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**AGENDA ITEM 3: AVIATION SAFETY AND
AIR NAVIGATION**

A-CDM DEVELOPMENT IN HONG KONG, CHINA

(Presented by Hong Kong, China)

INFORMATION PAPER

SUMMARY

This paper shares the experience of Hong Kong China in implementing Airport Collaborative Making (A-CDM) for Hong Kong International Airport (HKIA) through a two-phase approach with joint efforts among aviation stakeholders.

A-CDM DEVELOPMENT IN HONG KONG, CHINA

1. INTRODUCTION

1.1 Airport Collaborative Decision Making (A-CDM) provides an information sharing platform that could bring operational, financial and environmental benefits to all aviation stakeholders through improved situational awareness and streamlined workflow with real-time sharing of operational information. A-CDM puts emphasis on cooperation and coordination among aviation community, including airport operators, airlines, ground handlers and Air Traffic Control (ATC), in collaborating together to enhance decision making and efficiency. A-CDM could also be extended to make contributions to Air Traffic Flow Management (ATFM) with other Flight Information Region(s) (FIR).

1.2 Hong Kong Civil Aviation Department (Hong Kong CAD) began study to establish A-CDM among stakeholders of HKIA since 2008, with launch of the first generation A-CDM platform back in 2012. Since then, the A-CDM platform has become one of the essential tools in achieving smooth and efficient operations for HKIA. This paper shares the experience of Hong Kong China in the implementation of A-CDM through a two-phase approach.

2. DISCUSSION

2.1 Starting from 2008, Hong Kong CAD conducted technical visits to overseas pioneer airports in A-CDM implementation, such as Munich Airport and Brussels National Airport, to learn from their experience in planning and developing A-CDM, and understand the interrelationship among aviation partners, including airport operators, airlines, ground handlers and ATC. The knowledge and experience gained from those visits laid a good foundation for developing the A-CDM platform for HKIA.

2.2 Through meetings, briefing sessions and seminars, Hong Kong CAD has met with aviation partners in both their management level and working level for introducing A-CDM to them, collecting their feedbacks, and exploring how A-CDM platform could enhance their operations. Hong Kong CAD obtained very strong support from all stakeholders and their buy-in of A-CDM with commitment to support its on-going development.

2.3 Taking into consideration feedbacks collected from stakeholders and unique local airport operational environment at HKIA, Hong Kong CAD, in conjunction with Airport Authority Hong Kong (AAHK), has formulated a plan in achieving full A-CDM implementation through a two-phase approach:-

Phase 1 - Hong Kong CAD to take lead on :

- (i) sharing real-time and accurate air traffic control (ATC) information promoting A-CDM in Hong Kong aviation community
- (ii) promoting A-CDM in Hong Kong aviation community

Phase 2 - AAHK to take lead on :

- (i) improving predictability and overall operation efficiency of HKIA
- (ii) reducing recovery time after major disruption
- (iii) implementing full A-CDM operations

2.4 After acquiring sufficient knowledge and buy-in from aviation partners, Hong Kong CAD started developing the first generation A-CDM platform in early 2012. It was launched in September 2012 and enhanced to provide a mobile version in July 2013. Over 1000 accounts from more than 50 aviation partners have subscribed to this A-CDM platform to get real-time ATC information for supporting their daily operations at HKIA. According to feedbacks from aviation partners, more efficient use of airport resources, more predictable departure sequence and better cooperation/coordination among aviation partners have been experienced after using A-CDM.

2.5 Subsequent to the successful launch of Phase 1, implementation of A-CDM for HKIA moved to Phase 2 in 2015. AAHK has taken the lead in this phase and contributed in the following areas:-

- (a) establish and implement data exchange schemes among aviation community;
- (b) formulate and fine-tune operation processes with stakeholders;
- (c) interface with new ATC systems;
- (d) agree on key performance indicators (KPI); and
- (e) exchange data with A-CDM in other airports in the Pearl River Delta (PRD) Region

2.6 In Phase 2, AAHK has organized four A-CDM workshops with aviation partners to gauge their full understanding and commitment to re-engineer their operating procedures to achieve an overall improvement in the HKIA operational efficiency. AAHK has also begun to develop a new generation A-CDM platform with enhanced functionalities. The new generation A-CDM platform has been installed at HKIA and live data testing started in May 2017. A-CDM training for airline operators and ground handlers, as well as train-the-trainer sessions for ATC were held in mid-July 2017. The train-the-trainer approach was adopted for ATC because the Pre-Departure Sequencer (PDS), used by ATC, is more complex than other A-CDM functions used by airlines and ground handlers.

2.7 Progressive implementation of this new generation A-CDM platform began at the end of July 2017, with airline operators entering Target Off Block Time (TOBT) for a limited period each day. When the TOBT accuracy improves, the period for TOBT entry will be extended. An accurate TOBT is important in the A-CDM process. Without it, all other milestones derived from TOBT will be meaningless. When TOBT entry is up to a certain level of accuracy, the implementation plan can move forward to the next stage which is the evaluation of Target Startup Approval Time (TSAT) generated by the PDS in A-CDM platform.

2.8 Accurate TSAT generation relies on the careful fine-tuning of various system parameters as well as timely update of other constraints such as TOBT from airline operators and Calculated Take-Off Time (CTOT) from ATC or ATFM unit. The aim of the TSAT evaluation and system parameters fine tuning is to ensure the TSAT generated are the ones that airline operators can trust and base their decision upon.

2.9 There is a greater demand for efficient flow of information during abnormal situations, such as weather disruption, extensive flow control from adjacent FIRs and runway blockage. Therefore appropriate procedures for handling abnormal situations must be set in place and tested thoroughly before A-CDM can be fully implemented in HKIA.

2.10 Past experience in other airports indicates implementing a new A-CDM platform could take up to a year or more. With the concerted efforts from all aviation partners in HKIA, the full implementation of A-CDM is expected to be achieved in 2018.

3. ACTION BY THE CONFERENCE

- 3.1 The Conference is invited to note the information contained in this Paper.

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