INTERNATIONAL CIVIL AVIATION ORGANIZATION

The Twelfth Meeting of the AIM Sub-Group (AIM SG/12) (Virtual, 22-23 April 2026)

ICAO MID

AIMing for Excellence Takeaways

To ensure aeronautical information that supports current and future ANS and flight operations the effective and consistent implementation of ICAO SARPS and the removal of deficiencies pertaining to aeronautical information is a fundamental requirement.

A Key success factor for producing aeronautical information that is, accurate, high quality, timely and fit for purpose, is clear communication, collaboration, and coordination between the multiple players in the aeronautical information data chain.

The establishment of formal arrangements between all players in the data chain is fundamental to achieving high quality, accurate and timely aeronautical information.

AIMing for Excellence Takeaways

The establishment of national regulations that encompasses the entire data chain is a corner stone to supporting the establishment of Excellent AIM

Strong consistent and transparent oversite of aeronautical information, from origination through processing and production to publication is a pillar to aeronautical information excellence.

Ensuring excellence in a product centric environment is a solid foundation from which to transition into a data centric environment

AIMing for Excellence Takeaways

The State aeronautical information service provider is the conduit between the down stream and upstream data chain participants and should be a priority investment area (training, technology) to ensure the effective transition from AIS (product centric environment) to AIM (data centric environment) to support current operational requirements and the implementation of future operational concepts in line with RANP and GANP.

Excellence is achieved when Quality in = Quality Out throughout the data chain

IF IT IS TO BE IT IS UP TO ….

ICAO SARPS and panel work

ICAO (UN agency, 193 States): sets global aviation policies, SARPs/PANS; enabling safe, efficient, digital-by-design operations.

SARPs vs. PANS: 12k+ specs across 19 Annexes, 7 PANS; Standards = necessary (Article 38 differences), Recommended Practices = desirable.

Key Annexes/PANS: Annex 15 (AIS), Annexes 1–19; PANS-ATM (Doc 4444), PANS-OPS (Doc 8168), PANS-AIM (Doc 10066), PANS-IM (Doc 10199).

Standards process: structured amendment workflow via ANC; typical cycle ~2 years.

Panels (selected): Information Management, ATM Ops/Requirements, Instrument Flight Procedures, RPAS, Surveillance, Safety Management.

IMP focus: Global Interoperability Framework, SWIM enablement (GANP roadmap), QoS/security, NOTAM review, digital AIM, architectures; coordinates with AIRM/AIXM, EUROCAE/EUROCONTROL.

Annex 15 deliverables: AIS responsibilities; standardized products (AIP, Amendments, Supplements, AIC, NOTAM, charts); digital datasets (AIP, terrain, obstacle, aerodrome mapping, instrument procedures).

datahouse/ATRS actions: align data supply chain to Annex 15/PANS-AIM/PANS-IM; support SWIM/interoperability; ensure quality, security, and timely digital data services.

SWIM AIXM DORIS

AIRAC and downstream

Annex 15: ≥28 days to recipients; ≥56 for major changes

Datahouse Nav DB: strict 28-day AIRAC; no off-cycle updates

PBN/RNP: “truth is the database” — accuracy, resolution, integrity

AIM and AIXM

Shift from product-centric AIS to data-centric AIM (PANS-AIM)

AIXM (UML model) encodes AIP/NOTAM; evolving to 5.2 (GLS, PBN, minima)

Data quality/QMS: DO-200, ISO 9000, verification vs validation

SWIM and DORIS

SWIM (Doc 10039, PANS-IM): interoperable info services via APIs

DORIS: DORIS is an ICAO-conceived SWIM information service that replaces legacy NOTAM and AIP Supplements with structured, machine-readable digital data, improving safety, usability, and efficiency across the aeronautical information chain.

Benefits: better filtering/visualization, faster ingestion (EFB/FMS), safer transition with coexistence.

ARINC 424

Why ARINC 424

Standard since 1975 for preparing/transmitting data for FMS navigation databases

Supports all terminal procedures via the “Path & Terminator” concept (23 leg types)

Continuously updated by ARINC NDB WG; latest issue ARINC 424-23

Data structure and formats

Fixed 132-character records; organized by sections/subsections (Airport, Enroute, Heliport, Special Use Airspace, Tables)

Formats: legacy ASCII; XML introduced in version 22 (no changes to leg terminators)

Quality, validation, and limitations

LOA Type 1 (data provider) and Type 2 (FMS) with DO-200/ED-76 and OEM DQR;

AERONAUTICAL DATA CHALLENGES AIRLINE PERSPECTIVE

Why High-Quality Aeronautical Data Matters:

Safety, Efficiency & Regularity**:** ACFT operators require accurate, timely, and reliable data for safe, efficient and predictable flight operations.

