



# IFAIMA



**International Federation of Aeronautical Information Management Associations**

**“The Global voice of AIM”**

**a non-partisan and non-profit-making Federation of AIM Associations**

**Since 2008**



ICAO has added IFAIMA to the list of Organizations that may be invited to suitable meetings of ICAO.

IFAIMA has been created August 2008 and in less than 7 years, we have been recognized by the European Commission, EASA, CANSO, ETF and now we are proud to tell you that during its last meeting on the 4th March 2015, the ICAO Council recognized IFAIMA and we will from this date on, be part of the list of organizations that may be invited to suitable meetings of ICAO. We congratulate and thank all the executives and regional directors, as well as our members for their work and support. A special thanks to our honorary members, Mr. Michael Hohm (ICAO) and Mr. Paul Bosman (Eurocontrol), for their close cooperation, which significantly contributed to this new achievement of our federation.

<http://ifaima.org/index.php/news/item/170-icao-recognition-of-ifaima>

# Objectives

- To promote safety, efficiency and regularity in International Air Navigation;
- To assist and advise in the development of AIM, in order to maintain the safe, orderly and expeditious flow of air traffic;
- To uphold a high standard of knowledge and professional efficiency amongst AIM personnel;
- To protect and safeguard the collective professional interests of AIM personnel;
- To make mutual benefit affiliations with other professional organizations;
- To strive for a worldwide Federation of AIM Associations.



