Agenda Item 5: Operational Implementation of New Automated ATM Systems and integration of existing systems

BRAZIL FLIGHT PLAN CENTRALIZATION PROJECT

(Presented by Brazil)

SUMMARY

This note presents information on the implementation of the centralization of flight plans in Brazil.

References:

- Report of the 22th Twentieth Second Workshop/Meeting of the SAM Implementation Group (SAM/IG/22).

ICAO Strategic Objectives:	*A – Operational safety* *B – Air navigation capacity and efficiency*

1. Introduction

1.1. The need to mitigate the errors contained in the flight plans has already been detected by the global aviation community. In the SAM Region, specific meetings will be accomplished with the participation of professionals from the operational and technical areas.

1.2. The Brazilian administration, aware of the operational impacts that such errors can generate, implemented mitigation actions in the automated processes and systems that deal with flight plans a few years ago, for example, the implementation of the SIGMA system, used by CGNA for flow management, and adjustments in SAGITARIO systems, which supports the air traffic control activities carried out in the APP and ACC, and TATIC, which supports the activities of the TWR.

1.3. Nevertheless, these actions were not sufficient to achieve the levels of integrity and availability required by the operational area, which resulted in a comprehensive and detailed diagnosis that pointed out the factors that generate such errors.

1.4. Based on this study, the Brazilian administration identified the need to implement the centralization of all flight plans in Brazil, which resulted in the elaboration of na implementation plan for the centralization of flight plans.

2. Discussion

2.1. The work began in January 2018, with the realization of technical and operational meetings whose objective was to survey the current situation and identify the main problems. This work resulted in the elaboration of the document NOP -Preliminary Operational Need, base for the conduction of all work.

2.2. NOP identified the main actors involved in the management of flight plans, such as airlines, the Ministry of Defense, DECEA, ANAC and the concessionaires that administer airports.

2.3. The automated systems used in the Brazilian ARO/AIS rooms will also be identified:

- **SAIS**: Automated system, used in some AIS rooms in the creation of flight plans. Uses AMHS to transmit messages generated by it;
- **AMHS**: Messaging system that aims to enable the processing of ATS messages between the ATS parts. The Subscriber Terminal (TA-AMHS) has resources for creating flight plan messages, among others;
- **SIGMA**: System developed to support activities related to the management of air traffic flow under the responsibility of CGNA. It consists of several modules, among which are those referring to the facilities for the creation of flight plans: PLN-A and PLN-I.

2.4. The following figure shows the entities and systems involved with the creation and processing of flight plans in Brazil:

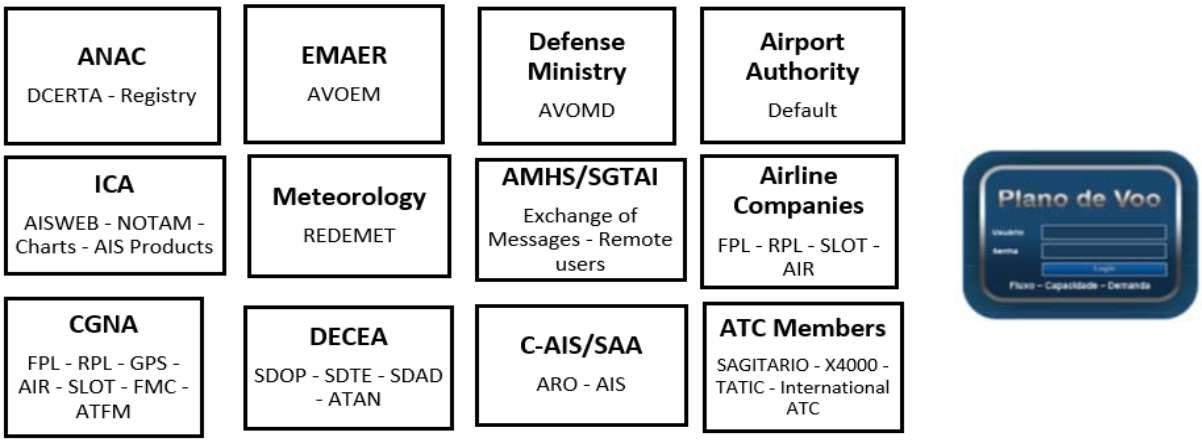


Figure 1 – Flight plans: entities and systems involved

2.5. In view of the current scenario and the expectations of air traffic growth, it has become necessary to adapt the current management system for flight intentions and related ATS messages.

2.6. The desired scenario contemplates the adoption of the single management by CGNA of the flight intentions that generate ATS messages and are forwarded to the ATC parts, which implies, therefore, the centralisation of the management of flight plans in the national territory, through the use of a single telegraphic address - SBRJZPZX - and the integration of the various information systems that support operational applications related to air traffic control and flow management.

2.7. The adoption of the centralization of the management of flight intentions in Brazil will allow a significant reduction of errors and losses, and will provide the optimization of human interference in the process, with the consequente reduction of the workload.

2.8. In addition, pilots, DOV, authorities and other interested parts will have the opportunity to monitor the processing of flight intentions at all stages, ensuring that the flight intent presented faithfully corresponds to the authorisation of the ATC members.

2.9. The centralization of the flight plan management will be supported by the SIGMA and cover the entire airspace under Brazilian jurisdiction for processing and impact analysis the ATS messages cause in the national scenario of air navigation and will allow the treatment and analysis syntactic and semantic of all flight intentions.

