
# ICAO APAC/EUR/MID Workshop

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# Aeronautical Data Quality Matters

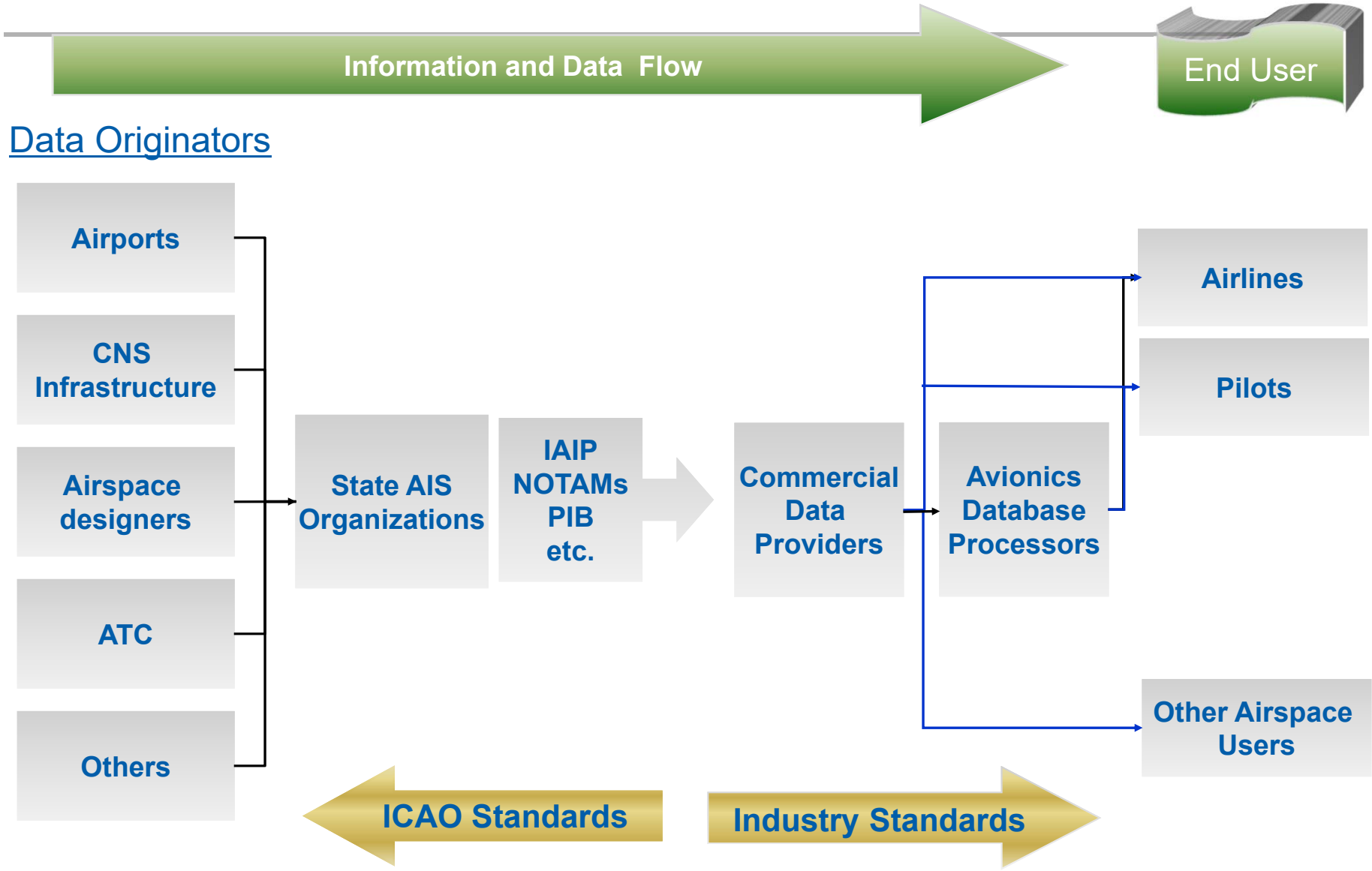
- Aircraft are becoming database driven and their operation requires access to aeronautical information of a significantly higher quality than is currently available.

- The role and importance of aeronautical information changed significantly with the implementation of RNAV, RNP and more precise airborne computer systems.

