



**Fifth GREPECAS–RASG-PA Joint Meeting (GREPECAS-RASG-PA/5) and
 Twenty-Third Meeting of the CAR/SAM Regional Planning and Implementation Group
 (GREPECAS/23)**

Virtual Phase (Asynchronous, 19 January to 17 February 2026)
 In-Person Phase (Mexico City, Mexico, 4 to 6 March 2026)

Agenda Item 8: CAR/SAM Air Navigation Implementation

SYSTEM WIDE INFORMATION MANAGEMENT (SWIM)

(Presented by Secretariat)

EXECUTIVE SUMMARY

This Working Paper highlights the benefits and relevance of implementing the System Wide Information Management (SWIM) framework in the CAR/SAM Regions as a key enabler for ATM modernization, interoperability, and operational efficiency. It underscores the three pillars defined by ICAO—standards, infrastructure, and governance—while emphasizing the need for a harmonized regional strategy, interoperable registries, and robust cybersecurity protocols. The document further recommends establishing dedicated task force to define regional roadmaps, architecture models, and service definitions aligned with FF-ICE and international best practices, in order to advance the effective implementation of SWIM.

Action:	Actions suggested under item 4.1
<i>Strategic Objectives 2026-2050:</i>	<ul style="list-style-type: none"> • Every flight is safe and secure • Aviation is environmentally sustainable • Aviation delivers seamless, accessible, and reliable mobility for all • No country left behind • The International Civil Aviation Convention and Other Treaties, Laws and Regulations Address All Challenges • The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All
<i>References:</i>	<ul style="list-style-type: none"> • Working Paper 626 ICAO Assembly 42nd Session • Doc. 10039 – Manual on the System-wide Information Management Concept • Doc. 10203 – Manual on the SWIM Implementation • Doc. 10199 – Procedures for Air Navigation Services – Information Management (PANS/IM)

1. Introduction

1.1 The SWIM system constitutes the global approach for managing and sharing Air traffic management (ATM) information through standardized, interoperable, and governance-driven services, enabling timely access to reliable data for all aviation stakeholders.

1.2 In this sense, the Secretariat has been promoting the progressive implementation of SWIM enablers across all information domains, supporting the orderly transition toward a service-oriented digital environment with enhanced information-exchange capabilities.

1.3 ICAO consolidated the SWIM concept in Doc 10039 (2024) and established implementation guidance in Doc 10203 (2024), with the regulatory and procedural support of the PANS-IM (Doc 10199). These documents provide a coherent structure for planning, publishing, discovering, and consuming information services.

1.4 During AN-Conf/14, States agreed to replace the FPL 2012 by 2034—this transition dependent on SWIM and FF-ICE enablement for more complete, automated, and interoperable flight-information exchange.

1.5 In the CAR/SAM Regions, SWIM is essential for strengthening regional interoperability, reducing integration costs, and enabling improvements in concepts such as TBO and ATFM, contributing to more efficient and resilient operations.

2. Analysis

2.1 During previous GREPECAS meetings, States were urged to accelerate the implementation of SWIM enablers across Aeronautical Information Management (AIM), meteorological (MET), flight information, aerodrome information, and other domains.

2.2 In support of SWIM implementation, ICAO has developed the corresponding Reference Framework and, in addition to the requirements established in Annex 3, Annex 15, PANS-AIM and PANS-MET, has produced the following guidance material:

- a) Doc 10039, which defines the pillars of SWIM: standards, infrastructure, and governance
- b) Doc 10203, which provides the guidance for service planning/definition/publication/discovery/consumption. The Information Management Panel (IMP) expanded its scope to include air-ground SWIM, as well as registry interoperability and governance.
- c) Doc. 10199 – PANS-IM

2.3 The 42nd Assembly reviewed several documents related to the challenges associated with SWIM implementation and issued recommendations for the development of national and regional SWIM capabilities. Additionally, the Assembly recommended that regional SWIM groups (e.g., INTEROP GT/SAMIG) and national groups continue to support global information exchange through ongoing collaboration.

2.4 The Meeting should note that the Technical Commission of the 42nd Assembly, when reviewing other working paper submitted by international organizations that identified several difficulties related to SWIM implementation and highlighted the need to apply SWIM in order to support the discontinuation of the 2012 Flight Plan by 2034, as agreed during AN-Conf/14, recommended that, in order to address these challenges, ICAO develop a strategy to favour regional and national SWIM implementation and to facilitate a harmonized implementation approach across all ICAO regions. The Commission also agreed that ICAO should advance work on the technical enablers required for seamless data exchange, including routing, information-service definitions, registries, and information-security protocols. After reviewing the documentation, the Commission additionally urged States to consider implementing SWIM capabilities to enable FF-ICE, meteorological, and aeronautical information services.