2.10. The SIGMA will remain hosted in CGNA, which shall be the institute responsible for handling the intentions of the flight plans with the support of C-AIS, SAA, PLN rooms and PSNA, in order to exercise the flow management of flight intentions, to ensure correct routing, traceable, timely, reliable and accurate at all stages of this process.

2.11. The integration of SIGMA with automated data processing and visualization systems (SAGITARIO) and Tower Management Systems (TATIC) is of paramount importance for centralizing flight plan management, as the processing of ATS messages will only occur using the SIGMA Exchange protocols, subtracting the AMHS only in the case of contingency.

2.12. The implementation strategy is based on the following phases:

a) Phase 1: Running (2019)

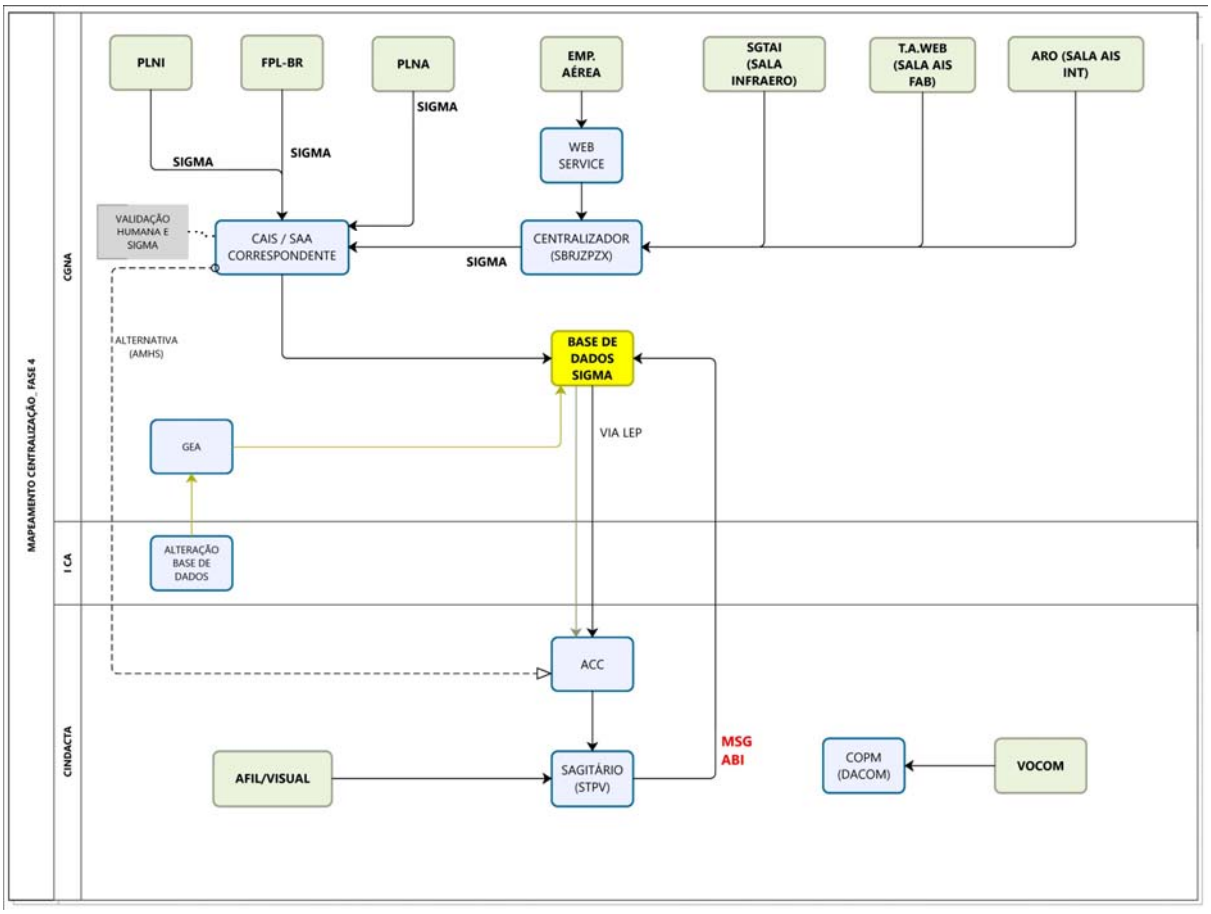
- Replacing the Hardware equipment of the SIGMA system improving the robustness, redundancies and contingencies;
- Adoption of a single telegraphic address- SBRJZPX - to be used by SIGMA;
- Adoption of alphanumeric code that allows to uniquely and exclusively identify each flight intent;
- Availability of statistical reports; and
- Presentation of feedback messages to users, with confirmation of the flight plan in the corresponding Regional database.

b) Phase 2: 2020

- Synchronization of the databases of SIGMA and SAGITARIO systems (including single national BDS);
- SIGMA Interoperability (GEA) with the AIM-BR system, for automatic updating of your database; and
- Consolidation of C-AIS CGNA.

c) **Phase 3: 2021**

- Unification of the databases of the SIGMA, SAGITARIO and TATIC systems; and
- Presentation of feedback messages to users, based on the registration of flight plans in the databases of the ATC members (APP and TWR).



3. **Suggested actions**

3.1. The Meeting is invited to:

a) Take note of the information submitted; and

b) agree to other actions if they deem it necessary.

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