

EUROPEAN CONFERENCE ON QUALITY IN OFFICIAL STATISTICS

(Q 2016)

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) QUALITY SYSTEM FOR THE AVIATION DATA COLLECTED UNDER THE STATISTICS PROGRAMME.

This is an abstract for the special session on quality of international statistics: statistics tailored to the international sustainable development goals agenda. The challenges for international statistics at global, national and local levels.

Thematic area addressed: IOs role in the preparation of the data production and monitoring of the data.

Name(s) of the author (s): Mr. Sainarayan, Ananthanarayan¹ and Ms. Jessica Claudia Díaz de León Gómez.¹

Affiliation: ¹ International Civil Aviation Organization (ICAO), Montreal, Quebec, Canada.

E-Mail: asainarayan@icao.int; jgomez@icao.int

Text:

1. Background.

1.1 The International Civil Aviation Organization (ICAO) has its origin in the Convention on International Civil Aviation signed at Chicago on 7 December 1944. ICAO officially came into existence in 1947, and in that year it became a specialized agency of the United Nations system.

Within the United Nations (UN) system each UN office and specialized agency is responsible for a specific field of activity. Article XIII of the agreement signed between ICAO and the UN in 1948 recognizes ICAO

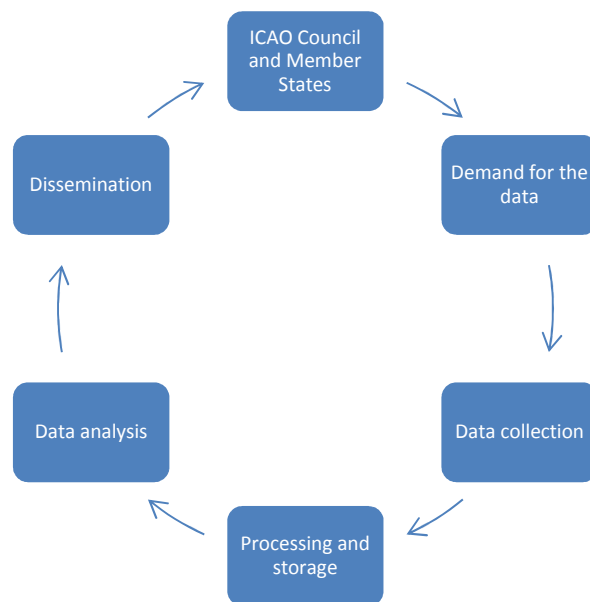
“... as the central agency responsible for the collection, analysis, publication, standardisation, improvement and dissemination of statistics within its special sphere...”

The need for complete and reliable aviation statistics was foreseen by the framers of the Convention on International Civil Aviation and the obligation to file statistical information with ICAO is set out in Articles 67, 54 and 55; the last one outlines the functions of the Council of ICAO and also makes several references to the collection and dissemination of information.

2. ICAO's role in the preparation of the data production and monitoring of the data

2.1 ICAO is the lead agency responsible for collecting and sharing data on related air transport indicators from amongst its 191 Member States. ICAO utilizes the Integrated Statistics Database (ISDB) to collect, process, store and disseminate the statistics reported from its Member States through the different Air Transport Reporting Forms (ATR's). Since 2014, the ICAO Statistics Programme has been modernized as part of the Enterprise Data Management (EDM) initiative, which aims to harmonize different sources of data at the organizational level, using standard reference tables and taxonomies by creating a holistic repository of cross functional data.

The data production process can be depicted as follows:



2.2 Demand for the data

ICAO identifies data demand based on the requirements of the ICAO Council and Member States. The main elements that are looked at in order to determine the demand include: the scope of the studies to be developed, methodologies of the data application in these studies, ATR's to be used to obtain the data from Member States, the availability of IT systems and human resources for the collection and, processing and dissemination of data.

2.3 Data collection

The data collection includes receiving and storage of the files obtained from Member States.

2.4 Processing and storage of data

Verification and validation of data received are the main tasks in the processing of data. When errors in the received data are found, they can be eliminated through corrections or if the quality of data received is poor, ICAO staff may request a revised form from a Member State concerned.

When the processes in the data is completed the data is stored on dedicated ICAO servers.

2.5 Data analysis

The analysis of the data depends on the user needs. Usually it involved the documenting of the data quality, as well as data interpretation. When ICAO faces the need to develop statistical estimates of items that have not been reported, it uses methodologies developed to get estimated values as close to the reality as possible.

2.6 Dissemination

Dissemination is done through the depository of the revised and analysed data on the platforms accessible to internal and external customers. In the case of ICAO's internal costumers the platform is STA home and for external customers ICAOdata+ is available under subscription to several modules.

In order to improve the data quality and to increase the efficiency of ICAO statistics programme, the analyses and enhancements of all the processes and their results are performed on a continues basis.

3. Quality system for the aviation data collected under the statistics programme.

3.1 The civil aviation statistical data collected by ICAO are used by Member States, other international organizations and third party stakeholders for a number of economic and regulatory impact studies, to review market and industry trends and for financial and economic studies on the impact of the civil aviation industry on the national and global economies and, more recently, to assess the impact of civil aviation on climate change, as well as for other studies and analyses as required.

Therefore, ICAO is fully committed to generate statistics of the highest quality possible. The quality of the statistical data is assessed by means of a whole set of quality criteria, internationally accepted, followed and used as a framework for each of the national statistics offices and agencies involved in the production of statistics.