Operational Complexity**:** Global carriers operate extensive networks and managing data across this scale is challenging.

Systems Dependence**:** Core airline systems (e.g., NOTAM Manager, Flight Planning, Dispatch, Navigation Databases) depend on high-quality aeronautical data for routing, fuel planning, and operational decision-making.

Challenges Identified:

Ambiguity in NOTAM: Non- actionable or unclear NOTAM clutter systems, increase workload, and risk critical details being missed.

Example 1: A NOTAM stating “31.74% of approach lights U/S” is ambiguous; pilots need exact numbers and operational impact (e.g., CAT II/III not available).

Example 2: “RWY WIP” (Runway Work In Progress). The NOTAM lacked detail, causing pilot confusion and departure delays. A company NOTAM clarified the situation but added workload for staff. Clear, actionable NOTAM are vital.

Communication Gaps: Delayed responses, language barriers, and outdated contact information can contribute to flight disruptions (delays, diversions, cancellations) and operational risks.

Website & Data Access Issues: Poor interfaces, outdated data, and lack of offline options hinder timely updates and situational awareness.

AERONAUTICAL DATA CHALLENGES
AIRLINE PERSPECTIVE

Lessons Learned:

Standardization**:** Unified formats and terminology reduce confusion and errors.

Automation & Digital Integration: Streamlining data flow and updates improves reliability and reduces manual workload.

Proactive Communication: Clear, timely updates are essential for effective operational decision-making.

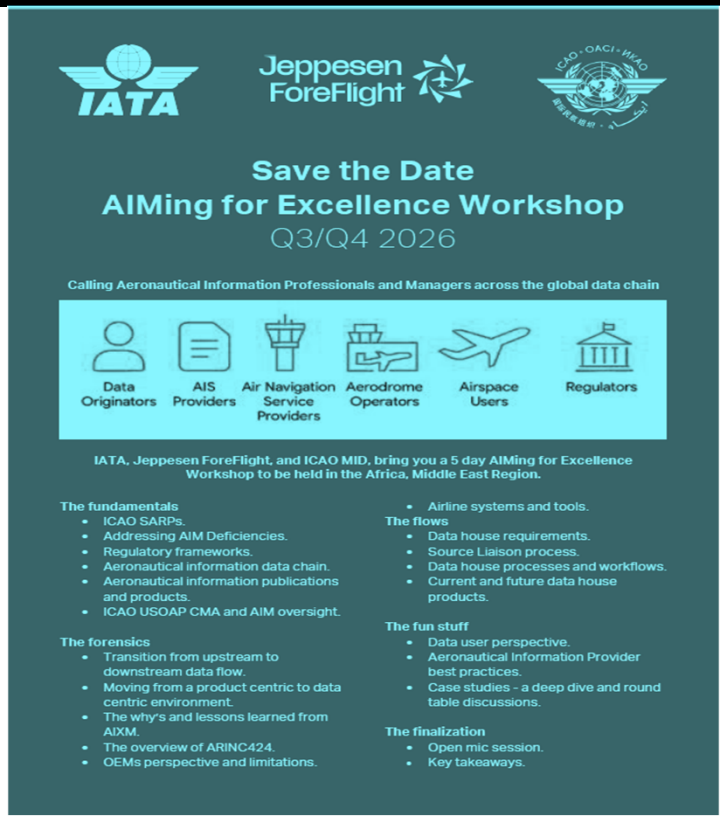
Global Collaboration: Close coordination with ICAO, ANSPs, and airlines ensures best practices and shared solutions.

Summary Statement:

Reliable high-quality aeronautical data is essential for safety, efficiency, and compliance. Addressing ambiguity, strengthening communication, and embracing digital solutions are crucial for enhancing future flight operations success.

ICAO/IATA/Boeing Joint AIM-ing for Excellence Workshop (Cairo, Egypt, Q3/4 2026)

This event will give participants hands-on experience in defining AIS/AIM requirements, applying ICAO standards and best practices, and establishing the governance and quality-assurance frameworks needed to improve the accuracy, timeliness and visibility of aeronautical information across the MID Region.



Action by the meeting

The meeting is invited to :

a) Take note of the outcomes of the ICAO/IATA/Boeing Joint AIM-ing for Excellence Workshop; and

b) Encourage States to participate in the AIM-ing for excellence workshop planned for Q3/4 2026.