# Increasing Global Membership

## Our numbers

1926 Staff

33 Member Associations

162 Individual Associates

79 Countries

30 Corporate Members (5 Gold, 1 Silver, 3 Bronze)





# GLOBAL AIM

## GLOBAL AIM CONFERENCE



27 - 29 JUNE 2011 - LISBON, PORTUGAL

## GLOBAL AIM CONFERENCE



28 - 30 MAY 2012 - BUENOS AIRES  
ARGENTINA

## JOINT IFAIMA - ICAO - EUROCONTROL

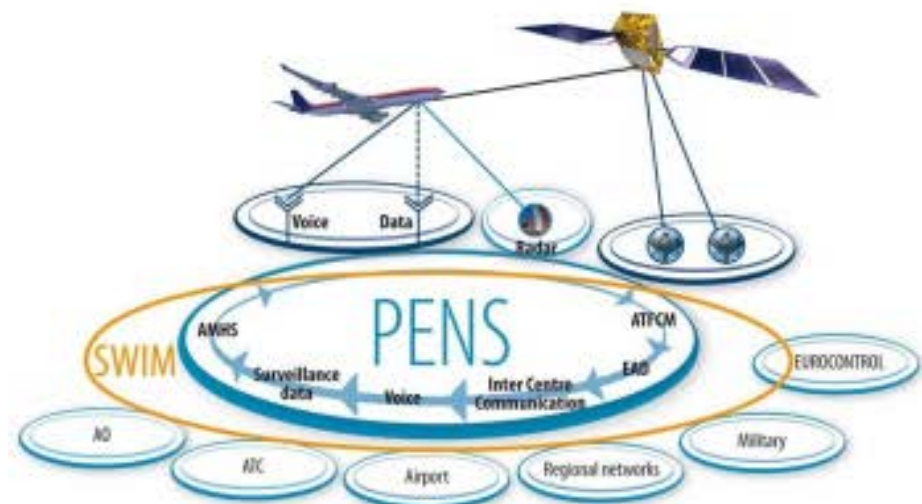


IFAIMA GLOBAL AIM 2013  
&  
ICAO EUR/MID AIM/SWIM Seminar  
14-17 MAY 2013 - ISTANBUL, TURKEY

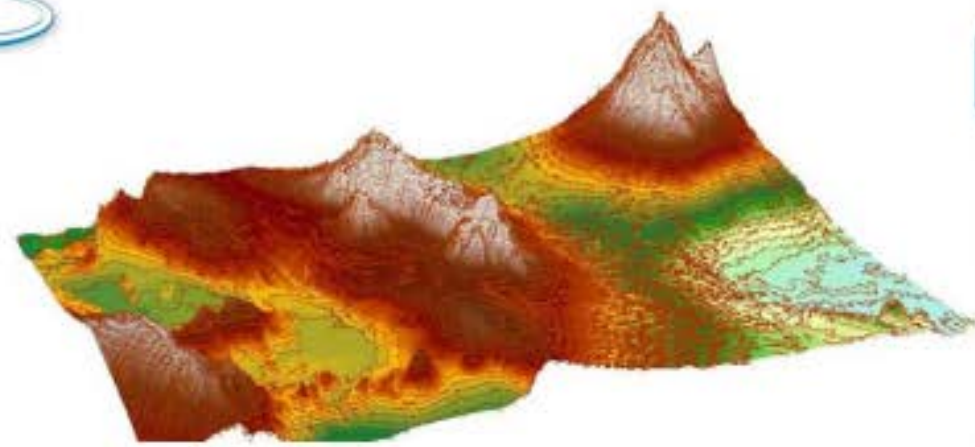


# MAIN CHALLENGES

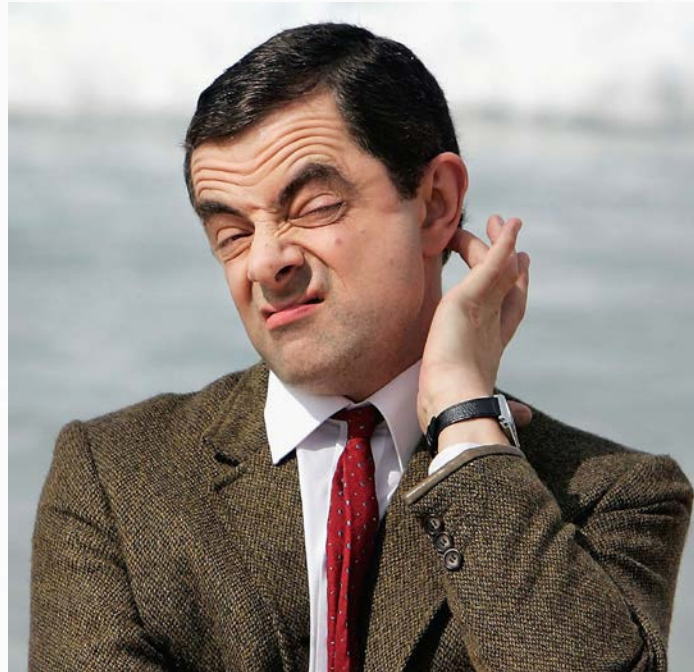




**Aixm** AIXM 5.1  
Aeronautical Information Exchange Model



# Staff designation



Who we are? – Profession designation

# Staff designation

**Doc 7192 - Part E3**

**ECORYS Study**

AIS/MAP Officers

AIS Officer

AIS/MAP Specialists

AIS/MAP Personnel

**Doc 8126**

**Doc 9868 – PANS-TRG**

AIS Personnel

AIS not mentioned

AIS Officers

AIS Technical Officers

**Doc 8697**

AIS Specialist

**Annex 15**

AIS Personnel

**PANS-AIM**

Officer

# Staff designation



**AIMS ( AIM Specialist )**

# English Proficiency

An Aeronautical Information Service provider should ensure that AIMS are proficient in speaking, reading, writing and understanding English, as required for the functions that they are expected to perform.

It is proposed to ICAO to add the following provision as Recommendation:

" AIMS personnel should be proficient in writing, reading and understanding English text."

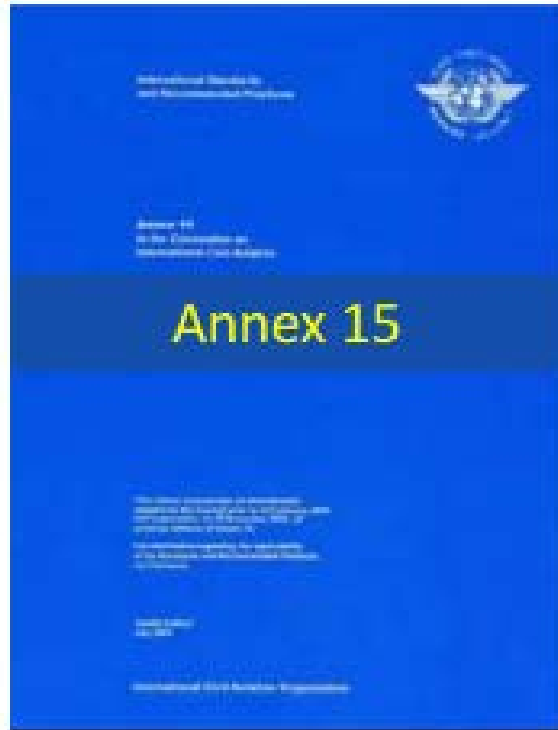
# Amendment 40 to Annex 15

- A three-years work delivered by the AIS-AIM Study group: **end of 2015**
- Revised by the Secretariat and submitted for preliminary review by the ANC in **November 2016**
- Translated in all 6 languages
- **State Letter 2017/22 sent on the 21 of April 2017**
- Responses by **21 July 2017**
- Amendment 40 applicable in 2018
- Changes to the SNOWTAM format: applicable in 2020

# The Conceptual foundation for AIM

- Amendment 40 to Annex 15 creates **the conceptual foundation for AIM**
- Modern concepts on how to manage the aeronautical information
- Split Data collection/provision
- Focus on quality :
  - Data quality requirements are expanded
  - New tools to reinforce quality at origination/collection (Aeronautical data catalogue)
  - Better identification of roles and responsibilities in the aeronautical data process
  - Enhance requirements for validation and verification procedures
  - Data error detection
- Digital Data services
- Many NOTAM distribution improvements

