International Civil Aviation Organization

WORKING PAPER

ASSEMBLY — 38TH SESSION

TECHNICAL COMMISSION

Agenda Item 29: Aviation Safety — Monitoring and Analysis
Agenda Item 34: Air Navigation — Monitoring and Analysis
Agenda Item 43: Aviation Data — Monitoring and Analysis

A STRATEGIC PLAN FOR THE EVOLUTION OF ELECTRONIC TOOLS FOR THE GLOBAL AVIATION COMMUNITY

(Presented by the Council of ICAO)

EXECUTIVE SUMMARY
The collection, processing and dissemination of aviation data have been one of the key roles of ICAO to support the safe and orderly growth of international civil aviation. To this end, ICAO has made continued efforts in making the processes involving aviation data more efficient and effective. In particular, the endeavours were amplified in the past three years through the development of a set of electronic tools. However, the demand for enhancement of existing tools and development of new tools is increasing due to the evolving needs of Member States and stakeholders. This paper reports on the progress made in the development of electronic tools and presents strategies and principles to be applied for the continued evolution of the Organization to address the actual needs of Member States and stakeholders as well as to support the planning and implementation of the global strategies, including the Global Aviation Safety Plan (GASP) and the Global Air Navigation Plan (GANP).
Action: The Assembly is invited to: a) note the information presented in this paper;   b) encourage Member States to use available electronic tools when providing aviation data to ICAO; and   c) urge Member States to provide continued support and actively participate in the development of electronic tools by providing feedback and sharing relevant knowledge and experience.

Strategic Objectives:	This working paper relates to all Strategic Objectives
Financial implications:	The activities referred to in this paper will be undertaken according to priority with the resources available in the approved budget 2014 to 2016 Regular Programme Budget and/or from extra budgetary contribution.
References:	Doc 10004, *Global Aviation Safety Plan* Doc 9750, *Global Air Navigation Plan* Circ 333, *The Global Air Transport Outlook*

1.   **INTRODUCTION: ICAO'S HISTORY IN AVIATION
        DATA MANAGEMENT**

1.1   ICAO had traditionally been tasked with the collection, processing and dissemination of aviation data to support the safe and orderly growth of international civil aviation. Accordingly, ICAO became responsible for generating a variety of data and information at both the global and regional levels.

1.2   The information produced by ICAO ranges from air transport statistics and traffic forecasts (such as Circ 333, *The Global Air Transport Outlook*) and safety reports to regional air navigation plans. To that end, over 200 websites, multiple databases and various types of applications (referred to as electronic tools) were produced in the past two decades to support activities related to safety, air transport and air navigation.

1.3   These electronic tools were developed to meet specific, immediate and ICAO-centric needs (such as creating a website for a particular study group or for a specific event) as well as to support the management of an individual programme (such as creating an application and/or database for ICAO service documents or air transport statistics data).

1.4   However, with a growing demand for more comprehensive and integrated aviation data, the ICAO-centric and fragmented approach became cumbersome and costly for both Member States and ICAO. Over the years, ICAO has managed similar data on different sites, which often required manual transfer or aggregation of data for various purposes. This meant that Member States had to visit multiple sites using different IDs and passwords to access necessary information.

1.5   In an effort to resolve these undesired effects and provide better services to the international aviation community, ICAO implemented high-level strategies for the development of electronic tools; these were recognized at the 37th Session of the Assembly. This paper reports on the progress made in the last three years and presents strategies and principles for continuing evolution of electronic tools.

2.   **REPORTING PROGRESS: WHAT ICAO HAS
        ACHIEVED IN THE LAST THREE YEARS**

2.1   ICAO has taken significant steps in the development of electronic tools, in particular towards becoming more user centric. Much of the aviation data provided by Member States has been transformed into an electronic format and consolidated into fewer databases to make the data flexible enough to provide seamless and inter-connected services. These developments included:

   a) migrating various applications and websites, including ICAO-NET, onto the ICAO secure portal (https://portal.icao.int);

   b) creating a web-based system grouping together different safety-related datasets and allowing for effective integrated safety analysis — iSTARS (https://portal.icao.int/istars);

   c) implementing a unique air transport statistical site — ICAO *data+* (http://www2.icao.int/en/g-cad);

   d) grouping all tools related to aircraft and air operator information on a single platform — Online Aircraft Safety Information Services (OASIS) (https://portal.icao.int/oasis);

    e)   grouping all tools related to ICAO Standards and Recommended Practices (SARPs) and their implementation on a single platform — SARPs Management and Reporting Tool (SMART) (www.icao.int/usoap); and

    f)   launching a platform that would become the single entry point for all air navigation-related data (https://portal.icao.int/space/anp).

