International Civil Aviation Organization

Tenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/10) of APANPIRG

Video Teleconference, 17 – 21 October 2022

Agenda Item 3: Performance Frameworks and Metrics

THE ATM PERFORMANCE MANAGEMENT UPDATES IN CHINA

(Presented by China)

SUMMARY

This information paper presents a progress report on performance measurement implementations in China, including data collection, KPI verifications, performance measurement and assessment, performance report, etc. at the same time, to identify the challenges during the implementation, and introduce future tasks or proposals.

1. INTRODUCTION

1.1 The performance-based approach (PBA) was introduced by ICAO in the *Global Air Navigation Plan* (GANP, Doc 9750) to support the implementation of the aviation system block upgrades (ASBUs), which in turn improve the capacity of the aviation system and meet the demands of future aviation development. ICAO promotes the importance of PBA and invites States and regions to participate in performance benchmarking activities. Nineteen (19) key performance indicators (KPIs) were introduced in the 6th edition of the GANP, providing reference for global unified performance measurement. Implementing performance measurement and PBA has become one of the key contents of civil aviation around the world.

1.2 At the end of 2019, the *Asia-Pacific Air Traffic Management Performance Measurement Framework* V1.0 was approved by APANPIRG, which was drafted and proposed by RAPMF/SWG supported by China/USA/Singapore/Thailand/Philippine, and the framework presented the purpose and utilization of ATM operational performance measurement and its implementation plan for the Asia-Pacific region.

1.3 According to the framework and the best practices recommended by ICAO, China has launched ATM performance management process. The actions are benefiting our aviation system operational performance, promoting ATM improvement and increasing air navigation safety and efficiency.

2. DISCUSSION

Actions taken

2.1 Aviation operational data are the basis of performance measurement. All kinds of data need to be processed, collected and stored in a standardized way to support comprehensive performance evaluation and analysis. Therefore, China has implemented the following measures for data collection and storage:

a) All operational data collected from ATC automation system, flight plan system, CDM/ATFM system, ADS-B, ACARS, AIM and ENV database etc., have realized the standardization of data recording.

b) Formulated key operational data specifications, organized all kinds of data, formed a standard operational data set and realized standardized storage.

2.2 KPIs are the core of PBA. It is helpful to implement more accurate performance evaluation to understand clearly the important attributes and application value of each indicator. For the key performance indicators, China has implemented the following measures:

a) Gathered and absorbed key performance indicators from various major institutions, constructed indicator set and analyzed the attributes of each indicator, including definition, measurement unites, variants, parameters, data requirement, calculation procedure, object, evaluation purpose etc.

b) Carried out the indicator verification oriented to the operational characteristics of Chinese aviation.

c) Summarized the applicability and evaluation value of each indicator in performance assessment.

2.3 A performance indicator calculation and result display system was developed to meet the requirements of aviation system performance assessment. Based on the historical operation database, the fast calculation and display of most key indicators are realized in the system, providing support for related institution on the performance assessment.

2.4 Using the performance indicators in various key fields, China carried out regular performance measurement and summarized performance reports, which provided reference for understanding the operational characteristics of the aviation system and improving systematic composition and organization.

2.5 China also implemented regular comparison of ATM performance with other states/organizations to identify similarities and differences. The comparisons built on commonly agreed definitions, data, and performance metrics. The project provides a reference for further defining the indicator significance and promoting performance assessment.

Challenges

2.6 The main challenges in data collection were the absence of data due to deficiencies of data collection system in some departments and the differences in data formats because of various system types in different departments, which brought challenges to standard setting and collection. The challenges were mitigated through repeated meetings and standardization.

2.7 The performance assessment requirements are different for various user objects, such as different levels of air traffic management departments, airports and airlines. In the indicator calculation and result display system, it is necessary to carry out individual design according to different user types.

2.8 In the PBA process, when we focused on improving performance in one area, the performance in other areas might decrease. The fact showed that different performance areas or indicators were not independent, but interrelated. Accordingly, all aspects should be considered comprehensively rather than the improvement of a single indicator in the implementation of PBA.

Future tasks

2.9 The aviation system consists of numerous different elements. In most cases, a single indicator can only represent the characteristics of a certain aspect of the system. It is necessary to establish a multi-dimensional comprehensive assessment mechanism using multi-indicators to achieve comprehensive and objective description of comprehensive characteristics for the subject. The framework of comprehensive assessment indicator system is also required for different typical subjects.

2.10 The performance measurement of each indicator is a numerical value, which cannot show its assessment significance without reference standard. Therefore, it is proposed that the subjects assessed should be divided into certain types according to their attributes. The reference standard of performance in each dimension should be constructed for every type of system. Then, the advantages and weaknesses of system operation can be discovered according to the comparison between each indicator and the corresponding reference standard.

2.11 It is proposed to establish the relationship database between action/measures and KPIs and describe clearly the influences of various typical action/measures (especially ASBU blocks) on KPIs. It is helpful to promote the implementation of the PBA and support the identification of alternative action/measures based on key performance improvement requirements.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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