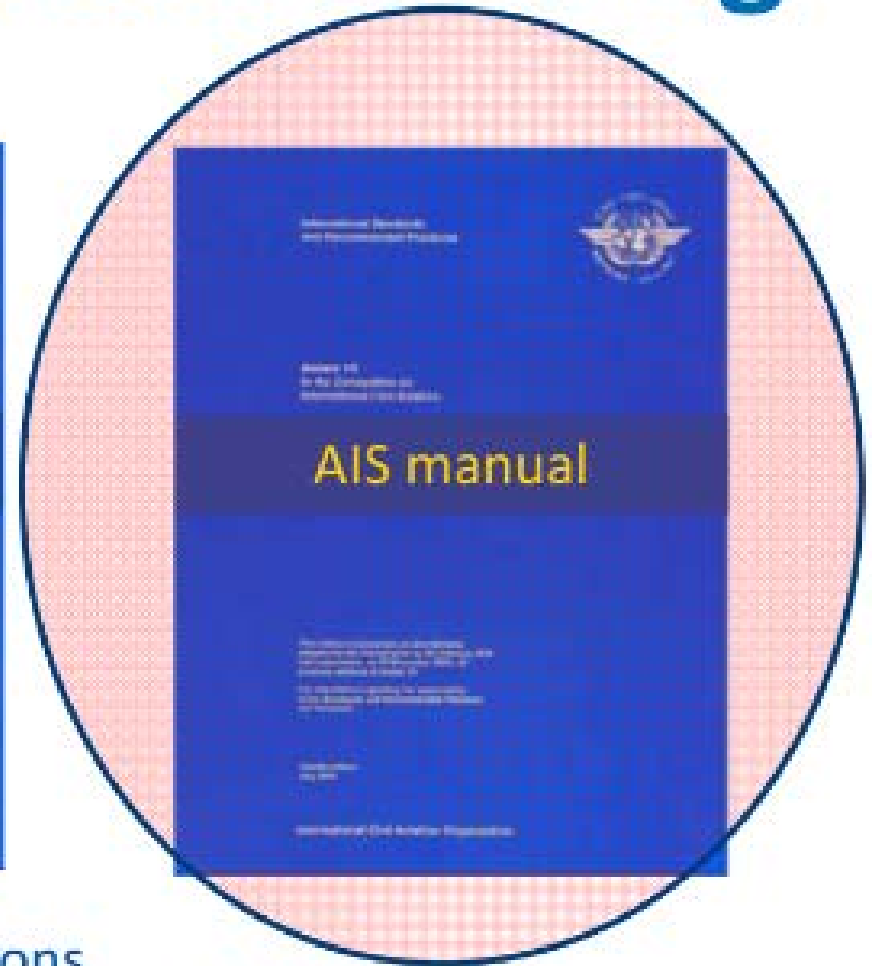
# AIM documentation restructuring



- ✓ Requirements and performance specifications
- ✓ State provisions (or « what »)

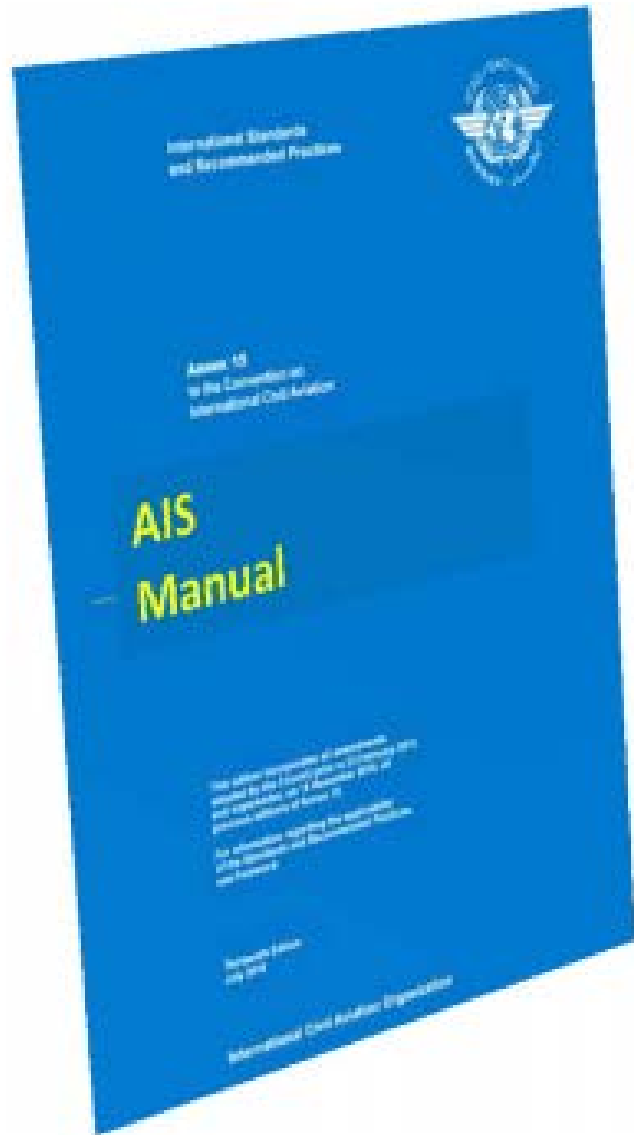


- ✓ Operational provisions
- ✓ AIM Practitioners' instructions (or « how to »)



- ✓ Explanatory Guidance text

# AIS Manual



- **First priority now!**
- AIS Manual (Doc 8126) is being amended in conjunction with the restructured Annex 15 and new PANS-AIM
- Delete redundant elements
- Bring it in line with the latest Annex 15 and PANS-AIM technical changes
- Expand guidance (AIM organizational development, Data Catalogue, Service Level Agreements, digital products and services, etc.)

# AIS Manual

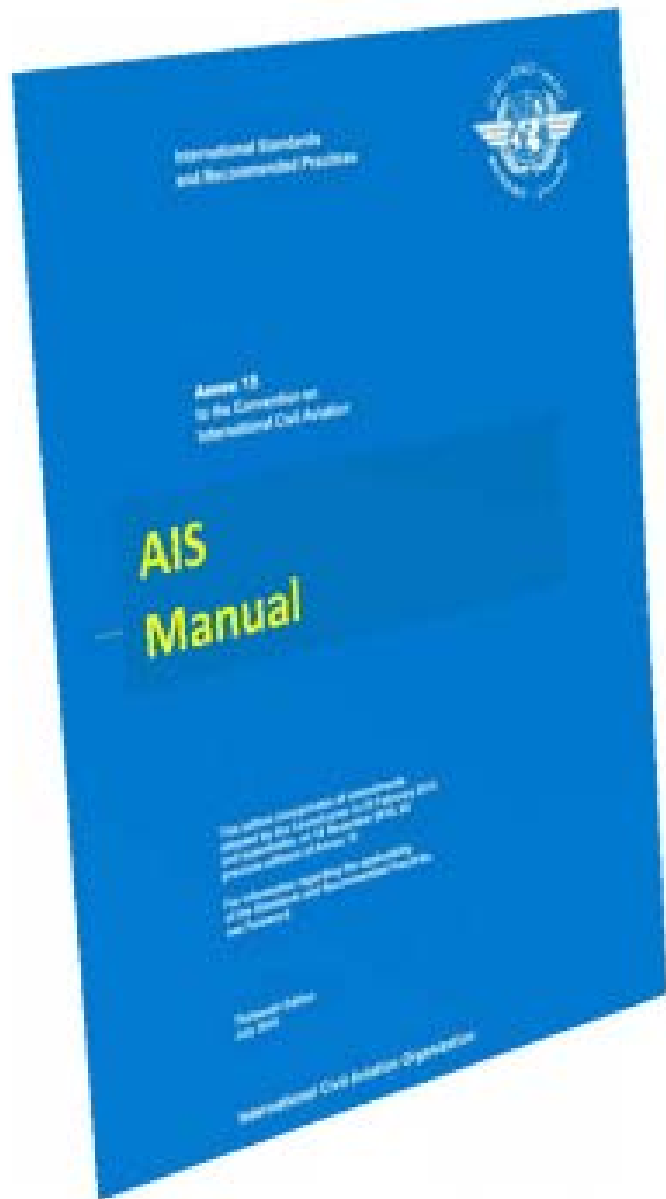
- **Volume I** – AIM Organizational Development
- **Volume II** – The Aeronautical Data Process
- **Volume III** – Aeronautical Information products in a standardized presentation
- **Volume IV** – Digital Products and Services