2.5 After taking note of the documentation and models from other regions (EUR/NAT, APAC, etc.) regarding supporting material, SWIM implementation roadmaps, registries, architecture and governance models, as well as the Assembly's recommendations to establish a SWIM roadmap for the CAR/SAM Regions, the Meeting may support expanding implementation programmes in order to promote the actions recommended by the Assembly, using the models of more advanced regions as reference.

2.6 The Meeting should note that the AIM/TF provided an overview of the fundamental prerequisites required to enable SWIM through a mature AIM framework, and for this purpose developed the SWIM Implementation Roadmap and the technical integration through the AIM Checklist for SWIM Implementation. The Checklist is included as an appendix to this working paper.

2.7 The Meeting should consider establishing working groups to:

- a) Plan the deployment of “CAR/SAM SWIM” under a common governance structure.
- b) Implement an interoperable and federable¹ regional SWIM Registry
- c) Define Service Definitions/Descriptions (AIM/MET/ATFM/FF-ICE) and AIXM/FIXM/IWXXM models.
- d) Integrate Security-by-Design measures, including authentication/authorization, encryption, network segregation, access control, and vulnerability management.

3. Conclusions

3.1 SWIM is an enabler for ATM modernization in the CAR/SAM Regions. The adoption of the ICAO framework, alignment with EUROCONTROL/APAC guidance, and the implementation of FF-ICE/eFPL will enhance efficiency and safety.

3.2 Cybersecurity must be integrated from the design and operational phases, in accordance with Annex 17 (4.9), the ICAO cybersecurity strategy and action plan, and relevant Assembly resolutions on the matter.

¹ “Federable” is a term used (by analogy with federated systems) to describe a ‘federated’ architecture in which multiple States or regions operate under common standards and interfaces that enable interoperability and the exchange of information/services, while each participant retains autonomy and control over its own data, systems, and infrastructure (without centralizing them on a single platform).

4. Suggested Actions

4.1 The GREPECAS Meeting is invited to:

- a) take note of the content of this working paper and its appendix
- b) approve the proposed checklist, if deemed appropriate
- c) consider designing actions related to item 2.7 of this paper
- d) develop any additional actions considered pertinent to the subject matter.

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APPENDIX
AIM Checklist for SWIM Implementation.

Number	Item	Expanded Guidance	Source Documents
1	AIM Implementation Phase 1, 2 y 3 completed (Digital AIM)	Ensure availability of digital AIP and eAIP. Confirm use of structured data models like Aeronautical Information Exchange Model (AIXM). Validate alignment With Air Traffic Management Information Reference Model (AIRM).	Doc 10066, Doc 10199 (Ch. 2), Doc 10203 (Ch. 3)
2	QMS includes digital data validation procedures	Include validation of service quality (QoS). Apply ISO 9000 and ISO 25010 for availability, integrity, and recoverability.	Doc 10199 (2.2), Doc 10203 (4.5)
3	AIXM 5.1 or higher structure in place	Confirm use of AIXM 5.1.1. Validate alignment with AIRM. Document any local extensions.	Doc 10039 (3.4.6), Doc 10203 (3.4.6)
4	eAIP implemented and updated per AIRAC cycle	Ensure structured digital publication. Include metadata per ISO 19115.	Doc 10199, Doc 10203 (4.4)
5	Data originator agreements formalized	Define clear roles and responsibilities. Document Service Level Agreements (SLAs).	Doc 10203 (2.6)
6	Obstacle/eTOD datasets digitized and validated	Use Airport Mapping Exchange Model (AMXM) for aerodrome data. Validate using coding rules and business logic.	Doc 10039 (3.4.6), Doc 10203 (3.4.6.6)
7	AIM personnel trained in data modelling and metadata tagging	Train in AIRM, Unified Modeling Language (UML), AIXM, Flight Information eXchange Model (FIXM). Include semantic and syntactic interoperability.	Doc 10203 (1.5)
8	Interface capability with SWIM-compliant systems assessed	Validate compliance with technical profiles. Assess technical and semantic interoperability.	Doc 10203 (Ch. 5)
9	Inter-agency data sharing procedures in place	Establish regional governance. Use SWIM registries for service discovery.	Doc 10039 (Ch. 4), Doc 10203 (2.3)
10	Internal AIM-SWIM coordination committee formed	Include AIM, MET, CNS, ATM, Technical Information (IT), operations, and regulatory representatives. Define implementation and monitoring plan.	Doc 10203 (2.4.1)