International Civil Aviation Organization

The Sixth Meeting of System Wide Information Management Task Force (SWIM TF/6)

Video Teleconference (VTC), 17 – 20 May 2022

Agenda Item 4: Updates on the assigned tasks by task leads/contributors including progress report and issues

a) Implementation Planning

- Task 1: Regional Implementation Philosophy & Roadmap

RESULT OF ASIA/PACIFIC SWIM IMPLEMENTATION PLAN AND STATUS SURVEY

(Presented by China, Japan, Singapore, and Thailand – On behalf of Task 1 Group)

SUMMARY

This paper presents the results of the ICAO Asia/Pacific SWIM Implementation Plan and Status survey conducted between March and April 2022. Based the survey results obtained, recommendations are provided for the consideration of SWIM TF/6.

1. INTRODUCTION

1.1 The 25th Meeting of Communications, Navigation and Surveillance Sub-Group of APANPIRG (CNS SG/25) was held via video teleconference from 18 to 22 October 2021. **Conclusion CNS SG/25/03 (SWIM TF/5/01) – Asia/Pacific SWIM Implementation Plan and Status Survey** was adopted by the CNS SG/25 for SWIM Task Force (SWIM TF) to conduct a survey on SWIM implementation plan and status of Asia/Pacific Member States with the following objectives:

- To obtain the current status and views towards SWIM implementation of the Asia/Pacific Member States;
- To establish a baseline understanding of SWIM implementation plan and status within the Asia/Pacific region; and
- To obtain input data to assist in developing a detailed Asia/Pacific SWIM implementation roadmap.

1.2 Following the **Conclusion CNS SG/25/03** aforementioned, the ICAO Asia/Pacific SWIM Implementation Plan and Status Survey was prepared by China, Japan, Singapore, and Thailand in consultation with Task leads under SWIM TF. The survey was later disseminated to all Asia/Pacific States/Administrations by ICAO Asia and Pacific Office through State Letter T 8/13.1 : AP042/22 (CNS) dated 1 March 2022.

1.3 To ensure the completeness of a regional baseline picture to be created, States/Administrations were kindly requested to submit consolidated responses comprising the views of civil aviation regulator, AIS/AIM provider, ANSP or ATM service provider, and MET service provider, or the separate ones from each of these organizations.

2. DISCUSSION

2.1 Throughout March and April 2022, 49 responses in total were received from 26 States/Administrations, including Australia, Bhutan, Cambodia, China, Fiji, France, Hong Kong China, India, Indonesia, Japan, Lao PDR, Macau China, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, the Philippines, Papua New Guinea, Republic of Korea, Sri Lanka, Singapore, Thailand, USA, and Vietnam.

2.2 The majority of the responses was from civil aviation regulators, AIS/AIM providers, ANSPs or ATM service providers, and MET service providers. Only one response was from airport operator, while none was obtained from airspace user.

Part A – Overall SWIM Implementation Planning and Status

2.3 The responses specified with the overall stage of SWIM implementation status as "Implemented, i.e. SWIM is operational" or "Being implemented, i.e. SWIM is being implemented" were counted for only 6%. 68% of responses were marked with either "Planned, i.e. scope of SWIM implementation is identified and the implementation plan is devised" or "Under study, i.e. scope of SWIM implementation is being examined", approximately 34% each. Around 21% of responses were identified with "Being planned, i.e. scope of SWIM implementation is identified and the implementation plan is being devised". Around another 5% provided other information such as the SWIM proof-of-concept project being conducted, the scope of SWIM implementation not yet examined in their organizations.