Advantages

**Easier maintenance**

# AIS manual– Volume 1



## **Purpose**

Guidance concerning the organizational aspects of an AIS/AIM organization

## **Primary Audience**

State Authorities and AIS management

# AIS manual– Volume 1

## The guiding principles to *AIS MANUAL – Volume 1*

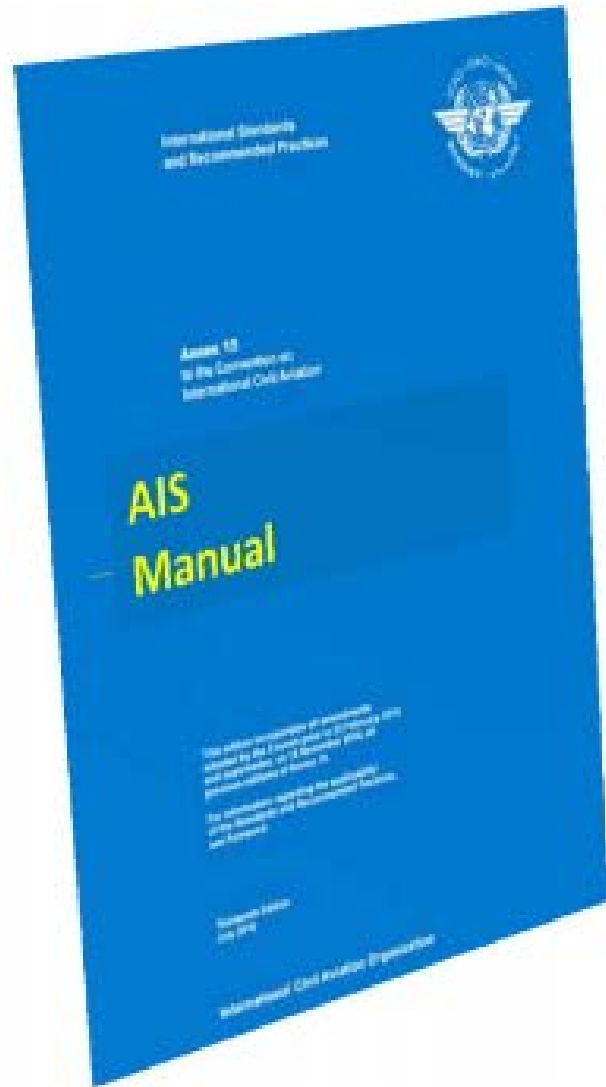
- AIS main functions and responsibilities
- Critical elements in the AIM environments
  - to provide users with information they can trust (**Quality Management System**)
  - More awareness of the information quality requirements of end-use applications (**feedback mechanisms** for the system to stay adaptive to changes)
  - Aeronautical information is digitally represented (change way of working)
  - Enhanced validation and verification procedures
  - Cost-recovery aspects within AIM
- Organizational aspects of an AIS organization
  - Steps to create an AIS organization
  - Change management considerations when transitioning to AIM

# Competency-based training and assessment (latest changes)

Proposed amendment to the **Procedures for Air Navigation Services — Training** (PANS-TRG, Doc 9868)

