

*International Civil Aviation Organization*



ICAO

**Twenty Fifth Meeting of the Communications/  
Navigation and Surveillance Sub-group (CNS SG/25) of  
APANPIRG**

Video Tele-Conference, 18 – 22 October 2021

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**Agenda Item 3:** Aeronautical Fixed Service (AFS)

3.4. Review Report of the Fifth Meeting of System Wide Information Management Task Force (SWIM TF/5) including

**SWIM IMPLEMENTATION IN JAPAN**

(Presented by Japan)

**SUMMARY**

This Information paper contains the activities that JCAB has been working on for the past 10 years and the activities for the introduction and further advancement of SWIM initial services planned for the first quarter of 2025.

**1. INTRODUCTION**

1.1 The Japan Civil Aviation Bureau (JCAB) has released CARATS (Collaborative Actions for Renovation of Air Traffic Systems), a future program aimed at harmonizing with the Global Air Traffic Management Operational Concept and other countries' Future Programs in 2010.

1.2 The implementation of SWIM in Japan is a key enabler to achieve the goals of CARATS, and JCAB has been consistently carrying out studies, research and development of SWIM since the release of CARATS.

1.3 This Information paper contains the activities that JCAB has been working on for the past 10 years and the activities for the introduction and further advancement of SWIM initial services planned for the first quarter of 2025.

**2. DISCUSSION**

➤ **JCAB's activities over the past 10 years**

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*JCAB System configuration diagram as of 2013 - No direct relation to the text.*

2.1 JCAB's activities over the past 10 years can be divided into three phases. The first is the Study phase, the second is the Research and Development (R&D) phase, and the third is the Implementation phase.

2.2 In the Study phase, JCAB, together with CARATS' partner System vendor and Research Institutes, studied Service Oriented Architecture (SOA), which was an unfamiliar term at the time. There were few examples that ATM stakeholders could actually feel, so it was difficult to catch up with the understanding.

2.3 In the R&D phase, in addition to System Vendors and Research Institutes, JCAB collaborated with the U.S FAA, which manages the largest FIR adjacent to the Fukuoka FIR managed by JCAB, and countries in the Asia-Pacific region. The International Interoperability Harmonization and Validation (IIH&V) project, which conducted the Mini Global Demonstration and FF-ICE evaluation work, was able to witness the concept of SWIM through demonstrations and deepen the understanding of SWIM among ATM stakeholders.

2.4 During the Implementation phase, JCAB intensively discussed the business model in Japan with ATM stakeholders, drawing on previous SWIM Studies and R&D experiences as well as precedents in Europe and the U.S. With the challenges of global SWIM connectivity in sight, JCAB established a business model with the initial goal of replacing AFTN-based information sharing with SWIM-based information sharing in Japan in order to improve the productivity of ATM personnel in Japan and contribute to increased air traffic.

