 - Off Block	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		32	
		Milestone 16 - Take Off	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		32	
	7. Are you planning to apply the concept of Target Off Block Times?																																					
		No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0		1	
		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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		32	
		a. If yes, will the project provide a solution that facilitates predictive TOBT calculations?																																				
		No	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0		6	
		Yes	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	1	1	0	1	0	1	1	1	1	1	1	1		25	
		To Be Defined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0		1	
	8. What methodology is applied/going to be applied for calculating Variable Taxi Time?																																					
		"Table look up" utilizing fixed taxi time from gates to runways.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1		19	
		Dynamic Variable Taxi Time using self-learning algorithms based on real-time and statistical surveillance data	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0		14	
		No information provided																																			0	
	9. How is Target Start-Up Approval Time (TSAT) being calculated as part of Pre-Departure Sequencing?																																					
		Manual TSAT calculations	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0		5	
		Automatic TSAT calculations utilizing a Pre Departure Sequence or full Departure Management system/capability	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1		19	
		No information provided					1	1	1	1	1	1	1	1									1														9	
		a. If TSAT Is calculated automatically, at what key milestones are the TSAT calculated/re-calculated?																																				
		Milestone 1 - ATC Flight Plan Activated	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	1	1		13	
		Milestone 2 - CTOT Allocation/EOBT – 2 Hrs	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	1	1	0	0	0	0	1	1	1		15	
		Milestone 3 - Take off from Outstation	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		8	
		Milestone 4 - Local Radar Update/FIR Entry	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		8	
		Milestone 5 - Final Approach	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1		10	
		Milestone 6 - Landed	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		8	
		Milestone 7 - In Block	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		9	
		Milestone 8 - Aircraft at Gate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1		7	
		Milestone 9 - TOBT Entered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1		14	
		Milestone 10 - TSAT Issued	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	0	0	0	0	1	1	1	1	1		11	
		Milestone 11 - Boarding Starts	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		4	
		To Be Defined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	0	0		4	
	10. How TSAT information is shared to Airlines operators/Ground Handling Agencies?				3	3									2	3	1	1	2	2	2	1	0	4	4	3	1	4		4	1	1	3	3	3			
		Via A-CDM portal/web interface/application	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		23	
		Via mobile application	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0		8	
		Via Automatic Parking Aid displays at gate	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	1	1	1		12	
		Data link	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1		7	
		Radio communication	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0	1	1	1	0	0	0	0	0		10	
	11. What are the key parameters for data exchange between ACDM and ATFM?																																					
		Inbound : ATOT origin, CTA, ACOR, TMO Outbound : TOBT, TSAT, CTOT, ATOT, CTA	0	0	0	0									0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		DA-CDM & C-ATFM integration is in progress.	0	0	0	0									0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		The ACDM – ATFM integration is pending	0	0	0	0									0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		3	
		CTOT, TTOT, TOBT, ATOT, ALDT													0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		To Be Defined	1	1	1	1									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		4	
		CTOT, ELDT/CLDT, ALDT, TTOT, ATOT	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		1	
		CTOT & TOBT	0	0	0	0									0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	0	0	0		5	
		N/A	0	0	0	0									0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		TOBT and Stand Allocation information	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0		1	
		Establishment of agreements (MOU/SLA)	0	0	0	0									1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		CTOT, ATOT, ALDT	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		3	
		A-CDM provide TOBT information to ATFM and ATFM provide COBT(not CTOT) to A-CDM. ATFM do not use TOBT information due to system capability.																											1								1	
	12. To establish the A-CDM project, has any guidance material been used to facilitate the scope and objectives?																																					
		Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		33	
		No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	
		b. If yes, please indicate what guidance material has been used.																																				
		ICAO Doc 9971	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	0	0	1	0	1	1	1	1	1	1		27	
		Eurocontrol A-CDM Manual	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		33	
		CANSO A-CDM Guidance Material	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	1	1	1	1	1		14	
		FAA Surface CDM material	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	
		IATA Guidance material	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		5	
		Specific airport "operational guidelines" materials	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0		10	
		Other material like Eurocae or ETSI standards for A-CDM *(Please specify)*	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		4	
Concept Of Operations																																						
	13. Has a "Local Concept of Operations" document for the A-CDM implementation been established?																																					
		Yes	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	1		26	
		No	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0		7	
		a. If yes, please indicate the scope of the document.																																				