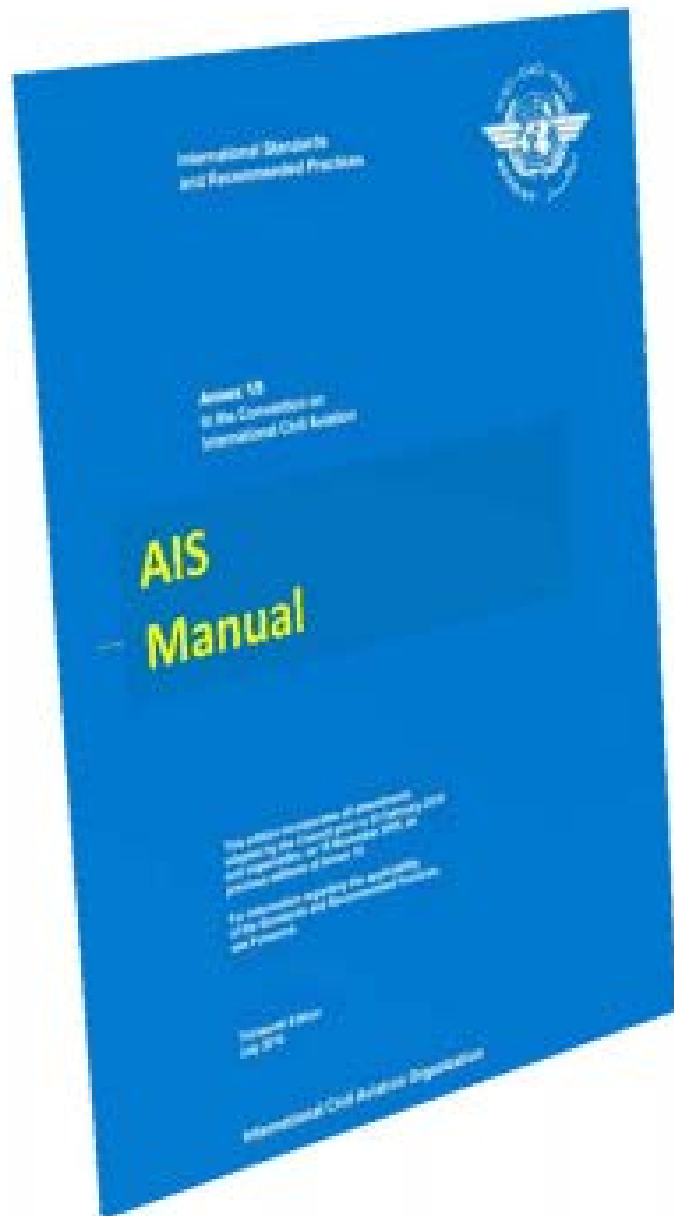


# AIS manual – Volume 1



- Introduction
  - General
  - Purpose of the manual
  - Primary audience
- AIS Responsibilities and Functions
  - Purpose of AIS
  - AIS Responsibilities and functions
  - Aeronautical Information Products and Services
  - Competencies
  - Aeronautical Information Regulation and Control (AIRAC)
  - Exchange of aeronautical data and aeronautical information
  - Copyright and cost recovery
- Aeronautical information management
  - AIM Principles
  - Critical aspects in an AIM environment
- Organization of an Aeronautical Information Service
  - Separation of regulatory functions and provision of service
  - Organization of an AIS
  - Steps to establish an AIS organization
  - Change management considerations when transitioning to AIM

# AIS manual– Volume 2



## **Purpose**

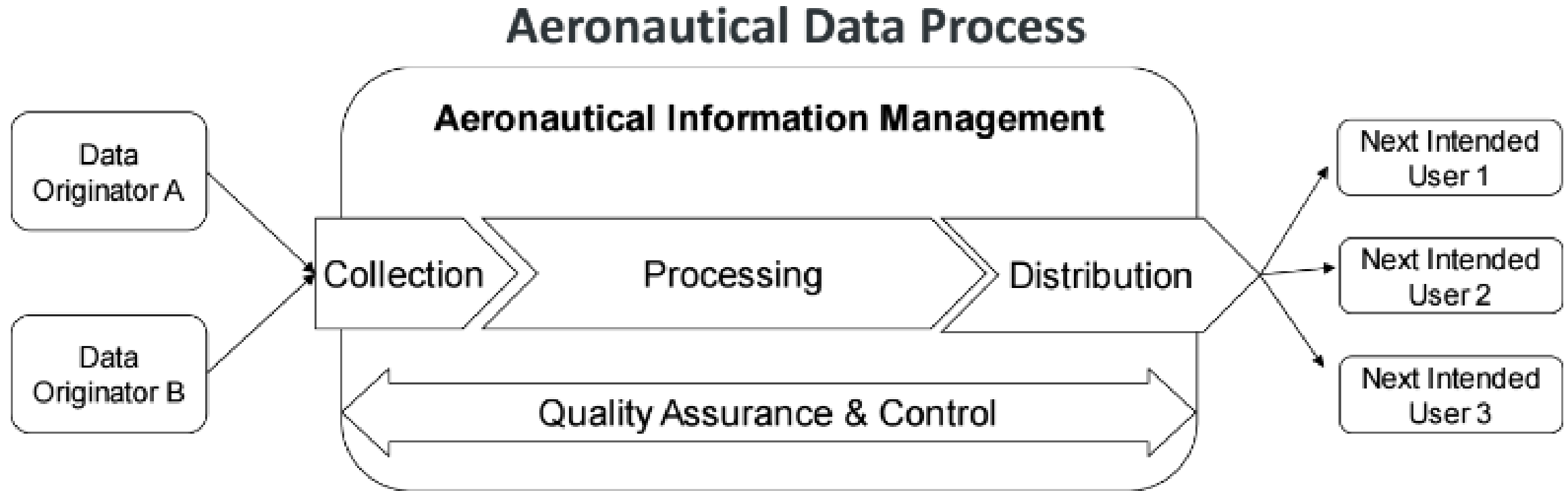
Guidance for processing aeronautical data and information

