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INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

AIM COMPETENCY AWARENESS

The Importance of AIM Competencies for a Safe and Efficient Aviation System

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NACC/WG/09

México

September 30 – October 4, 2024

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ICAO Annex 15
ICAO Doc 8126
PANS-AIM – ICAO Doc 10066
Reference ICAO Doc 9868 PANS-TRG 3rd Edition

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ICAO Doc 8126
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Importance of Competency within AIM

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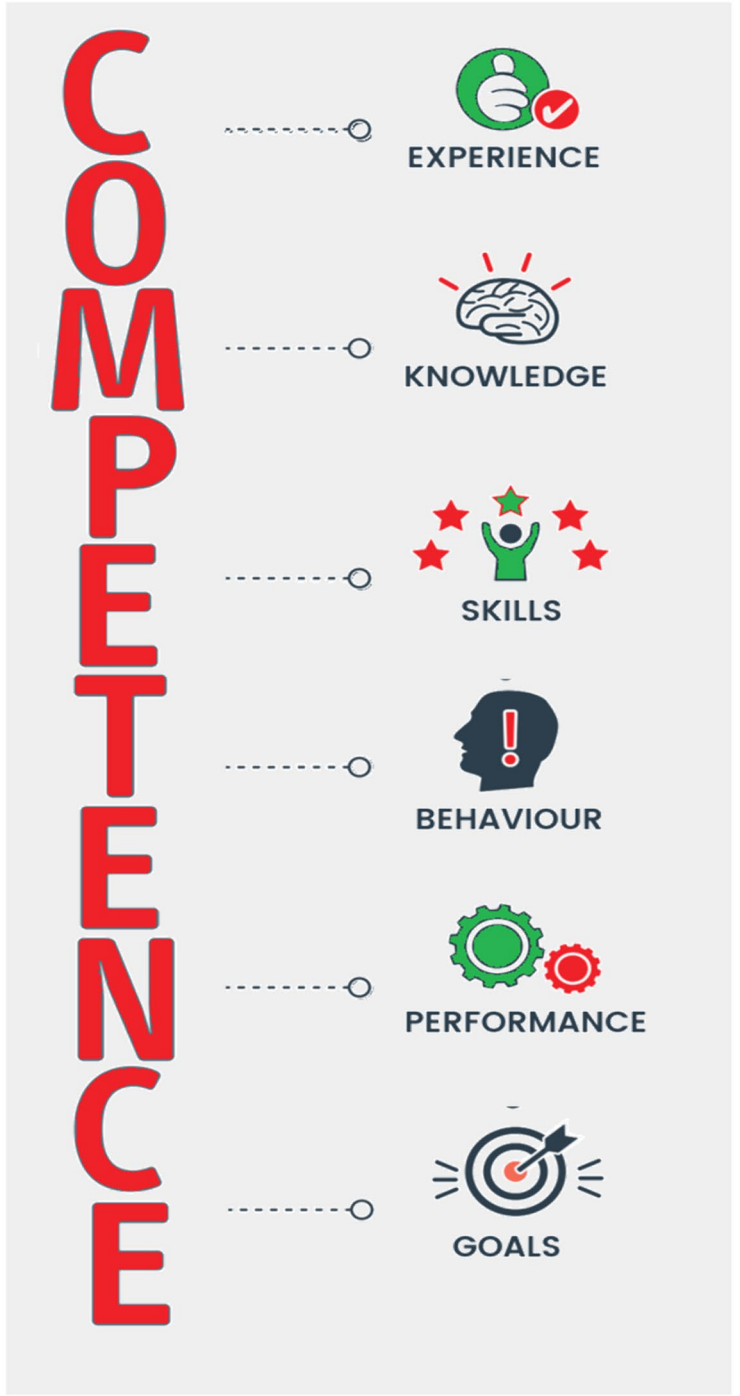

Importance of Competence Within AIM

ICAO AIS to AIM Roadmap , ICAO Annex 15, ICAO Doc 8126, PANS-AIM – ICAO Doc 10066, Reference ICAO Doc 9868 PANS-TRG 3rd Edition

- As per Annex 15, Doc 8126 and PANS-AIM, with a main focus on QMS, it is **REQUIRED** that AIS personnel need to be competent to do their assigned tasks.

- Needed in order to achieve a **PROPER** competency-based training and assessment!