2.4 Survey result on the scope of SWIM implementation is shown in Fig. 1.

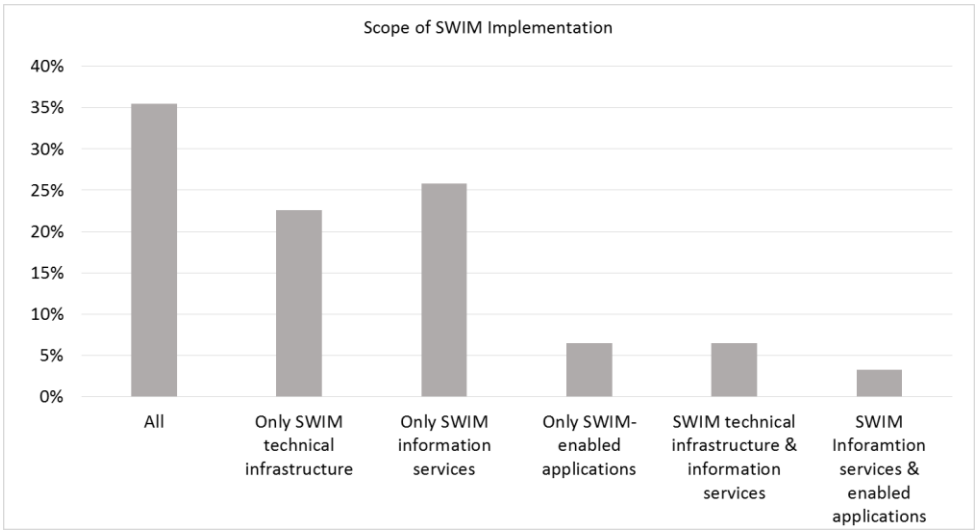

Fig. 1. Survey Result on the Scope of SWIM Implementation.

2.5 It is worth noting that all the responses marked with SWIM information services only were from either AIS/AIM provider or MET service provider. Additionally, the majority of the responses specified with all 3 SWIM key components, i.e. SWIM technical infrastructure, SWIM information services, and SWIM-enabled applications, as their scope of SWIM implementation was from ANSPs or ATM service provides.

Part B – SWIM Implementation Planning and Status Detail

Part B.1 – SWIM Technical Infrastructure

2.6 Table 1 presents the survey results on the overall stage of SWIM technical infrastructure implementation, counting from only the responses provided answers to this question. Only few responses were provided with the expected completion date of their overall SWIM technical infrastructure. The timeframe obtained in this section ranges between 2023 and 2030.

Table 1
Survey Results on the Overall Stage of SWIM Technical Infrastructure Implementation

Overall Stage of SWIM Technical Infrastructure Implementation	Survey Result
Implemented	2.56%
Being implemented	12.82%
Planned	25.64%
Being planned	10.26%
Under study	48.72%

2.7 The largest portion of responses, approximately 47.62%, was specified that the approach to participate in regional SWIM is to connect their SWIM technical infrastructures to other States, while around 11.90% were marked with the approach to acquire SWIM technical infrastructure series provided by other State or private entity. The rest of the responses (≈40.48%) were provided with other information such as the approach being examined, no decision yet made. The interesting finding in this section is that, although the specific participation approach was not identified in the responses, some gave the information that they have planned to connect their SWIM technical infrastructure to the regional SWIM through CRV (Asia/Pacific Common aeRonautical Virtual Private Network).

2.8 Most States/Administrations/Organizations indicated that their infrastructure services would include message service, while registry and security service were only mentioned by some. Regarding the status of messaging service implementation, the majority was marked with “Planned” and only 3 responses were identified with “Implemented” or “Being Implemented”. Except the response specified with complete implementation status, the timeframe for completion date/expected completion date of infrastructure services was determined to be between 2022 and 2030.