		It sets out the objectives that A-CDM is aiming to achieve	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	1		26	
		It provides a common vocabulary with all definitions for A-CDM	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	1		26	
		It provides information about information sharing and the sources for the information collected	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	1		26	
		It provides information about the milestones used in the A-CDM process	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	1		26	
		It defines each participating stakeholder's role and responsibilities as part of the A-CDM process	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	1		26	
		It provides how A-CDM shall operate during irregular operations	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0		20	
		It provides descriptions of the process steps for various regular and irregular operations	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0		20	
		It includes how to measure the success of A-CDM once implemented, i.e. Key Performance Indicators (KPIs)	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0		18	
Stakeholder Engagement																																						
	14. Which stakeholders are involved in the A-CDM implementation?																																					
		Airport operator	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		33	
		Airline operators	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		33	
		Ground handlers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		33	
		Air Navigation Service Provider	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		33	
		Network Operations/ATFM unit	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	0	1	0	1	1	0	1	1	1	1	1	1	1	1	1		26	
		Others, Regulator	0	0	0	0									0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		Meteorological Staff	0	0	0	0									0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0		4	
		Ground refuelling entity and CAA	0	0	0	0									1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	
		Border Security, Australian Federal Police, Immigration, CASA	1	1	1	1																															4	
		Operation Supervisory Center of CAAC					1	1	1	1	1	1	1	1																							8	
	15. Has a Memorandum of Understanding (MOU) been established between the stakeholders?																																					
		Yes	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0		13	
		No	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1		20	
		In Progress	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	
Project Implementation																																						
	16. Has a project group been established with all stakeholders involved?																																					
		Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	0	0	0	0	0		24	
		No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1	1	1	1	1		8	
	17. Is there a shared leadership or is the project management led by one organization?																																					
		Shared leadership	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0		8	
		Leadership is appointed from one organization	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	0	0	0	1	0	0	0	0	1	1	1		23	
		a. Please explain why one of the options is applied:																																				
		At KIA'B all stakeholders identified airport operator to lead during the first Steering Meeting. This was followed by appointment of a project manager. This was done to ensure proper accountability and follow-up.	0	0	0	0									0	0	1	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		AAI for DA-CDM procedures and DIAL for IT support	0	0	0	0									0	0	0	1	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		The project was designed, developed and implemented by Airports Authority of India (the ANSP) for improvement of aircraft operations and saving the environment. Frequent interaction takes place with all stake holders	0	0	0	0									0	0	0	0	1	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		Prefernce of the airlines	1	1	1	1									0	0	0	0					0	0	0	0	0			0	0	0	0	0	0		4	
		Changi A-CDM is a joint initiative between the ANSP (providing air traffic services) and Airport Operator. We believe that shared leadership is required for A-CDM to be implemented successfully, as the initiative involves elements concerning airport operations and air traffic management.	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	0	0			1	0	0	0	0	0		1	
		For improvement of airport operation efficiency in winter operation by Airport Operator(ICAB)	0	0	0	0									0	0	0	0	0	0	0	0	1	0	0	0	0			0	0	0	0	0	0		1	
		ANSP(ATC) and Airport Operator shared leadership to promote the project efficiently	0	0	0	0									0	0	0	0	0	0	0	0	0	1	1	0	0			0	0	0	0	0	0		2	
		Phase 1 was led by Hong Kong CAD, while Phase 2 was led by Airport Authority Hong Kong	0	0	0	0									0	1	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		The Airport Operator managed the overall local project as the airport AODB was used as the main platform for ACDM. Airways however as the national air navigation service provider managed the integration aspects between the airport and the ANSP as well as their own independent elements.	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	1	0			0	0	0	0	0	0		1	
		Auckland Airport lead the AKL implementation as we had purchased the CDM product as part of the wider AOS suite	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	0	1			0	0	0	0	0	0		1	
		The Airport Operator chairs the Collaborative Operations Group and determined to be best suited to lead the project	0	0	0	0									1	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		Leader from Authority – Civil Aviation Authority of Viet Nam	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	1	1	1		3	
		Local A-CDM project needs an organisation who has credibility, integrity, and dedication to the goals of the project, so local airports should in charge of A-CDM					1	1	1	1	1	1	1	1																							8	
