



**Nineteenth Meeting of the CAR/SAM Regional Planning and Implementation Group
(GREPECAS/19)
Online, 27 – 29 October 2021**

**Agenda Item 3: Work Programmes, Objectives and GREPECAS Results
3.2 Work Programmes, Objectives and GREPECAS Results**

**INITIATIVES TO DEPLOY SWIM IN BRAZIL
(Presented by Brazil)**

EXECUTIVE SUMMARY

This Working Paper was developed by the Brazilian team at the Department of Airspace Control (DECEA), during its work on project “Deployment of SWIM” and its goal is sharing initiatives related to planning for the deployment of the System Wide Information Management (SWIM) in Brazil.

The main delivery of this project for the year 2021 is the development of a prototype of SWIM registry. Through this prototype, it will be possible to present to the information service providers the registration processes for users, organizations and services.

Action:	The meeting is invited to note the content of this information paper.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none"> Doc 10039 (Manual SWIM)

1. Introduction

1.1. This working paper has the purpose of sharing initiatives related to planning for the deployment of the System Wide Information Management (SWIM) in Brazil, by the Department of Airspace Control (DECEA).

1.2. DECEA is the organization responsible for controlling the Brazilian airspace (22 million km²), an air navigation service provider that coordinates all flights and the ordering of air traffic flows in Brazil. It comprises thirteen organizations that are responsible for the operational execution of activities that comply with goals and duties of DECEA, totaling 12 thousand professionals throughout Brazil.

2. Normative Reference

2.1. SWIM is contained in the National ATM Operational Conception, elaborated by DECEA, and this document presents the main guidelines to draft the planning of the evolution of the Brazilian Airspace Control System (SISCEAB), in an orderly, safe, timely and sustainable way regarding the

environment and also in alignment with the ICAO Global ATM Operational Concept, aiming at generating benefits to the ATM Community and maintaining acceptable levels of safety.

2.2. In 2019, DECEA published the “SWIM IN THE NATIONAL ATM” Guideline, which is applied to all Organizations and members of the Aeronautical Community interested in providing or using information by means of a national SWIM structure

2.3. In addition to that, a plan for SWIM deployment and a manual to guide managers, developers, providers and SWIM users will be elaborated. The manual will be based on Doc 10039 (Manual SWIM Volume I: SWIM Concept), on Doc 10039 (Manual SWIM Volume II: SWIM Implementation Guidelines), and on PANS-IM (Procedures for Air Navigation Services – Information Management).

2.4. The following documents published by Eurocontrol will also be used as reference: SPEC-168 (Specification for SWIM Service Description), SPEC-169 (Specification for SWIM Information Definition) and SPEC 170 (Specification for SWIM Technical Infrastructure (TI) Yellow Profile)

3. Information Service Providers

3.1. The Department of Airspace Control (DECEA) has organizations that provide air navigation service and will also provide SWIM information service, as described in Table 1.

