



# ICAO

*International Civil Aviation Organization*

**First Meeting of the Surveillance Study Group (SURSG/1)**

(Video Teleconference, 20– 22 April 2021)

**Agenda Item 4:** Issues in surveillance data sharing

## CONSIDERATIONS FOR SHARING OF SURVEILLANCE DATA

(Presented by Singapore)

### SUMMARY

This paper presents the factors for States to take into considerations and elicit views from members towards a consensus on the approach to be taken for the sharing of surveillance data in the region.

## 1. INTRODUCTION

1.1. In accordance with Conclusion CNS SG/23/10 (SURICG/4/1) - ADS-B and Flow Management, States are encouraged to share surveillance data from departure to designation. While such global data sharing will benefit Air Traffic Services (ATS), there are multiple issues to be addressed before implementation.

1.2. This paper aims to list down the factors to be taken into considerations and be resolved by this Study Group (SG) in order to determine the optimum approach to be taken to establish the sharing of the surveillance data in the region.

## 2. FACTORS FOR CONSIDERATIONS

### Use Case

2.1. States will need to consider and decide on the use of the additional surveillance data obtained through this sharing. Only then will States be able to give due consideration to the following factors.

### Sharing model

2.2. There can be several sharing models, including distributed model where States establish their own services to share the surveillance data, centralized database where a central data collector or a group of data collectors collects and re-distribute the data to participating States, and a hybrid model. Detailed discussion will be in another working paper.

### Performance Requirements for the Shared Surveillance Data

2.3. The sharing of surveillance data will allow States to receive a more comprehensive and much wider areas of surveillance coverage in the region. Depending on how the surveillance data will be used, there are specific requirements that needed to be imposed on the data provider States when sharing the data. An agreed set of latency and accuracy requirements (to be adopted by the region) for shared data

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will be required to ensure that the data suitable for the intended operations. The SG may establish multiple sets of performance requirements to support different tiers of services. For example, ATFM may not require real-time data while aircraft separation related services will require.

2.4. With the above considerations, States may need to develop a methodology on how they can verify the performance of the data received and meet their regulatory requirements before using it for any safety-related functions. One way to avoid lengthy verification process is to develop a set of minimum performance requirements for the data to be shared, for example the data sharing service availability, probability of detection, data update rates, required surveillance coverages and accuracies figures.

Message format

2.5. It is envisaged that the data will be used by existing surveillance data processors, it is thus expected that at a minimum, the ASTERIX format will have to be supported. Different types of ASTERIX formats may be used for different surveillance data such as ADS-B and radar data.

Data filtering

2.6. There might be sensitive information, such as movement of State aircraft, in the surveillance data which States might want to filter off before sharing the data. There must be a common understanding on the conditions of such filtering.

Commitment from Participating States

2.7. In order to achieve a comprehensive surveillance coverage in the region, if all States agree, it is recommended that all the States who wished to participate in this data sharing will need to contribute some surveillance data from their State as well. States may need to bear their own costs to set up their own infrastructure required to share and receive the data.

2.8. Agreements among different States will also be required to address concerns on the type of surveillance data to share, confidentiality of information, limitation of use and data providers' liabilities, as well as areas on responsibilities and works required to be done in order to achieve the sharing. It can come in the form where individual States established multiple bilateral agreements to obtain the surveillance data. Alternatively, there could be a multilateral agreement at a regional level to govern the sharing of the surveillance data.

Implementation Approach

2.9. In consideration that the level of readiness to connect to SWIM will differ between States, it will be easier to adopt multiple and incremental approaches to build up the capabilities to share the data. There may be differences in the existing message formats used by the States (e.g. varying editions of the ASTERIX format). Participating States will also need to implement the necessary message translator or gateway system to ensure data compatibility. Wherever possible, in particular for future implementations, standard and agreed formats should be adopted.

2.10. Depending on the eventual model to adopt, the implementation timeline differs. Especially, for the central database model, there is a need to decide how will the central databased be managed. If it is a State-owned data collector, States will need to set up the infrastructure to host the data securely. Alternatively, this data collector can be commercially owned. Agreements would also be required between States and the commercial operator on how the commercial operator can receive and host the data as well as the terms and conditions and subscription fees involved.

Other considerations

- 2.11. Other implementation issues to be considered include:
- a. cyber security;
  - b. required CRV bandwidth;
  - c. non-CRV subscribers or CRV subscribers without SWIM capability;
  - d. implementation roadmap (progressive implementation);
  - e. service reporting centres or point of contacts;
  - f. procurement approaches if commercial operators are used;
  - g. service redundancy configurations;
  - h. sharing of data with airlines and other aviation community; and
  - i. future upgrading / modifications.

**3. ACTION BY THE MEETING**

- 3.1. The meeting is invited to:
- a. note the information contained in this paper; and
  - b. discuss and identify if there are other areas to be considered in order to establish the sharing of the surveillance data in the region.

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