Outline

- **New!** Restructured AIS Manual:
  - Volume I
  - Volume II
  - Volume III
  - Volume IV
AIS Manual

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

Advantages

Easier maintenance
Global Overview

VOLUME I
Volume I: AIS Organizational Development

- State Responsibilities for aeronautical information services
- AIS Responsibilities and Functions
- Aeronautical Information Management
Volume I

State perspective

- State Safety Oversight – 8 Critical elements
  - CE-1: primary aviation legislation
  - CE-2: specific operating regulations
  - CE-3: State system and function
  - CE-4: qualified technical personnel
  - CE-5: technical guidance, tools and provision of safety critical information
  - CE-6: licensing, certification, authorization and approval obligations
  - CE-7: surveillance obligations
  - CE-8: resolution of safety issues
Volume I

AIS Provider perspective

- **AIS Provider**
  - Responsibilities and functions
  - Organization of an AIS: organizational structure designed around **processes**, not products
  - **Checklist**: steps to set-up an AIS organization
  - Aeronautical Information Products and Services & Tools and Software
  - **Guidance concerning AIS/AIM competencies**
### AIS/AIM Competency Framework

<table>
<thead>
<tr>
<th>Competency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Awareness</td>
<td>Comprehends information requirements, monitors the information flow and detects anomalies and potential threats that can degrade the flow and the quality of information and affect its use.</td>
</tr>
<tr>
<td>Coordination</td>
<td>Comprehends and adheres to applicable formal arrangements and if required coordinates with originators, personnel in different operational positions and with other affected stakeholders to ensure that the agreed requirements are met.</td>
</tr>
<tr>
<td>Application of procedures</td>
<td>Identifies and applies data procedures in accordance with published operating instructions and applicable regulations and standards.</td>
</tr>
<tr>
<td>Information management expertise</td>
<td>Applies and improves technical knowledge and skills related to the collection, management, integration and provision of aeronautical data and information.</td>
</tr>
<tr>
<td>Communication</td>
<td>Communicates effectively (in oral and written forms) under the operational situations (e.g. for briefings and publishing information).</td>
</tr>
<tr>
<td>Workload management</td>
<td>Manages available resources efficiently to prioritize and perform all assigned information tasks in a timely manner.</td>
</tr>
<tr>
<td>Team work</td>
<td>Operates effectively as a team member.</td>
</tr>
<tr>
<td>Self-management and continuous learning</td>
<td>Demonstrate personal attributes that improve performance and maintain an active involvement in self-learning and self-development.</td>
</tr>
</tbody>
</table>
Example for an AIS/AIM competency

How a competency is described and observed...

<table>
<thead>
<tr>
<th>Nr</th>
<th>ICAO competency</th>
<th>Description</th>
<th>Observable behaviour (OB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Information Awareness</td>
<td>Comprehends information requirements, monitors the information flow and detects anomalies and potential threats that can degrade the flow and the quality of information and affect its use.</td>
<td>1. Maintains awareness of the information requirements of the different users concerning aeronautical information</td>
</tr>
</tbody>
</table>
<pre><code>                                                                                       |                                                                                      | 2. Verifies that aeronautical data is compliant with quality requirements (accuracy, resolution, completeness, format) on reception                        |
                                                                                       |                                                                                      | 3. Monitors the quality of aeronautical information from origination to distribution to internal and external stakeholders (integrity, timeliness, traceability) |
                                                                                       |                                                                                      | 4. Uses available tools to gather, monitor and comprehend the aeronautical information in its different status (collection, storage, processing, transfer) |
                                                                                       |                                                                                      | 5. Manages the aeronautical information in the user’s context                                                                              |
                                                                                       |                                                                                      | 6. Identifies and Manages potential threats that can cause degradation of aeronautical information flow or the quality (e.g. interruption of aeronautical data process) |
                                                                                       |                                                                                      | 7. Develops effective contingency plans based upon potential threats                                                                      |
</code></pre>

**Observable behaviour (OB):**
A single job-related behavior that can be measured and/or observed.
Volume I

Transitioning to AIM

- Aeronautical Information Management
  - AIM principles
  - Implementing AIM in the State
    - How the regulatory approach changes in AIM
  - Implementing AIM in an AIS
    - Focus on quality: provide users with info they can trust (QMS)
    - Focus on users: awareness of end-use requirements (feedback mechanisms)
    - Encourage digitalization
  - Change management considerations
Volume II: Aeronautical Data Process

Aeronautical Information Management

Collection → Processing → Distribution

Data Originator A
Data Originator B

Next Intended User 1
Next Intended User 2
Next Intended User 3

Quality Assurance & Control

How automation is applied to the aeronautical data process
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
Data Processing

- Difference between validation and verification
- Validation and Verification as critical components of the Quality Management System
- **Validation, examples of techniques:**
  - Validation based on metadata
  - Plausibility check of the data
- **Verification examples of techniques:**
  - Digital data error detection
  - Feedback testing
  - Independent redundancy
Quality Assurance and Control

THE QUALITY SYSTEM

Quality Assurance (PROCESS)
- Data traceability
- Assurance of data integrity along the process

Quality Control (PRODUCT)
- Data error detection and reporting
- Quality checks to ensure compliance with product specifications
- Consistency checks across the information products
Automation

- Objectives and basic principles of automation
- Different levels of automation:
  - LEVEL 0: Manual
  - LEVEL 1: Data centric
  - LEVEL 2: Automated workflow
  - LEVEL 3: Full AIM environment
Service Level Agreement Template

DATA PROVISION AGREEMENT

between

[the name of the entity receiving the aeronautical data or aeronautical information];
(hereinafter “The Data Receiver”)

and

[the name of the entity providing the aeronautical data or aeronautical information]
(hereinafter “The Data Provider”)
Volume III: AI in a standardized presentation

- Mostly relocated text from the existing AIS Manual
- Up to speed with the latest provisions (Annex 15, PANS-AIM)
- Electronic AIP (expanded guidance)
- NOTAM (expanded guidance, based on the OPADD material)
- General improvements (clarification of material when needed)
Global Overview

VOLUME IV
Volume IV: Digital Products & Services

- Aeronautical Information and data Exchange Models: what are they?
- AIXM:
  - Conceptual model
  - The encoding format
  - The extension mechanism
- Data product specifications
- Digital data sets (based on the AIXM confluence site):
  - Interoperability rules
  - Business rules
  - Coding rules
Thank You