International Civil Aviation Organization

WORKING PAPER

A37-WP/236
TE/137
17/9/10
English only

ASSEMBLY — 37TH SESSION

TECHNICAL COMMISSION

Agenda Item 40: Electronic Safety Tools

CONSIDERATION OF ICAO'S NEW SAFETY INITIATIVE FOR SAFETY INFORMATION SHARING IN ELECTRONIC TOOLS

(Presented by the Republic of Korea)

EXECUTIVE SUMMARY

ICAO has been developing a new safety strategy regarding the use of electronic safety tools in order to improve the accessibility of safety data and facilitate the exchange of safety data on a global basis in line with other new strategies such as safety audits under a continuous monitoring approach (USOAP-CMA), and performance and risk-based safety management frameworks (SSP and SMS).

This paper provides brief information on existing electronic safety tools developed on a global, regional and national basis and suggests further considerations and actions to be taken by ICAO for the successful implementation of the electronic safety tools including the establishment of a cooperative mechanism among ICAO, States and international/regional bodies which have experience in the development and implementation of similarly functioning electronic safety tools.

Action: The Assembly is invited to:

a) note that diverse electronic safety tools are in use globally and the need for sharing the related information; and
b) direct ICAO to consider suggestions presented in this paper including the establishment of a cooperative mechanism among ICAO, other States and international/regional bodies which have experience in the development and implementation of similarly functioning electronic safety tools.

Strategic Objectives:	This working paper relates to Strategic Objectives A and E on safety and continuity.
Financial implications:	Not applicable.
References:	*Report of the High-level Safety Conference (2010)* (Doc 9935), Recommendation 2/2 and 2/3; A37-WP/37: Transitioning to a continuous monitoring approach (CMA); A37-WP/69: The evolution of ICAO's proactive safety management approach; and A37-WP/71: Improved access to safety data

1. INTRODUCTION

1.1 International safety strategy on safety management principles driven by ICAO has been transformed from the compliance-based approach focussing on implementing eight safety critical elements assessed by the Universal Safety Oversight Audit Programme Comprehensive Systems Approach (USOAP-CSA) to the performance- and risk-based approach based on a data-driven concept and continuous monitoring approach (USOAP-CMA).

1.2 Furthermore, ICAO introduced Member States and industry to Standards and Recommended Practices (SARPs) requirements regarding the State Safety Programme (SSP) and safety management system (SMS) emphasizing the implementation of safety risk management (SRM) and safety assurance (SA) in order to jointly improve the level of analysis of safety levels and trends through the collection, analysis and exchange of various forms of safety data and information generated from all civil aviation sectors.

1.3 Moreover, ICAO has planned to take initiatives on developing a safety data sharing system using electronic tools (SMART, OASIS and Geo-related tools described in A37-WP/71) in order to achieve advanced and facilitated communication of safety data and information among ICAO, States and international and regional organizations. These initiatives are aiming at enhancing global civil aviation safety and efficiency of aviation operations.

1.4 In response to ICAO's transition of the international safety strategies, Contracting States and international/regional organizations have jointly and/or individually established diverse electronic safety platforms to facilitate the sharing of safety data and information.

2. VARIOUS ELECTRONIC SAFETY TOOLS FOR INTERNATIONAL, REGIONAL AND NATIOANL USE

2.1 In accordance with working paper (A37-WP/71: Improved access to safety data) regarding electronic safety tools (Agenda Item 40), ICAO has developed numerous electronic safety tools and recently commenced a new initiative to integrate these dispersed tools into three sets, namely SARPs Management and Reporting Tools (SMART), Online Aircraft Safety Information Service (OASIS), and GIS-related tools. Through this initiative, ICAO anticipates furnishing States and international/regional bodies concerned with better services for enhanced access to the safety data which might be needed in support of safety decision-making, the improvement on the efficiency of workflow for gathering and exchanging of the data, and the implementation of global aviation strategies (GASP and GANP) and regional safety mechanisms (PIRG and RASG) without duplicating functional roles with existing systems.

2.2 In addition, ICAO operates the Flight Safety Information Exchange Website, which provides safety information including States' audit results, model regulations and volcanic ash practices and links other safety information sharing websites run on an international, regional and national level. Similarly, the website SKYbrary (an initiative of EUROCONTROL, ICAO, the Flight Safety Foundation, the UK Safety Committee, the European Strategic Safety Initiative and the International Federation of Airworthiness) shares references on aviation safety knowledge with the international aviation community, focusing on five key risk categories covering loss of control, controlled flight into terrain, runway

incursion and excursion, and loss of separation. The FAA has also developed an electronic safety analysis tool (ASIAS) for national use and a foreign air carrier safety information system (IASDEX) for multilateral use based on their agreement.