## **Primary Audience**

AIS operational personnel processing aeronautical data and information

# AIS manual– Volume 2

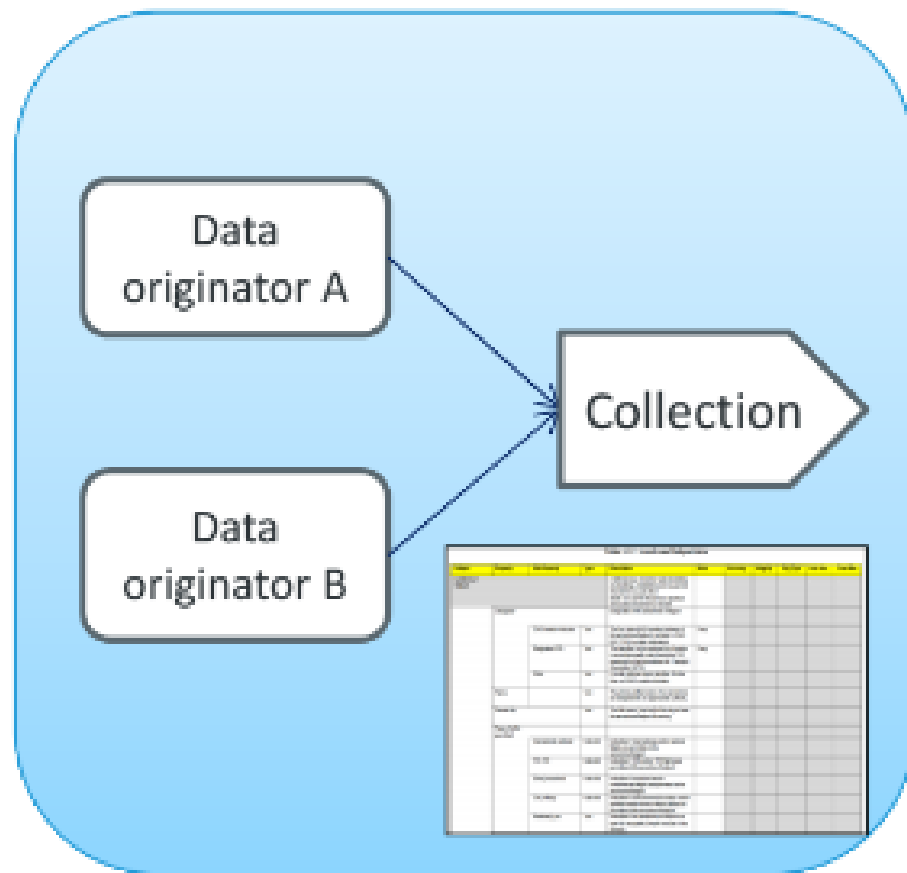
The guiding principles to *AIS MANUAL – Volume 2*



How automation is applied to the aeronautical data process

# AIS manual– Volume 2

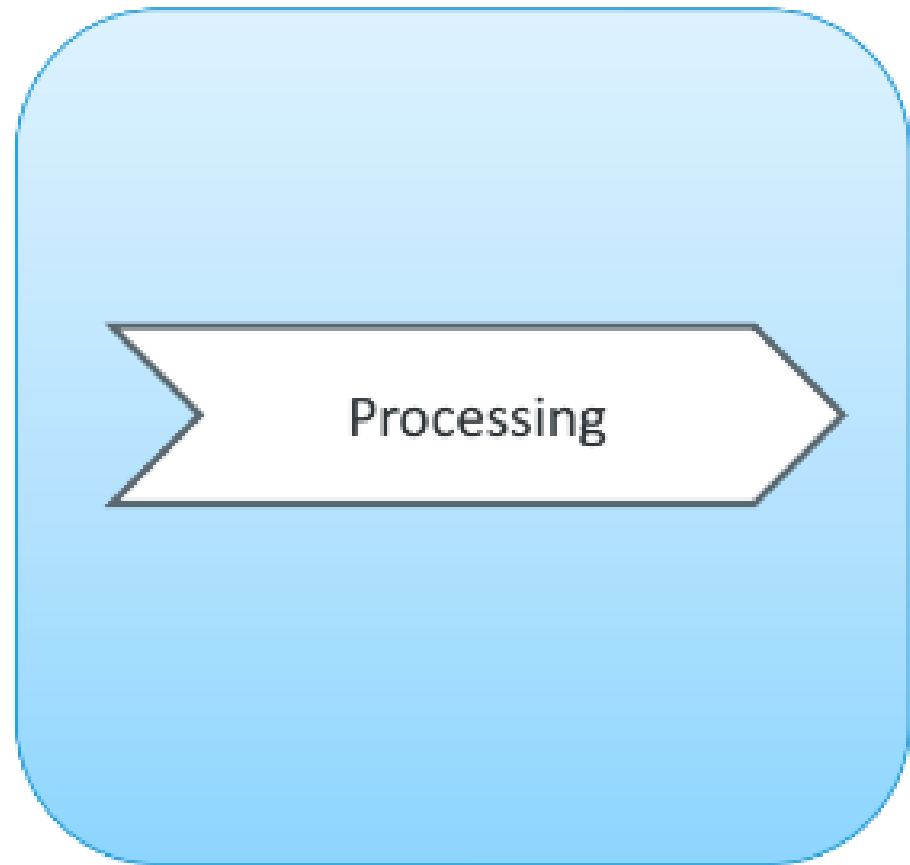
## COLLECTION



- High focus on the collection phase to ensure quality
- Clear roles, resources, metadata
- Different constellations for data origination
- The new tool: [the Aeronautical Data Catalogue](#)
  - What it is, What it isn't
  - How to use it to map every data element to an identified data originator
  - How to use it in the formal arrangements
  - How to customize it
  - How to provide valid codes for properties and sub-properties
  - Examples
- Content of a formal arrangement and template

# AIS manual– Volume 2

The guiding principles to *AIS MANUAL – Volume 2*



- Difference between validation and verification
- Validation and Verification as critical components of the Quality Management System
- Validation:
  - Validation by application
  - Logical consistency
  - Independent checks of duplicate information
- Verification examples of techniques
  - Digital data error detection
  - Feedback testing
  - Independent redundancy

# AIS manual– Volume 2

The guiding principles to *AIS MANUAL – Volume 2*



## Quality Assurance

- Data traceability
- Assurance of data integrity along the process
- Timeliness – AIRAC adherence

## Quality Control

- Data error detection and reporting
- Quality checks to ensure compliance with product specifications
- Consistency checks across the information products