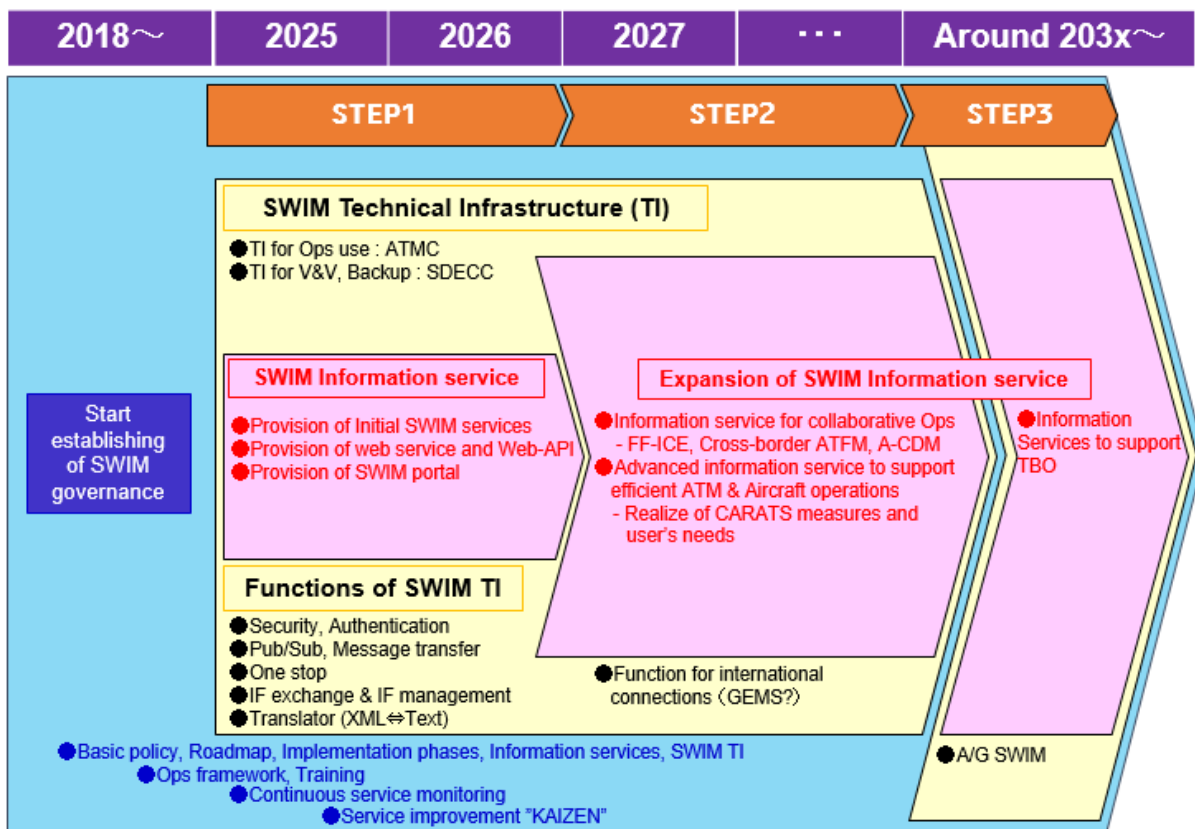
➤ **Initial SWIM services**

2.5 The majority of existing AFTN communications are ATS Messages such as flight plans, NOTAM and weather information such as METAR/TAF. It is widely recognized that the number of ATS Messages and NOTAMs issued is increasing rapidly, especially with the increase in traffic

volume in recent years. This trend is also true in Japan, and there is a strong need to convert ATM information to XML in order to improve the productivity and situational awareness of the people involved. In particular, there is a strong need for Digital NOTAM among flight operators, and early implementation has been long sought.

2.6 Adoption of XML-based flight plan is also an area of high demand, but it is important to examine its relevance to the consideration of FF-ICE implementation. Initially, JCAB plans to prepare an interface that will allow the JCAB system to accept FIXM-based FPLs, which will prepare us for the future introduction of FF-ICE. This makes it possible for FIXM to start handling flight plans for small operators and VFR aircraft, which are less likely to benefit from FF-ICE, before FF-ICE is introduced.

2.7 The Japan Meteorological Agency (JMA), which is in charge of providing meteorological services in Japan, is also accelerating its studies on the standardization of IWXXM and the development of digital services using IWXXM. Although the service will not be available at the same time as Digital NOTAM and other services due to the JMA system lifecycle, the meteorological domain is expected to be added to the service a few years later.



*SWIM implementation strategy in Japan*

➤ **Future work**

2.8 With the COVID-19 pandemic, the birth of contactless digital services is accelerating in Japan. This includes the digital transformation of the aviation industry, which will require JCAB to expand the information provision as open data. As informed at IMP/WG/7-WP/5 TRANSITION TO

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SWIM - CHALLENGES OF JAPAN, JCAB is also planning to build SWIM services with the “Service design 12 clauses” presented by the Japanese government in mind.

2.9 The implementation of FF-ICE, which is the first step toward the realization of the TBO concept, is also an important measure for CARATS and JCAB is preparing for it with a strong awareness of the harmonization of the global introduction timing.

2.10 In Japan, same as in other countries, Urban Air Mobility and Digital TOWER are being considered, and it goes without saying that SWIM will be a strong platform for their realization.

**3. CONCLUSION**

3.1 JCAB will start local SWIM operations in 2025, and we intend to contribute to the expansion to Regional SWIM and Global SWIM with a strong sense of international collaboration.

3.2 On the other hand, JCAB as an ANSP would like to resolve the issue as soon as possible, since the long-term mixed operation of legacy operations and new SWIM operations would have a significant impact on the availability of various resources. However, there is still a lack of understanding of SWIM, what it can do and how it can improve efficiency. There is a need for workshops and seminars at all levels of the aviation industry, regardless of country or region, for the application of PANS-IM.

**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.

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