Table 1 - Organizations providing Air Navigation Services

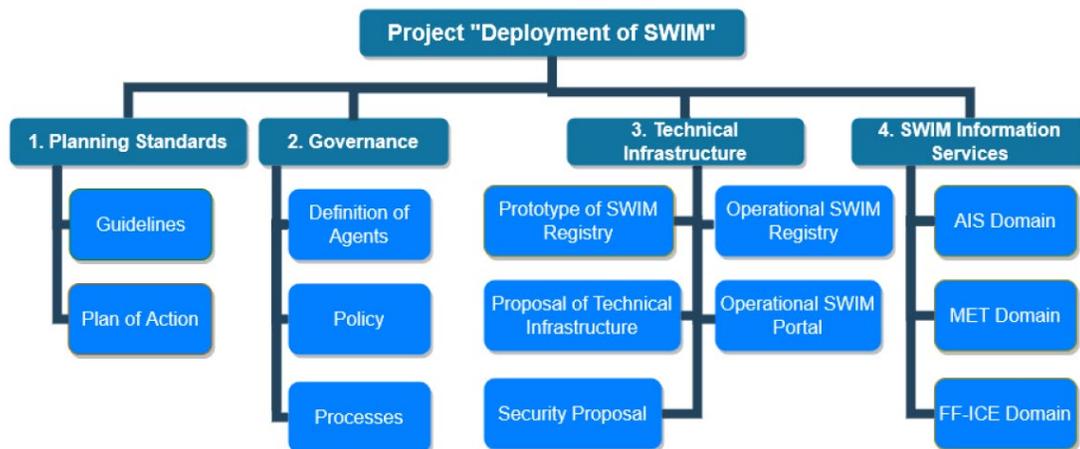
Provider	Institute of Aeronautical Cartography (ICA)	Integrated Center of Aeronautical Meteorology (CIMAER)	Air Navigation Management Center (CGNA)
Mission	Responsible for mapping, aeronautical information management, air navigation procedure design and airspace concept design.	Providing aeronautical meteorological service for surveillance and forecasting.	Based on flight intentions, allowing harmonization of air traffic flow management and other activities related to air navigation, to enable operational management of ATM actions.
Team constitution	cartographers aeronautical information specialists air traffic specialists	forecasters meteorological technicians	aeronautical information specialists air traffic specialists
Data Model	AIXM	WXXM	FIXM
Website	https://aisweb.decea.mil.br/	https://www.redemet.aer.mil.br/	http://portal.cgna.decea.mil.br/

3.2. Currently, these organizations are information providers and are expected to become compatible with SWIM. For this change to take place, it is necessary to make an effort in the field of information technology since the personnel in such organizations is composed of operational teams.

4. Project

4.1. DECEA elaborated the project “Deployment of SWIM”, using practices of PMBOK (Project Management Body of Knowledge). Figure 1, as follows, shows the Work Breakdown Structure (WBS).

Figure 1 - Work Breakdown Structure (WBS)



4.2. To deploy SWIM in Brazil, the project team identified the following actions:

- Adoption of current Data Models (AIRM, IWXXM/WXXM, AIXM, FIXM) for all web services generating or exchanging operational information;
- Mapping of information that is exchanged by digital means or not, without the use of web services;
- Migration of information services mapped for web services;
- Development of a prototype of SWIM registry;
- Description of web services through their registration in the prototype of SWIM registry;
- Elaboration of standards related to SWIM;
- Proposal of Technical Infrastructure for SWIM; and
- Proposal of requirements for the development of Operational SWIM registry.

5. Prototype of SWIM Registry

5.1 The main delivery of this project scheduled for the year 2021 is the prototype of SWIM Registry. The prototype is being developed by the Institute of Airspace Control (ICEA), which is the organization subordinate to DECEA with the mission of training human resources and conducting research within the Brazilian Airspace Control System.

5.2 Through this prototype, it will be possible to present to the information service providers the registration processes for users, organizations and services. These processes aim to publicize services that comply with mandatory requirements for publication.

5.3 However, in addition to registering services, the most important benefit is the possibility of debating issues related to governance and business policies, based on centralized processes focusing on registry.

5.4 It will also be possible to present to service providers the minimum set of information that must be registered, to allow efficient and secure access to information services.

5.5 As far as access to information is concerned, the registry may assume the following roles:

- Reference point: where all available services are listed and described following common structure and taxonomy;
- Single point of access with consolidated information on services, for the end user;
- Meeting point between/among providers who publish information on their services and consumers seeking services that meet their needs; and
- Single point of control to facilitate supervision and conduction of SWIM services.
- The prototype of SWIM registry will have the following functionalities, as used by consumers and service providers;
- Search for services: it enables users to locate information about available services;
- Publicizing of services: it enables providers to register their services;
- Subscription of services: it enables stakeholders to be informed of changes to stored information;
- Management of life cycles of services: it enables providers to manage the complete life cycles of their services;
- Publication of policies: it enables SWIM authorities to make available a list of policies, certifications and standards applicable to the service domain; and
- Search and subscription of policies: it enables providers to keep informed about regulations applicable to them.

6. Conclusion

6.1 The elaboration of a prototype of SWIM registry will enable the production of knowledge by the team that is working on the project and will allow information providers to make more practical use of concepts related to SWIM, by means of a prototype of SWIM registry.

6.2 The Meeting is invited to note the content of this information paper.