# AIS manual – Volume 2



- Introduction
  - General
  - Purpose of the manual
  - Primary audience
- Aeronautical Data Scope and General Requirements
  - Data Scope
  - Data Quality Requirements
  - Metadata
  - Reference Systems
- Collection
  - Use of the Data Catalogue
  - Content of a formal arrangement
  - Different constellations of origination
- Processing
  - Validation
  - Verification
- Distribution
  - General aspects
- Quality Assurance & Control
  - Quality assurance activities
  - Quality Control activities
- Automation
  - Basic principles (Concept for an automated AIS system)
  - Different levels of automation
  - How to apply automation to the data process
- Service Level Agreement Template

# AIS manual– Volume 3



## **Purpose**

Guidance for providing aeronautical information in a standardized presentation

## **Primary Audience**

AIS operational personnel tasked to produce AIP and publish NOTAM

# AIS manual– Volume 3

## The guiding principles to *AIS MANUAL – Volume 3*

- Guidance for the assembling of Aeronautical Information products in a standardized presentation
- Most of the material is existing
- Alignment with the latest changes to Annex 15
- Elimination of redundancy elements with PANS-AIM
- Electronic AIP, explanation of benefits. Technical specifications: reference to Eurocontrol material
- SNOWTAM format : guidance with respect to the format applicable in 2018. Global reporting format will provide changes to the SNOWTAM as of 2020. This will be part of the next amendment to Volume 3

# AIS manual – Volume 3



- Introduction
  - General
  - Purpose of the manual
  - Primary audience
- Aeronautical Information Publication (AIP)
  - [...] Content and format. Notification of differences, etc.
  - AIP Amendments
  - AIP Supplements
  - Electronic AIP
- Aeronautical Information Circular (AIC)
- Aeronautical Charts
- Preparation and provision of aeronautical information products
- NOTAM/SNOWTAM/ASHTAM
- NOTAM Distribution
- Series of appendices containing AIP and eAIP specimen, NOTAM, SNOWTAM and ASHTAM examples, etc.

# AIS manual– Volume 4



## **Purpose**

Guidance for providing digital products and services

## **Primary Audience**

AIS operational personnel providing digital products and services

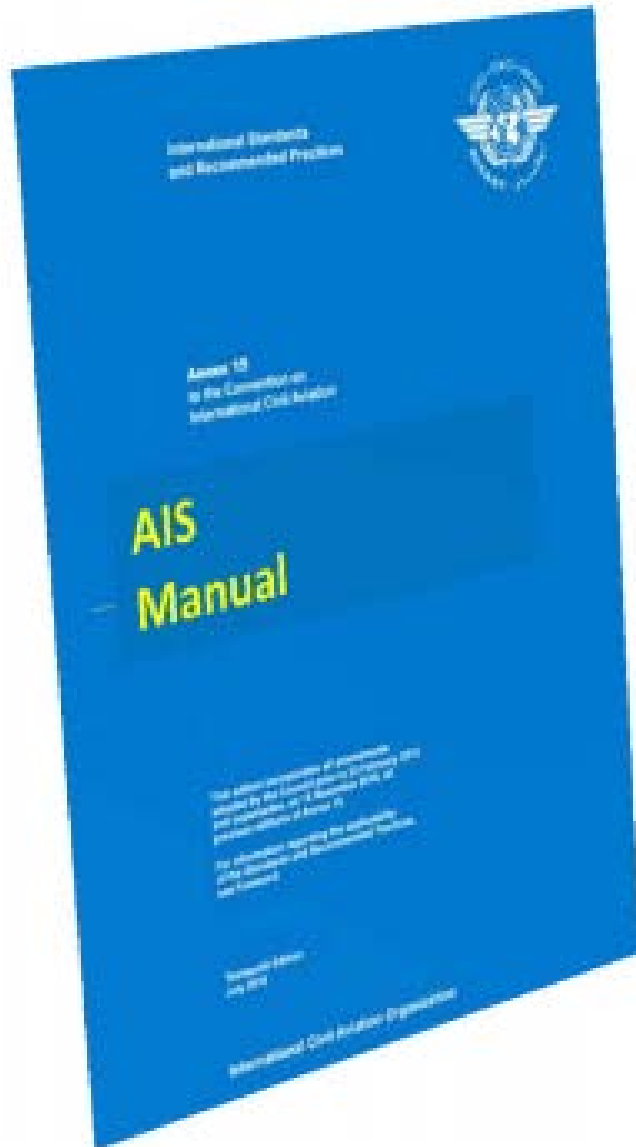
# AIS manual – Volume 4

## The guiding principles to *AIS MANUAL – Volume 4*

- To achieve global interoperability within the ATM system it is crucial that the data is exchanged through globally harmonized models
- Description of the main principles for modeling information
- Aeronautical Information Exchange model (AIXM):
  - **Still debating on the best guidance to provide!**
  - **Feedback to ICAO to understand what would be the useful guidance to support implementation**
  - For the technical specifications we refer to EUROCONTROL material
  - Brief description of the model (temporality concept, UUID)
  - Some examples of business rules to ensure interoperability