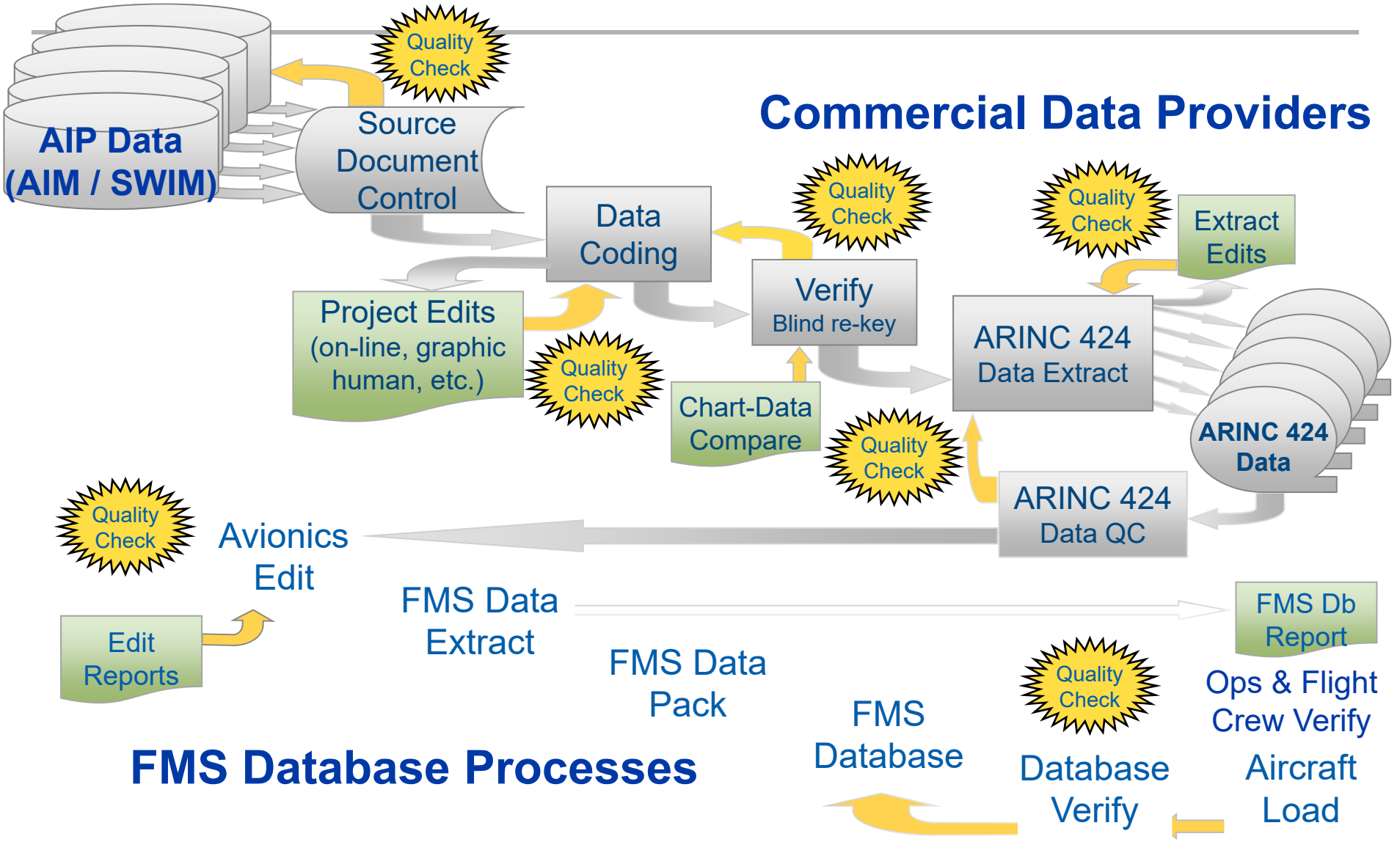
- Efforts of States should be focused on improving their AIM systems to assure that aeronautical data will be available in the right quality, the right format and at the right time.

- Aeronautical data of insufficient quality may compromise the safety of air traffic operations, which can lead to an airspace user hazard resulting in an incident or accident.

