



# ICAO

*International Civil Aviation Organization*

**The Fourth Meeting of System Wide Information Management Task Force (SWIM TF/4)**

Web-conference, 3 – 6 November 2020

## Agenda Item 7: State, Regional and Global SWIM Updates

### THE STATUS OF SHARED INFORMATION QUALITY MANAGEMENT IN CHINA

(Presented by China)

#### SUMMARY

This paper presents the exploration and practice of Civil Aviation Administration of China (CAAC) for establishing information quality management system based on SWIM concept. As the number of participants and information shared for operation coordination are increasing rapidly, it is necessary to clarify the accountabilities, standardize the procedures and enhance the platform functions for information quality management.

## 1. INTRODUCTION

1.1 Until now, 103 entities related to civil aviation operations have signed the *China Civil Aviation Data Sharing Agreement with 4 Annexes, including Operation Data Open Resource Catalog, Exchange Model, Cyber Security and Data Quality Management Regulations*. The roles of the participants are determined in the *Agreement*.

Role	Regulator	Platform Manager	Assisting Manager	Information Provider	Information Consumer	Information Service Provider	Information Service Consumer	Infrastructure Construction Unit
CAAC	√							
Operation Supervisory Center		√		√	√	√	√	√
Airport Group			√		√	√	√	√
Airlines				√	√	√	√	√
Airports				√	√	√	√	√
Air Traffic Management Bureau				√	√	√	√	√
Scientific Research Institutes						√	√	√
Industry						√	√	√

Figure 1. The Categories of Participants in Agreement

1.2 In *Operation Data Open Resource Catalog*, the basic data shared between information providers and consumers are defined. The data quality management responsibility, procedures, and standards are specified in *Data Quality Management Regulations*.

- The Operation Supervisory Center of the CAAC undertakes the overall responsibility for information quality management, including inspection and supervision, publishing quality reports, and implementing related management measures.
- The information providers are obligated to uploading information that meets the quality requirements, improve information quality in accordance with the published platform quality objectives, and cooperate with the platform manager to conduct information quality checks. For the newly joined information provider, the initial test and verification of data access should be taken by platform manager.
- The information consumers are obligated to receiving the platform shared information in time, check the platform's downstream data, and assist in reporting information quality problems to platform manager.

1.3 In order to improve information quality, the platform manager runs daily, monthly, annual, and ad-hoc reports to execute data quality checks and statistics. By reporting the completeness of different data items in the daily report and reporting the specific missing data items, the information provider would trace the source, which improves the data integrity of the data sharing platform in the long run.

1.4 The data quality of the platform is determined by three types of general quantifiable indicators: coverage, timeliness, and reliability to form DCI (Digital Capacity Indicator), which serves as reference for evaluating the effectiveness of digital construction of operating units.

- <Flight coverage rate> The flight coverage rate is used to measure the coverage of flights by uploaded data items.
- <Data timeliness rate> It is used to measure the timeliness of data about flight time nodes uploaded to the sharing platform.

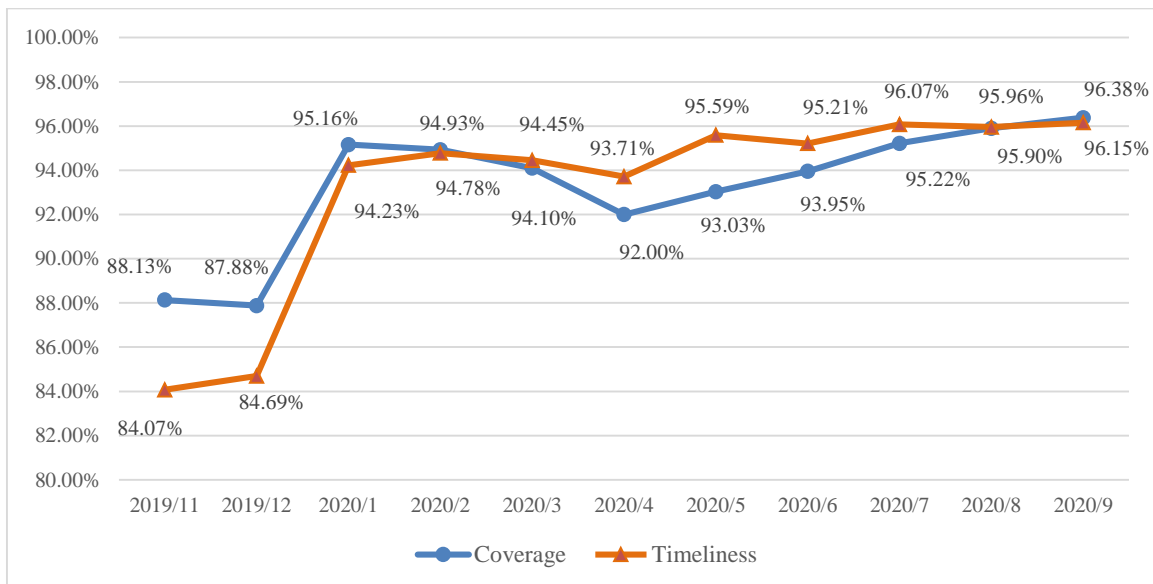


Figure 2. Coverage and Timeliness Rate of shared information

- <Data transmission reliability> The data transmission reliability rate is an index used to measure the reliability of continuous and stable data transmission.

1.5 To improve the accuracy of the shared information under different operation scenarios, the rules repository has been built and optimized consistently based on the business and technical aspects. In the transition phase, it is also an effective way to compare the sharing information with the legacy system.

1.6 The data quality management function of the sharing platform covers the phase of collection, governance, and application. The system functions implementation are as follows:

- Data collection and forwarding task monitoring;
- Data quality inspection rules configuration;
- Data quality monitoring;
- Data quality inspection;
- Data quality report;
- Data traceability;
- Alarms; and
- Data query.

1.7 At this stage, the platform is able to provide routine quantitative statistics and notifications of coverage, timeliness, and reliability. The current workflow for data quality management is listed as below:

- Monitor the situation of data quality on the sharing platform.
- Use the traceability function of platform to locate the problem, judge the level of impact, follow the manual and cooperate with the relevant units for verification and handling.
- Record daily work log, data errors, and monitor the progress of problem handling.
- Summarize and analyze the common problems, and then propose the corresponding measures.
- Publish the data quality report including details of the problems and measures to all participants.
- Assess the effectiveness of measures that have been taken.

## **2. DISCUSSION**

2.1 The platform manager shall ensure the fairness and transparency in the information quality inspection process. It has the responsibility of organizing all participants to improve the quality of basic information, which shall be shared among SWIM stakeholders in collaborative environment. In addition, the providers of information service, which are not included in basic information, should ensure the quality complied with the agreement with the information service consumers.

2.2 Data sharing plays an important role in COVID-19 pandemic control, especially in monitoring the passenger-related information. In order to promote the application of the sharing information. The standards of quality should be widely accepted. The establishment of the rules repository shall be standardized gradually.

**Agenda Item 7**

03 – 06/11/20

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matter as appropriate

-----