International Civil Aviation Organization

The Fifth Meeting of System Wide Information Management Task Force (SWIM TF/5)

Video Tele-conference, 9 – 11 August 2021.

Agenda Item 9: State, Regional and Global SWIM Updates

THE VALIDATION AND DEMONSTRATION OF FIXM EXTENSION MODEL IN CHINA

(Presented by China)

SUMMARY

This paper presents the validation and demonstration of FIXM ATMB ATFM Extension Model. The main purpose of this work is to validate the feasibility and availability of FIXM extension model in China.

1. INTRODUCTION

1.1 In order to implement data sharing among Air Traffic Flow Management (ATFM) stakeholders and facilitate a seamless and agile exchange of ATFM data, the development of Flight Information Exchange Model (FIXM) Extension has been start by Air Traffic Management Bureau (ATMB) of Civil Aviation Administration of China (CAAC) in 2019, to support information exchange between ATFM systems and Airport Collaborative Decision Making (A-CDM) systems.

1.2 Based on ***FIXM APAC FLOW Extension Model***, ATMB of CAAC has developed the ***FIXM ATMB ATFM Extension Model***, which mainly extend the data attributes required to be exchanged to support the integrated operation of ATFM/A-CDM, including 26 data attributes of **Flight Collaborative Information** and 2 extension classes, 19 subclasses, and 75 data fields related to **ATFM Restriction Information.**

1.3 This work has been reported at the Fourth Meeting of System Wide Information Management Task Force (SWIM TF/4). Please refer to ***"IP03-Extension Development of FIXM to Support National ATFM Operations and ATFM/A-CDM integration in China"*** for more details.

2. DISCUSSION

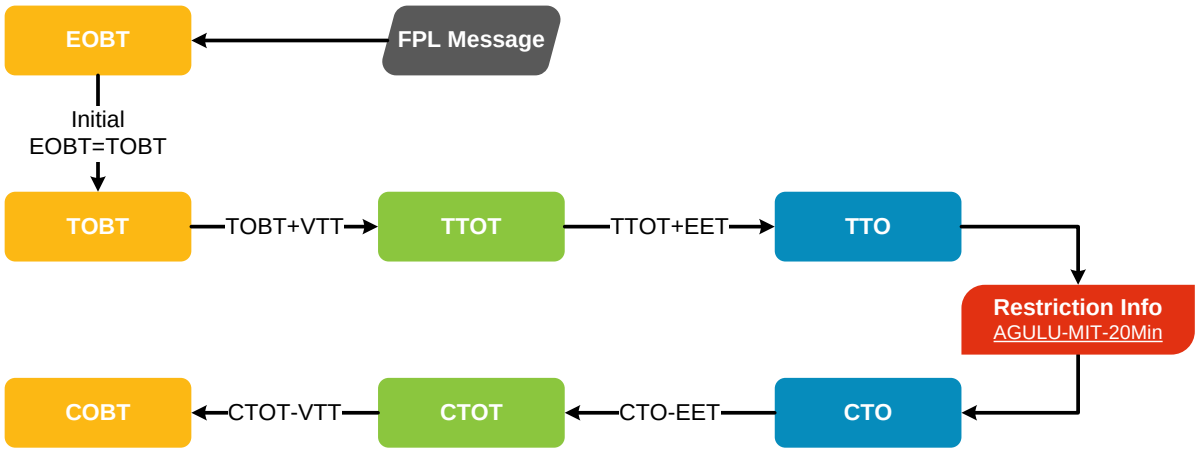
2.1 With the development of FIXM extension model in China, the validation and demonstration of FIXM extension model was launched in 2020. The main purpose of this work is to validate the feasibility and availability of FIXM extension model, and evaluate whether it meets the ATFM and A-CDM information exchange requirements.

2.2 A SWIM Simulation Test System (SWIM-STS) was developed, to validate and demonstrate the process implementation of information services and message exchange required for ATFM/A-CDM operation based on ***FIXM ATMB ATFM Extension Model***.

2.3 CDM (Collaborative Decision Making) is the main ATFM measure currently used in China. Considerable ATFM Restriction Information (such as Ground Stop, Miles in Trail) and Flight

Collaborative Information (such as CTO, CTOT, COBT, TOBT) need to be shared and exchanged among ASPs (ATM Service Providers), AOPs (Aerodrome Operators) and AUs (Airspace Users).

2.4 Based on information exchange requirement, the operational scenarios simulated during the validation and demonstration were categorized as follows:



1) Initially, TOBT and TTOT of each departure flight are calculated according to EOBT, and the flight pre-departure sequencing was carried out;

2) ATFM Restriction Information published by ATFMU, such as ZBAA-GS (Ground Stop), or AGULU (a restriction point)-MIT (Miles in Trail)-20Min;

3) ATFM system calculates CTO according to specific ATFM Restriction;
Note: CTO (Calculated Time Over) is a time calculated by ATFM system to indicate when the aircraft has arrival at the restriction point.

4) ATFM system calculates CTOT and COBT according to CTO;

5) The updated CTOT and COBT are shared among ATFMU, Airport and Airlines;

6) Through the negotiation among ATFMU, Airport and Airlines, the final CTOT and COBT are confirmed and locked;

7) Airport and Airlines take the final COBT as target time, ensuring that each departure flight will be ready to start up at COBT time;

8) ATC take the final CTOT as target time, ensuring that each departure flight will take off from the runway at CTOT time.

2.5 The validation and demonstration proves that ***FIXM ATMB ATFM Extension Model*** can support the operational requirement of national ATFM in China, and facilitate a seamless and agile information exchange for ATFM/A-CDM integration.

2.6 The next step will focus on SWIM Information Services. The SWIM Services Management Center (SWIM SMC, similar to SWIM Registry) will be built to manage full life cycle of SWIM Information Services, to provide a means to publicize, discover and subscribe information services.

2.7 At the same time, combined with operational scenarios, various SWIM Information Services such as Surveillance Services, Flight and Flow Services will be designed and developed. Some regional ATMB, Airport and Airlines will be selected as experimental unit to carry out the trial operation of these SWIM Information Services.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate

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