Part B.2 – SWIM Information Service

2.9 Fig. 2 shows the survey results on the overall stage of SWIM information services implementation.

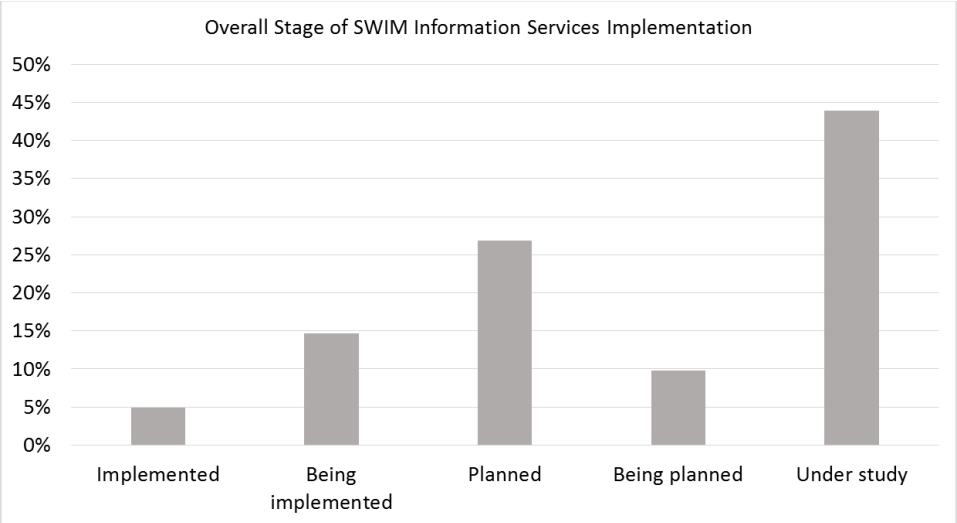

Fig. 2. Survey Result on the Overall Stage of SWIM Information Services Implementation.

2.10 Aeronautical information service was the service indicated the most in the responses received, followed by weather information service and flight information service, respectively. Other information services identified included digital NOTAM service, flow information service, A-CDM, surveillance information service, D-ATIS service, and C-PIREP service.

2.11 Table 2 presents the information exchange models specified for the top-three information services aforementioned.

Table 2
Survey Results on Information Exchange Model

Information Service	Information Exchange Model
Aeronautical information service	AIXM v5.1 AIXM v5.1.1
Weather information service	IWXXM v3.0
Flight information service	FIXM v4.1 FIXM v4.1 with APAC Extension FIXM v4.2 FIXM v4.2 with national/regional Extension

2.12 Regarding the implementation status of information services identified, approximately 42.99% were marked as "Planned", while 27.10% were still being planned or under study. Information services were determined as "Implemented" and "Being implemented" were counted for 10.28% and 19.63%, respectively. Similar to the survey results found on SWIM infrastructure services, except the ones marked as completed, the timeframe obtained for completion date/expected completion date of information services was between 2022 and 2030.

Part B.3 – SWIM-enabled Application

2.13 The survey results on the overall stage of SWIM-enabled applications implementation, counting from only the responses provided answers to this question, are shown in Table 3.

Table 3
Survey Results on the Overall Stage of SWIM-enabled Applications Implementation

Overall Stage of SWIM-enabled Applications Implementation	Survey Result
Implemented	2.70%
Being implemented	5.41%
Planned	24.32%
Being planned	8.11%
Under study	59.46%

2.14 It is found that specific SWIM-enabled applications were not indicated in the majority of the responses. The SWIM-enabled applications identified can be grouped into the following category:

- Airport/Terminal operation, e.g. A-CDM, airport surface surveillance display, terminal flight data manager
- MET information-related tool, e.g. MET information display, MET information integration tool;
- Status/operation monitoring; e.g. ATM network status monitoring, SWIM service status monitoring;
- Operation integration and decision support tool; e.g. for ASM/ATFM, ATFM/A-CDM, MET/ATM, trajectory evaluation; and
- FF-ICE/R1 services.

2.15 Status of all the SWIM-enabled applications provided in the responses can be classified as shown in Fig. 3. Except the responses specified with complete implementation status, the timeframe for completion date/expected completion date of SWIM-enabled applications listed was identified to be between 2023 and 2030.