# Aeronautical Data Supply Chain



# Aeronautical Data Process



# Data Quality – What Has Changed?

- **Annex 15, Aeronautical Information, 16th Edition**
  - November 2018 Applicability
  - New Definition of Data Quality

- **Document 10066, PANS AIM**
  - November 2018 Applicability

# Annex 15 – Data Quality Definition

- ***Data quality.*** A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution, integrity

  **(or equivalent assurance level),**

  **traceability,**

  **timeliness,**

  **completeness and**

  **format.**

# Annex 15 – Data Quality

- 2.1.4 Each Contracting State **shall** ensure that the aeronautical data and aeronautical information provided are complete, timely and of required quality in accordance with 3.2

- **3.2 Data quality specifications**
  - 3.2.1 Data Accuracy
  - 3.2.2 Data Resolution
  - 3.2.3 Data Integrity
  - 3.2.4 Data **Traceability**
  - 3.2.5 Data **Timeliness**
  - 3.2.6 Data **Completeness**
  - 3.2.7 Data **Format**

# Annex 15 – Data Accuracy

- **3.2.1 Data Accuracy**

- The order of accuracy for aeronautical data **shall** be in accordance with its intended use.

- *Note.— Specifications concerning the order of accuracy (including confidence level) for aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.*

# Annex 15 – Data Resolution

- **3.2.2 Data Resolution**

- The order of resolution of aeronautical data **shall** be commensurate with the actual data accuracy.

- *Note 1.— Specifications concerning the resolution of aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.*

- *Note 2.— The resolution of the data contained in the database may be the same or finer than the publication resolution.*

# Annex 15 – Data Integrity

- **3.2.3 Data Integrity**

- 3.2.3.1 The integrity of aeronautical data **shall** be maintained throughout the data process from origination to distribution to the next intended user.

- *Note.— Specifications concerning the integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1*

# Annex 15 – Data Traceability

- ***Data traceability***: The degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.

- **3.2.4 Data Traceability**
- 3.2.4.1 Traceability of aeronautical data **shall** be ensured and retained as long as the data is in use.

- **5.3 Digital Data Sets**
- 5.3.1.2 Each data set **shall** be provided to the next intended user together with a minimum **set of metadata** that ensures data traceability from the end-user to the originator.

# Annex 15 – Data Timeliness

- ***Data timeliness.*** The degree of confidence that the data is applicable to the period of its intended use.

- **3.2.5 Data Timeliness**

- 3.2.5.1 Timeliness **shall** be ensured by including limits on the effective period of the data elements.

  *Note 1.— These limits may be associated with individual data elements or data sets.*

# Annex 15 – Data Completeness

- ***Data completeness***. The degree of confidence that all of the data needed to support the intended use is provided.

- **3.2.6 Data Completeness**

- 3.2.6.1 Completeness of the aeronautical data **shall** be ensured in order to support the intended use.

# Annex 15 – Data Format

- ***Data format***. A structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.

- **3.2 Data Format**

- 3.2.7.1 The format of delivered data **shall** be adequate to ensure that the data is interpreted in a manner that is consistent with its intended use.

# Annex 15 – Use of Automation

- Annex 15, **Edition 15**

- 3.6.1 Automation **shall** be **introduced with the objective of improving** the timeliness, quality, efficiency and cost effectiveness of aeronautical information services.

- Annex 15, **Edition 16**

- 3.5.1 Automation **shall** be **applied in order to ensure** the timeliness, quality, efficiency and cost-effectiveness of aeronautical information services.

# Annex 15 – Data Set Updates

- **6.3.3 Data set updates**

- 6.3.3.2 Permanent changes and temporary changes of long duration (three months or longer) made available as digital data **shall** be issued in the form of a complete data set or a sub-set that includes only the differences from the previously issued complete data set.

- 6.3.3.3 **Recommendation.** – When made available as a completely re-issued data set, the differences from the previously issued complete data set **should** be indicated.

# PANS AIM – Metadata

- **4.2 Metadata Requirements**

- 4.2.1 The metadata to be collected **shall** include, as a minimum:

  a) the name of the organizations or entities performing any action of originating, transmitting or manipulating the data;

  b) the action performed; and

  c) the date and time the action was performed.

# PANS AIM – Paper vs Data Set

- **5.2.1 Aeronautical Information Publication (AIP)**

- 5.2.1.1.3 When the AIP Data Set (as specified in 5.3.3.1) is provided, the following sections of the AIP **may** be left blank and a reference to the data set availability **shall** be provided:

- 5.2.1.1.4 When the Obstacle Data Set (as specified in 5.3.3.2.2) is provided, the following sections of the AIP **may** be left blank and a reference to the data set availability **shall** be provided:

# PANS AIM – Digital Data Exchange

- **5.3 Digital Data**

- 5.3.1.5 The aeronautical data exchange model used **<u>should</u>**:

- *Note 1.— The intent of using a commonly used data encoding format is to ensure interoperability of aeronautical data exchange between agencies and organizations involved in the data processing chain.*

# Quality Does Matter

## Questions?