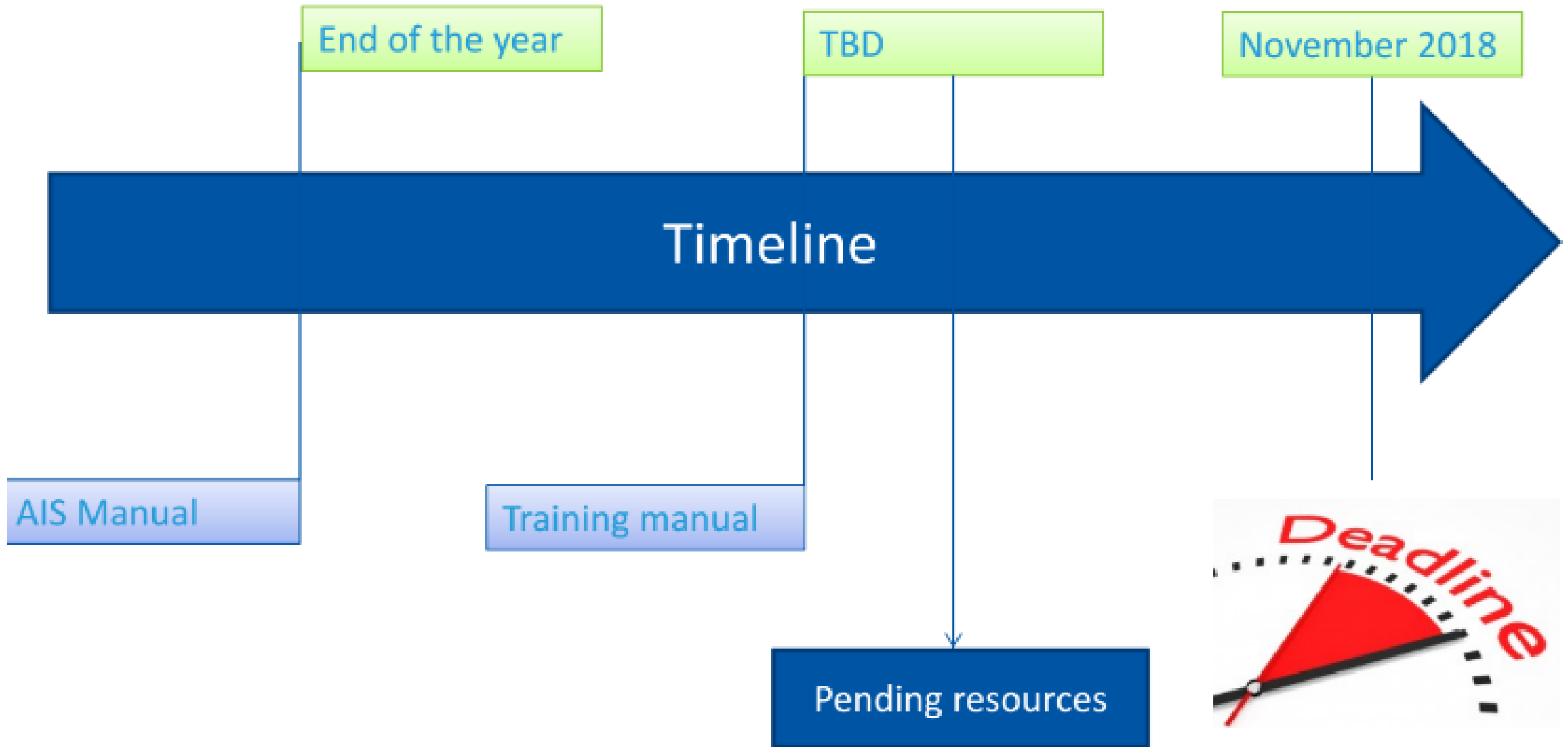


# AIS manual – Volume 4



- Introduction
  - General
  - Purpose of the manual
  - Primary audience
- Digital exchange of aeronautical information
  - Global interoperability
  - System Wide Information Management
  - Data, information modelling principles
  - Aeronautical Information Exchange model (AIXM)
  - Examples of business rules to ensure interoperability
- Digital data sets
  - AIP data set
  - Terrain and obstacle data sets
  - Aerodrome mapping data set
  - Instrument flight procedure data set
- Distribution Services
  - Digital NOTAM
  - Pre-flight Information Services
  - Post-flight Information Services

# Guidance material



- **Technological challenges:**

- AIXM poses challenges in terms of data exchanges due to its verbosity
- Mapping rules to convert AIXM to the ARINC data formats do not exist
- It is difficult to make AIXM data available for airborne applications
- eTOD is hardly used in avionics systems
- No incremental AIXM updates (UUIDs issues)
- AIXM is still too permissive; major bilateral coordination is required

- AIM Transition Without Strong AIS Foundation is not effective
  - Eliminate the deficiencies in processes & quality issues in your existing products;
  - Understand fully how a “legacy AIS” is provided;
  - Do a complete quality management review of the existing AIS
- Need for a cultural change:
  - If the input is garbage, the output is garbage
  - Communicate, talk, discuss, with your data originators... and then learn how to listen to each other and reach the compromise to meet the common objective
  - Understand that AIS and data originators need each other
- Automation reduces human errors but plan for fall-back procedures: Automation reduces human errors but increases the possibility for machine errors; ensure staff competency and operator proficiency (even in case of machine failure)
- More cooperation among States to share best practices

# Summary

- The ICAO provisions for AIM have been reworked to provide a comprehensive set of requirements, practices, procedures and “best practice” guidance
- As part of the “No Country Left Behind Initiative” a lot of focus is given to implementation
- AIM is happening now, special attention on implementation
- Special focus on the development of guidance by the applicability date of the new provisions
- Guidance material will be focused on how to improve or implement capabilities

# CONCLUSIONS

**The future of aeronautical information management and ultimately SWIM looks good from where we stand...**

**The challenges of yesterday must be addressed today if we are to reach tomorrow...**

**We can not AIM if we have not served and we can not SWIM if we can't AIM.**

# No AIS Left Behind

“NINGÚN AIS SE QUEDA ATRÁS”

## Summary

- IFAIMA is the only organization that represents staff from: AIS / COM / FDP / ARO / PUB / MAP
- Staff designation – AIMS
- Training
- English Proficiency
- Certification



Thank you

LUIS FERNANDO CRUZ ALBURQUEQUE  
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