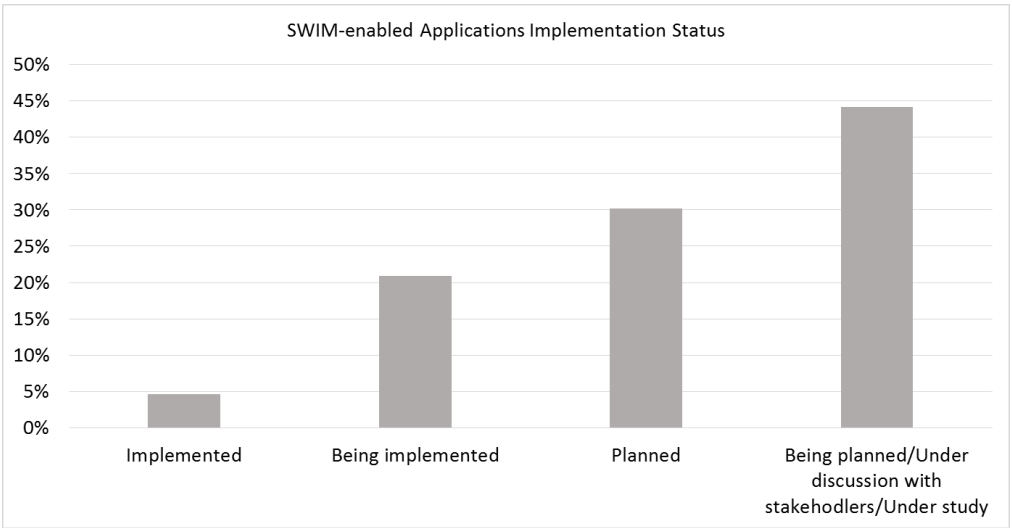

Fig. 3. Survey Result on the Status of SWIM-enabled Applications Implementation.

Part C – Suggestions/Comments

2.16 Suggestions and comments obtained were mainly specified on the following matters:

- The need for Asia/Pacific regional SWIM implementation roadmap and Asia/Pacific SWIM implementation guidance to assist regional stakeholders in their SWIM planning and implementation;
- The establishment of suitable SWIM technical infrastructure to enable cost-effective information exchanges among stakeholders;
- The formation of multi-disciplinary team comprising operations and technical experts to support SWIM implementation, especially the collection and development of use cases;
- The need of more capacity-building regional events in the form of workshops, seminars, regional demonstration; and
- Slow regional SWIM implementation progress due to SWIM not being a mandatory requirement even when PANS-Information Management (PANS-IM) will be published.

Recommendations

2.17 Based on the survey results obtained, it can been seen that timeframe for completion date/expected completion date of the three SWIM key components was identified to be between 2022 and 2030. It is thus recommended that SWIM TF/6 endorses the Asia/Pacific SWIM implementation timeframe of 2024 to 2030, in lined with the proposal stated in SWIM TF/6 WP/07, to provide States/Administrations/Organizations a lead time to plan for their SWIM implementation.

2.18 With the list of common SWIM information services and SWIM-enabled applications indicated in the majority of the responses, it is suggested to adopt a phased approach in the Asia/Pacific SWIM implementation roadmap to be further devised, to ensure the harmonized implementation of this common list among stakeholders, in turn leading to the region-wide operational benefits.

2.19 Based on the feedback received and considering a significant amount of work done by SWIM TF so far, SWIM TF is recommended to consider consolidating (*i*) the Asia/Pacific SWIM Concept of Operations and (*ii*) the Asia/Pacific regional SWIM Implementation Guidance documents to assist States/Administration/Organizations in their SWIM planning and implementation. Moreover, in the case where the inclusion of SWIM in the new version of the Asia/Pacific Seamless ANS Plan, as proposed in SWIM TF/6 WP/08, is adopted by APANPIRG, these two documents can then be used as supplements to the Asia/Pacific Seamless ANS Plan in the future.

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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