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COMMITTEE A

Agenda Item 4: Implementing the global air navigation system and the role of planning and implementation regional groups (PIRGs)

4.3: Implementing ASBUs for performance improvement

INTEGRATED DIGITAL AERONAUTICAL INFORMATION MANAGEMENT

(Presented by Saudi Arabia)

EXECUTIVE SUMMARY

This paper provides information on the approach used by Saudi Air Navigation Services (SANS) to upgrade and enhance the current aeronautical information service (AIS)/aeronautical information management (AIM) organization and systems to move towards integrated AIM suite supported by a central aeronautical database with front-end application that offers import and export data.

1. INTRODUCTION

1.1 The Middle East (MID) Air Navigation Strategy was endorsed by the fourth meeting of the MID Region Air Navigation Planning (MIDANPIRG) Steering Group (Cairo, 24-26 November 2014), based on the outcome of the relevant MIDANPIRG subsidiary bodies and inputs received from stakeholders. The strategy was further reviewed and updated by MIDANPIRG/15 (Bahrain, 8-11 June 2015), and endorsed as ICAO MID Doc 002. Some additional amendments to the strategy were approved by MIDANPIRG/16 (Kuwait, 13-16 February 2017).

1.2 The MID Region Air Navigation Strategy includes twelve Aviation System Block Upgrade (ASBU) Block 0 Modules identified as priority 1 for implementation in the MID Region, which include modules that have the highest contribution to the improvement of air navigation safety and/or efficiency in the MID Region. The MID Region Air Navigation Strategy stipulates that these modules should be implemented where applicable and should be used for regional air navigation monitoring and reporting.

1.3 Based on MID Air Navigation Strategy, SANS have defined a technical and operational enhancement program with individual initiative defined as “Project” for the implementation of priority 1 ABSU modules and other modules classified as priority 2 based on identified operational needs and benefits. Each initiative/project is monitored through a list of key performance indicators linked mainly to the efficiency, deliverables and timeframe.

1.4 The B0-DATM module known as “Service Improvement through Digital Aeronautical Information Management” is one of the modules classified as priority 1 under MID Air Navigation Strategy. The implementation of this module is one of the main technical and operational enhancement initiative/projects adopted by SANS in 2017.

2. DISCUSSION

2.1 To ensure proper implementation of B0-DATM module, SANS adopted a phased approach with designation of AIM department as owner of the initiative “Improvement/enhancement Program” and supporting departments. The approach includes:

- a) checks on the level of compliance with ICAO Standards and Recommended Practices (SARPs), guidance material and national regulation. A matrix is used to cross check the means of compliance with all applicable provisions;
- b) identification of all activities and tasks required based on the description and the performance improvement objectives defined for module B0-DATM and considering the relevant ICAO documentation including ICAO roadmap for transition from AIS to AIM;
- c) identification of required resources considering achieved performance levels in aeronautical information management;
- d) internal coordination between AIM and other departments i.e. safety, quality, engineering and finance departments to define an improvement/enhancement action items with required budget that should be approved by SANS Chief Executive Officer (CEO);
- e) identification of key performance indicators (KPIs) for the initiative/project that should be used for reporting on the progress to SANS executive committee chaired by CEO; and
- f) implementation of improvement/enhancement action items with regular reports on the progress to SANS executive committee using defined KPIs.

2.2 The AIM improvement/enhancement program is derived from ICAO roadmap AIS to AIM and structured around three pillars: 1) enhancement of concerned SANS’ staff skills and qualifications; 2) improvement of AIM procedures and processes; and 3) upgrade of technical capabilities for automation, data processing, verification, storage and production.

2.3 The first achievements of AIM’s improvement program were:

- a) Validation of automation processes based on data quality requirements as per Annex 15 — *Aeronautical Information Services*, in terms of completeness, timeliness, consistency, accuracy, resolution and integrity. This validation was used as basis for the distribution of aeronautical information publication (AIP) in an electronic format - eAIP on CD-ROM, DVD and recently on-line via General Authority of Civil Aviation (GACA) website (Link: <https://gaca.gov.sa>) and SANS website (link: <https://sans.com.sa>). The eAIP is used as sole mean for KSA AIP and the paper-based AIP was discontinued since January 2016; and

- b) Implementation a quality management system (QMS) for the provision of AIS. An ISO 9001 certificate issued by an accredited organisation was granted in March 2012 and renewed according to the latest standards in July 2018.

2.4 As part of the QMS, an extensive training program was implemented to ensure that personnel responsible for tasks in the provision of aeronautical data/information are adequately trained, qualified and competent for the job they are required to do.

2.5 The second major enhancement/improvement activity under the implementation of B0-DATM is upgrading of AIM automation capabilities through two-phase project that will end by the last quarter of 2019. This project includes an AIM plate-form with the following:

- a) Implementation of integrated AIM database. It provides a central aeronautical database (AeroDB) and a set of rule driven translation tools. The AeroDB supports the transition from AIS to AIM by providing structured static and dynamic aeronautical data management while maintaining the concept of time dependent data.
- b) NOTAM Office application, which allows management of dynamic aeronautical data such as NOTAM, digital NOTAM, weather information. The functionalities are developed in accordance with ICAO AIS to AIM Roadmap and European Organisation for the Safety of Air Navigation (EUROCONTROL) and Federal Aviation Administration (FAA) digital NOTAM event specification documentation.
- c) Flight Plan Office Application that will offer flight plans and pre-flight information bulletins in accordance with ICAO Standards and supported by 3D visual aid planner.
- d) Data Origination Portal: web-based solution that supports aeronautical information and data workflow management and aeronautical data quality. It provides digital processing of aeronautical data from its origination, through storage in the aeronautical database and then to distribution to other applications or users.
- e) eTOD Interface: an AIM (Aeronautical Information Management) application designed to manage airport, terrain and obstacle data, ensuring compliance with international data quality requirements (ICAO Annex 15, Amendments 33, 34 and 36). The terrain and obstacle database (TOD) and the aerodrome mapping database (AMDB) are able to support all activities and provide a common basis either to perform aeronautical charting or to design airspace and flight procedures within the IDS FPDAM¹ interactive environment.
- f) Airspace Designer: an advanced aeronautical information eXchange model (AIXM) compliant tool that will support SANS in airspace and route design and management. It also allows the management, creation and editing of airways, waypoints and bounded airspaces.

¹ IDS FPDAM is the software used by SANS for the design of instrument flight procedures (IFPs).

3. CONCLUSION

3.1 SANS has considered a regional planning strategy to implement an ABSU module namely B0-DATM classified as priority 1 module under MID Air Navigation Strategy. An internal methodology and approach has been applied to identify the required activities considering the description and performance objectives of B0-DATM module.

3.2 The identified activities were organized in a way to allow phased-approach implementation starting with activities considering as “pre-requisite” for the success and orderly introduction of most complicated processes and procedures including AIM automation. ICAO roadmap for transition from AIS to AIM was used as the basis for definition of activities that should implemented.

3.3 The three main components and pillars for the implementation of B0-DATM are: staff competency, procedures and processes, and processing and automation capabilities. A list of action items with KPIs are used to assess effectiveness and monitor the progress with regular reporting to SANS executive committee to share information and overcome any limitation. This approach is currently used by SANS for the implementation and monitoring of all initiatives/projects identified for the implementation of ABSU classified as priority 1 and 2 under MID Air Navigation Strategy.

3.4 The Conference is invited to take note of the current and planned improvement capabilities for aeronautical information management provided by SANS.

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