



**Agenda Item 7:**

**Other issues**

**INITIATIVE FOR THE IMPLEMENTATION OF SWIM IN BRAZIL**  
(Presented by Brasil)

<b>SUMMARY</b>	
<p>This Information Paper is intended to share the initiatives related to planning for the implementation of System Wide Information Management (SWIM) in Brazil. The main deliverable of the project for the year 2021 is the development of the SWIM registry prototype. Through the prototype, it will be possible to present to the information service providers the registration processes for users, organizations and services.</p>	
<b>References:</b>	
<ul style="list-style-type: none"> <li>• SAM/AIM/13 final report</li> <li>• ICAO Annex 15</li> <li>• GREPECAS/18 meeting</li> </ul>	
<b>ICAO strategic objectives:</b>	<p>A- <i>Safety</i> B- <i>Air navigation capacity and efficiency</i></p>

**1. Introduction**

1.1 This Information Paper aims to share the initiatives related to planning for the implementation of System Wide Information Management (SWIM) in Brazil, by the Department of Airspace Control (DECEA).

1.2 The Department of Airspace Control (DECEA) is the organization responsible for the control of Brazilian airspace (23 million km<sup>2</sup>), providing air navigation services to all flights and the ordering of air traffic flows in Brazil. It has thirteen organizations that are responsible for the operational execution of the activities that materialize the fulfillment of the goals and responsibilities of DECEA, with a team of about 12 thousand professionals throughout Brazil.

**2. Discussion**

2.1 SWIM is part of the ATM National Operational Concept, prepared by DECEA, and that document presents the main guidelines for the development of planning for the evolution of the Brazilian Airspace Control System (SISCEAB), in an orderly, safe, timely and sustainable in relation to the environment and in line with the ICAO Global ATM Operational Concept, with the objective of generating benefits for the ATM Community and maintaining acceptable levels of operational safety.

2.2 In 2019, DECEA published the ATM NATIONAL SWIM Guide, which is applied to all Organizations and members of the Aeronautical Community interested in providing or benefiting from information through a national SWIM structure.

2.3. A plan for SWIM implementation and a manual will also be prepared to guide SWIM managers, developers, vendors and consumers. The manual will be based on Doc 10039 - SWIM Manual Volume I: SWIM Concept, Doc 10039 - SWIM Manual Volume II: SWIM and PANS-IM Implementation Guidelines (Procedures for Air Navigation Services - Information Management).

2.4. The following EUROCONTROL documents are also used as reference sources: SPEC-168 (Specification for the description of the SWIM service), SPEC-169 (Specification for the definition of SWIM information) and SPEC 170 (Specification for the yellow profile of the infrastructure SWIM technique (TI)).

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

Table 1 - Organizations that provide air navigation services

Provider	Instituto de Cartografia Aeronáutica (ICA)	Centro Integrado de Meteorologia Aeronáutica (CIMAER)	Centro de Gerenciamento da Navegação Aérea (CGNA)
Mission	Responsible for cartography, aeronautical information management, procedure design and airspace design.	Provide aeronautical meteorological surveillance and Weather forecast service.	Allow, based on flight intentions, the harmonization of air traffic flow management and other activities related to air navigation, providing the operational management of current ATM actions.
Teams	<ul style="list-style-type: none"> <li>- cartographers</li> <li>- aeronautical information specialists</li> <li>- procedure designers</li> </ul>	<ul style="list-style-type: none"> <li>➤ Weather forecasters</li> <li>➤ Meteorology technicians</li> </ul>	<ul style="list-style-type: none"> <li>➤ Aeronautical information specialists</li> <li>➤ Air traffic specialists</li> </ul>
Data format	AIXM	WXXM	FIXM
Website	<a href="https://aisweb.decea.mil.br/">https://aisweb.decea.mil.br/</a>	<a href="https://www.redemet.aer.mil.br/">https://www.redemet.aer.mil.br/</a>	<a href="http://portal.cgna.decea.mil.br/">http://portal.cgna.decea.mil.br/</a>

2.6. These organizations are currently information providers and are expected to become SWIM compliant information service providers.

2.7. For this change to take place, an effort will be necessary in the area of information technology, since the personnel of the aforementioned organizations is made up of teams with an operational profile.

2.8. DECEA has prepared the “SWIM Implementation” project using PMBOK (Project Management Body of Knowledge) practices and Figure 1 below represents the Work Breakdown Structure (WBS).

Figure 1 - Work breakdown structure (WBS)



2.9 To implement SWIM in Brazil, the project team identified the following actions:

- Adoption of current data models (AIRM, IWXXM / WXXM, AIXM, FIXM) for all web services that generate or exchange operational information;
- Mapping of information that is exchanged by digital means or not, without the use of web services;

- Migration of information services mapped to web services;
- Development of the SWIM registry prototype;
- Description of the web services through their registration in the prototype of the SWIM registry;

- Development of standards related to SWIM;
- Proposal of Technical Infrastructure for SWIM; and
- Proposal of requirements for the development of the SWIM Operating Registry.

2.10 The main delivery of this project planned for the year 2021 is the prototype of the SWIM Registry.

2.11 The prototype is being developed by the Airspace Control Institute (ICEA), which is the organization subordinate to DECEA with the mission of training human resources and carry out research and development in the field of the Brazilian Airspace Control System.

2.12 Through the prototype it will be possible to present to the information service providers the registration processes for users, organizations and services. These processes are intended to make visible the services that present the necessary requirements for publication.

2.13 However, more important than the registry of services is the possibility to discuss issues related to governance and business policy, which are materialized through centralized processes in the registry.

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

2.15 Regarding access to information, the registry can assume the following roles:

- Reference point: where all available services are listed and described following a common structure and taxonomy;
- Single access point with consolidated service information for the end user;
- Meeting point between providers who publish information about their services and consumers looking for services that satisfy their needs; and

• Single point of control that facilitates the supervision and realization of services in SWIM.

2.16 The SWIM registration prototype will have the following functionalities, depending on its use by consumers and service providers:

- Search services: allows you to find information about available services;
- Publication of services: allows providers to register their services;
- Subscription to the service: allows interested parties to be notified of changes in stored information;
- Service life cycle management: allows providers to manage the complete life cycle of their services;
- Policy publication: allows the SWIM authority to make available the list of policies, certifications and standards applicable to the domain of the service; and
- Search and subscription of policies: allows providers to stay informed of the regulations that apply to them.

2.17 The development of the prototype of the SWIM registry will allow the production of knowledge by the team that is working on the project and will allow information providers to materialize the concepts related to SWIM in a more practical way, through access to the SWIM registry prototype.

2.18 The Brazilian team will be able to present the prototype of the SWIM Registry in 2022, as well as examples of application through the consumption of the services already available.

### **3. Suggested actions**

3.1 The Meeting is invited to take note of the information presented.

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