ICAO applies the following six components of the quality system of the civil aviation data quality system.

a) Relevance

It is well known that statistics will be relevant if and only if, the information obtained meets the requirements and expectations of the users. In this first quality principle, the relevance of the ICAO data depends on the extent to which it meets requirements of all users, not only ICAO's internal users such as ICAO Council or Member States but also external users such as clients of ICAO's different platforms.

b) Accuracy

ICAO Statistics programme depends on the inputs provided by each of the Member States through several ATRs which are considered as an official source. The accuracy of the data submitted is determined through the verification and validation processes as described in 2.4 above.

c) Timeliness

The ICAO data set available on the dedicated platforms is updated on a daily basis as forms are received and processed by the ICAO staff. ICAO encourages Member States to submit their ATR's are filed in a timely manner. For its part, the Secretariat does everything possible to ensure that the data received is processed and made available to internal and external users through the platforms without delay.

d) Accessibility

Data under ICAO statistics programme is available to various users through the platforms known as ICAOdata+ <https://www4.icao.int/NewDataPlus/Tools> which focuses on external users and STA home <https://portal.icao.int/pages/default.aspx> accessible to internal users.

e) Comparability

This principle is based on the fact that the statistics must be consistent over time and comparable between inputs from various civil aviation stakeholders from the regions and countries. This means that the data should allow to perform reliable comparisons in terms of time and space. ICAO's ATR's were developed to fully meet this principle.

f) Coherence

The basic principle of the ICAO statistics programme is to show the same results for the same questions, as the ICAO's ATR's were developed to provide coherence in the statistics.

3.2 There may be a conflicting situation between the components of the quality system; an example of this could be the relation between accuracy and timeliness. In order to minimize this phenomena ICAO is working on the modernization of the technological tools that will allow the staff to reduce the timeliness of the release of the data and the human factor error.

3.3 Finally, statistical data is not the only output of ICAO in the field of civil aviation data. Other important are the determination of the statistical standards or norms such as concepts, classifications, manuals and methodologies, technical assistance including the provision of training in the statistics field. Through statistical workshops which are conducted by ICAO in various regions of the world, it constitutes a continuous systematic effort to improve the quality of aviation statistics submitted to ICAO.

These informal workshops, usually held at the rate of one a year, provide those responsible in administrations, airlines and airports for the preparation of statistics for ICAO, an opportunity to work out solutions to practical problems through pooling of experience and ideas. For ICAO all these actions contribute to improving the quality of data.

4. ICAO's strategic objectives and UN Sustainable Development Goals

4.1 In its ongoing mission to support and enable a global air transport network that meets or surpasses the social and economic development and broader connectivity needs of global businesses and passengers, and acknowledging the clear need to anticipate and manage the projected doubling of global air transport capacity by 2030 without unnecessary adverse impacts on system safety, efficiency, convenience or environmental performance, ICAO has established five comprehensive Strategic Objectives for the 2014-2016 triennium which are: Safety; Air Navigation Capacity and Efficiency; Security and Facilitation; Economic Development of Air Transport and Environmental Protection

ICAO's strategic objective number 4 **Economic Development of Air Transport**, defined as: foster the development of a sound and economically-viable civil aviation system, reflects the need for ICAO's leadership in harmonizing the air transport framework focused on economic policies and supporting activities. In consistency with this strategic objective ICAO has aligned its efforts to the UN Sustainable Development Goal (SDG) 9, which specifies the need for resilient infrastructure to be developed in order to promote inclusive and sustainable industrialization and foster innovation.

4.2 Progress towards SDG 9 is to be evaluated based on a series of targets, the first of which will be SDG Target 9.1: "Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all."

ICAO will support the agreed global indicator of SDG Target 9.1: passenger and freight volumes by mode of transport. This data and methodological framework will help to facilitate how States

monitor their national progress toward SDG Target 9.1, in addition to assisting the UN Statistics Division with monitoring progress at the global level.

Therefore ICAO Statistics programme should produce statistics with adequate quality related SDG Target 9.1 and encourage ICAO Member States to apply the best practises in the civil aviation statistics processes following the international statistics quality framework.

5. Cooperation with other international organizations on civil aviation data.

5.1 ICAO is aware of the fact that various ICAO's ATR's collected on a mandatory basis from Member States, air carriers, airports and air navigation service providers (ANSPs) have a direct link to the reporting to aviation industry associations, such as the International Air Transport Association (IATA), Airports Council International (ACI), and to a lesser extent Civil Air Navigation Services Organization (CANSO) and thus the overlap in reporting requirements may be a burden to Member States and these associations.

5.2 In order to eliminate or reduce this burden ICAO has been cooperating with international organizations active in the area of collection and distribution of aviation statistics with the clear objective of eliminate the burden of statistics filing. The first step of this cooperation has been undertaken through the consultation with other international organizations referred to above with a view to:

- a) ensuring that the definitions used are consistent with ICAO definitions;
- b) harmonizing forms with current ICAO air transport reporting forms;
- c) coordinating the collection of forms from reporting entities;
- d) sharing the collected data for internal analysis; and
- e) disseminating the shared data through a dedicated portal with digital guarantees for security (to ensure that data is not shared with those for whom it is not intended), taking into account the concerns of all parties to secure respective revenues.

5.3 Finally the cooperation with UNWTO on the exchange of data was initiated in 2013, with ACI it officially started in January 2016. CANSO and IATA have been identified as potential international organizations for furthering this cooperation project.