2.3 Also, the Korea Office of Civil Aviation (KOCA) in the Republic of Korea (ROK) has developed and improved several electronic safety tools, as described in the following paragraphs, to support safety management activities that are of great use for effective discharge of a compliance-based approach to safety and for management and exchange of Safety Assurance (SA) data.

2.3.1 ***SARPs Management and Implementation System (SMIS)*:** SMIS was developed in 2005 to enable all concerned personnel in the KOCA and other entities to manage SARPs compliance information on a real-time basis. The system also provided the user with various features related to management of SARPs compliance such as tracking SARPs amendment history including relevant State letters, assigning tasks to persons in charge and monitoring their actions. In response to evolving needs and requirements, SMIS has been improved and now version 3 is up and running. SMIS version 3 provides additional features for the preparation and management of all data required for ICAO USOAP: State Aviation Activity Questionnaire (SAAQ), Compliance Checklists (CCs) and Protocols.

2.3.2 ***National Aviation Resource Management and Information System (NARMI***): NARMI was developed in 2007 as an integrated web-based system to centralize all data available in more than 10 different systems. NARMI provides functions for the management of all Safety Assurance (SA) data and limited safety risk management data including aircraft registration and airworthiness, human resources, air navigation facilities, continuing surveillance, safety reporting and action management, air traffic volume and gas emission analysis.

2.3.3 ***Total Oversight Management System (TOMS):*** KOCA developed a new system called TOMS, which is an improved version of NARMI for the management of continuing surveillance programme, modified to be adaptable to use by other States. Designed to reflect elements for safety oversight system provided in the ICAO *Manual of Procedures for Operations Inspection, Certification and Continued Surveillance* (Doc 8335) and the *Safety Oversight Manual* (Doc 9734), TOMS plays an instrumental role in planning the surveillance programme, managing and analysing results, and identifying non-compliance of individual service providers or the entire industry.

2.4 The above mentioned electronic tools have been of great benefit to the ROK in terms of increasing the capability and accountability of safety oversight activities through improving the two-way communication between the regulator and service providers, not to mention saving time and cost by providing an effective and efficient means of managing safety data. Such benefits were presented and recognized during the USOAP in the ROK in May 2008. In order to avoid duplication of effort and contribute to enhancing global aviation safety, the ROK has actively shared with the international aviation community its experiences and knowledge with respect to the management of safety data as well as the electronic safety tools. The ROK believes the electronic tools will be playing an instrumental role under the performance-based safety management environment.

3. DISCUSSION

3.1 To ensure the successful launch and implementation of ICAO's initiative regarding the development of new electronic safety tools, it is suggested that ICAO seek a tied partnership with member States and international/regional organizations to avoid duplication of efforts and to mirror user perspectives in the process of developing those tools. Moreover, benefitting from experiences and

knowledge of member States and international/regional organizations related to the development of electronic safety tools, ICAO could minimize possible setbacks and issues that might be faced by ICAO and the users of the tools, mostly member States.

3.2 Moreover, it is suggested that ICAO conduct a careful review of its existing policies to ensure that mandates for collecting and sharing of safety data and information are well covered in order to prevent possible side effects arising from the sharing of safety data and information through the three sets of electronic tools described in A37-WP/71.

3.3 It is also suggested that ICAO survey and assess the status of electronic safety tools in use regionally and/or internationally, and consider ways of interfacing the ICAO database with similar databases developed by member States and international/regional bodies after investigating the international status of electronic safety tools.

3.4 In addition, the development of ICAO electronic tools should be in close line with other ICAO safety strategies such as USOAP-CMA (referred by A37-WP/37) and SSP (referred by A37-WP/69) which take a data-driven approach utilizing certain electronic safety tools as described in the respective working papers.

4. CONCLUSION

4.1 ICAO's initiative for the development of electronic safety tools for the global aviation community will be recognized as a future-oriented and proactive safety measure to improve the safety of international civil aviation and the efficiency of international aircraft operation. However, to ensure effectiveness, ICAO should consider these initiatives from a user-based perspective, as the success of new electronic tools is generally dependent upon, but not limited to, users' preparedness (ready to use), familiarity (easy to use), efficiency (reducing workloads) and effectiveness (benefit from use) that the electronic safety tools will bring to the users.

4.2 Further, for close cooperation among ICAO and contracting States and international/regional organizations, the establishment of a working group for facilitating the implementation of this initiative should be considered. The establishment of such a working group would assist ICAO to gather various specialties concerned, identify the worldwide status of similar tools and research the interface with existing systems in a cost-effective and time-saving manner. Also, connecting with ICAO's other safety strategies (USOAP-CMA, SSP) will be key to succeed in increasing the utility of the electronic safety tools.

4.3 In this regard, the Republic of Korea would like to take part in the ICAO's new safety strategy through willingly providing various resources including knowledge, experience, skills and funds, especially for the development of the SMART which is similar in nature with those tools developed by the Republic of Korea for the management of State letters and SARPs compliance.

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