	18. Is the project group meeting held on a regular basis or ad-hoc?																																					
		Regular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	1	1	1	0	0	0	0	0		22	
		Ad-hoc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	1	1	1		9	
		a. Please explain why one of the options is applied:																																				
		There are both regular and ad-hoc meetings. Regular meetings like monthly focus group discussions and updates. Ad-hoc meetings are arranged to discuss and solve any matters when required	0	0	0	0									0	0	1	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		Initially, regular meetings were carried out. The queries, if any, are now handled through emails and telephonically. Since the maturity in the project has been achieved, meetings are carried out on need basis	0	0	0	0									0	0	0	1	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		Whenever need arises, a meeting of stakeholders is called	0	0	0	0									0	0	0	0	1	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		Keep the initative on track	1	1	1	1									0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		4	
		There are both regular and ad-hoc meetings. Regular meetings like monthly focus group discussions and updates. Ad-hoc meetings are arranged to discuss and solve any matters when required	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	0	0			1	0	0	0	0	0		1	
		To share the progress of the review among stakeholders	0	0	0	0									0	0	0	0	0	0	0	0	1	1	1	0	0			0	0	0	0	0	0		3	
		Blank	0	0	0	0									0	1	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0		1	
		Now the projects are largely complete or completed, the national meetings are no longer held	0	0	0	0									0	0	0	0	0	0	0	0	0	0	0	1	0			0	0	0	0	0	0		1	

	It was fortnightly during implementation and post rollout. We will have another kick off meeting prior to stage two which involves further development of the base product	0	0	0	0										0	0	0	0	0	0	0	0	0	0	0	0	0	1				0	0	0	0	0	0					1
	Held on a regular basis to ensure progress is maintained	0	0	0	0										1	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0					1
	Regular meetings are essential to the process of perfecting the A-CDM mechanism					1	1	1	1	1	1	1	1	1																													8
15. What are the objectives identified in the project that A-CDM is aiming to achieve?																																											
	Increase predictability	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**33**
	Increase on-time performance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**29**
	Improve resource utilisation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**33**
	Reduce taxi times	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**31**
	Increase airport efficiency	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**33**
	Reduce environmental nuisance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	**30**
	Optimise the use of available capacity	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**33**
	Improved safety	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**30**
	Other CDM inspired by CDM used to compliance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
20. Has the project identified a more detailed Key Performance Framework with Key Performance Indicators to facilitate the measurements of the A-CDM implementation?																																										
	Yes	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	**15**
	No	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	**14**
	In Progress	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
	a. If yes, would the project team be willing to share this work with the ICAO APAC A-CDM Task Force to aid in its future work such as the establishment of more detailed A-CDM guidelines?																																										
	Yes	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**12**
	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Not Answer	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0	0	0	**11**
Training																																										
	21. Has the project established training in any of the following areas for the implementation of A-CDM?																																									
	Level training for stakeholders to "what is A-CDM"	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	**27**
	Advanced training for stakeholders to "what is A-CDM"	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	**13**
	Training on how to operate under A-CDM procedures for all stakeholders	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	**15**
	Tailored/tailored training for each user in relation to "what do I need to do when A-CDM is operational at the airport"?	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	**17**
Challenges																																										
	22. Please rank what hold most true in relation to your A-CDM implementation.																																									
	A-CDM as a concept is too complicated and vague	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	**5.0**
	Workload guidelines are not enough to understand how A-CDM shall be implemented successfully	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	5	5	5	5	5	5	5	**5.1**
	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"	3	3	3	3	3	3	3	3	3	3	3	3	3	2	4	2	4	2	2	2	3	3	3	3	3	3	3	3	3	2	2	5	5	3	3	3	3	3	3	3	3	**3.2**
	The challenge is to understand what network input and information are needed to implement A-CDM	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	**3.6**
	It is challenging to get all stakeholders engaged and committed to the A-CDM project	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	**5.5**
	It is challenging to measure the A-CDM project	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	**5.0**
	It is challenging to understand what role A-CMA will have	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	4	3	3	4	4	5	3	3	3	3	3	3	3	**3.3**
	It is very much vital to establish how to measure the success of A-CDM	4	4	4	4	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	4	5	5	5	5	4	5	4	4	5	5	5	5	5	5	5	5	5	5	5	**5.0**

Area	Question Section	Detailed Questions	Australia	Bhutan	China	Fiji	Hong Kong	India	Japan	New Zealand	Pakistan	Philippines	Republic of Korea	Singapore	Thailand	Vietnam	Number of Airports	Summary	Averages
			General	General	General	General	General	General	General	General	General	General	General	General	General	General	14		
Approach to A-CDM implementation																			
	1. Is the A-CDM implementation a national program/project or a local airport by airport project?																	11	
		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	1	0	0	0	0	0	0	0	0	0	0	0	0	1		2	
		It is an "airport-by-airport" approach where each project is managed at "local" level	0	0	0	0	1	0	1	0	0	0	0	1	0	0		3	
		It is a combination of a national program and separate airport projects managed at "local" level	0	0	1	0	0	1	0	1	0	0	1	0	0	0		4	
		There is not yet an implementation plan for A-CDM	0	1	0	1	0	0	0	0	1	1	0	0	1	0		2	
	2. If A-CDM has been/is going to be implemented, please indicate at which airports and by what year:																		