3. HEADING IN THE RIGHT DIRECTION: THE PRINCIPLES THAT DRIVE THE DEVELOPMENT OF ELECTRONIC TOOLS

3.1   The demand for the development of new tools is increasing due to the growing needs of Member States and stakeholders for various types of information. Without guiding principles for the development of electronic tools, there is a risk of ending up with as many disconnected tools as there were disconnected web sites and databases.

3.2   To avoid this risk, ICAO is following a set of guiding principles, listed below, as it continues the complex task of re-tooling the aviation regulatory community:

    a)   *Access* ― all Member States and stakeholders, which are so entitled, should have access to accurate data and information necessary to performing their responsibilities;

    b)   *Harmonization* ― all aviation data necessary for the sustainable development of air transport should be harmonized, with the full participation of Member States and stakeholders, to enable an easy transformation of the data to serve diverse purposes.

    c)   *User-centric* ― electronic tools should be developed not just for ICAO purposes, but for those of the greater aviation community to assist them in performing their responsibilities and to avoid duplication of efforts.

    d)   *Categorization* ― electronic tools may be categorized to make it easier to understand and use the tools. The types of categories to be used are planning, monitoring, communication and decision-making support tools.

    e)   *Quality Management* ― all aviation data should come with a statement of its quality to ensure its interpretation in the correct context.

    f)   *Communication* ― all Member States and stakeholders should be kept well informed of the availability of aviation data, information and electronic tools.

4. WHAT'S NEXT: CONTINUING THE LOGICAL EVOLUTION

4.1   ICAO will continue to implement the strategy of electronic tools over the coming years and the efforts will be focused on the following:

    a)   creating and sharing open exchange formats and technical specifications for Member States and stakeholders to publish and exchange data, analysis and tools;

    b) publishing aviation data, analysis and tools in open formats with digital guarantees for their security (to ensure that data is not shared with those for whom it is not intended);

    c) creating a catalogue of aviation data, analysis and tools to enable Member States and stakeholders to install and use them according to their specific needs;

    d) monitoring the use of electronic tools, collecting feedback and enhancing the tools according to the actual needs of Member States and stakeholders;

    e) developing and launching a set of electronic tools as required to support the near-term objectives contained in the global strategies, including the Global Aviation Safety Plan (GASP) and the Global Air Navigation Plan (GANP); and

    f) continuing to migrate to digital formats all paper-based processes used in support of ICAO Strategic Objectives.

5. THE RIGHT BUSINESS MODEL: RETURN ON INVESTMENT FOR VALUE ADDED SERVICES

5.1 In order to ensure the sustainability of electronic tools, development of such tools must be supported by a healthy funding mechanism. To that end, ICAO will consider the following when further developing electronic tools:

    a) ensuring that Member States' access to safety data, analysis or tools is provided at no cost and that any other activities, including provision of such access to non-State users, are conducted on a cost-recovery basis;

    b) investing in the continuous evolution of electronic tools and in ensuring the sustainability of the supporting infrastructure; and

    c) re-investing any savings generated by replacing paper-based processes into the maintenance and further development of electronic tools for the benefit of aviation.

6. CONCLUSION

6.1 Aviation data has been an important element in supporting the safe and orderly growth of international civil aviation. The need of Member States and stakeholders for aviation data has been growing and changing. In response to the evolving needs for aviation data, ICAO will continue to implement the strategy of evolving electronic tools in a user-centric, harmonized and sustainable manner. In this respect, Member States are urged to support ICAO's efforts in the evolution of electronic tools by providing aviation data, as required, through the electronic tools and by actively participating in the development of electronic tools.

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