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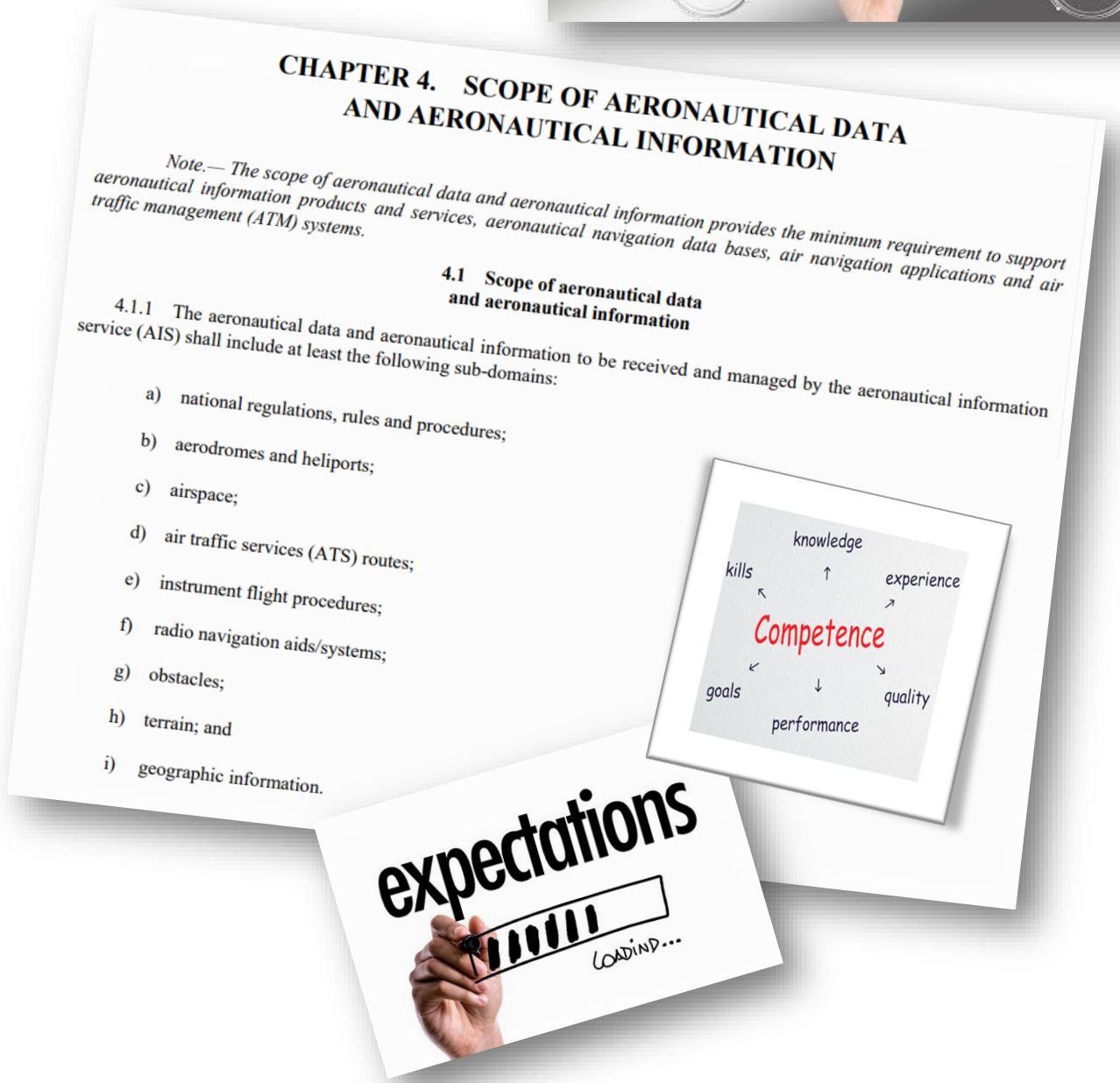
Importance of Competence Within AIM

ICAO Annex 15, ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

Why is Competency really needed **for the AIM personnel**?

- Assurance of the possession of the required level of knowledge, skills, experience and where required…proficiency in English, to permit the safe and efficient provision of aviation services



CHAPTER 4. SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

Note.— The scope of aeronautical data and aeronautical information provides the minimum requirement to support aeronautical information products and services, aeronautical navigation data bases, air navigation applications and air traffic management (ATM) systems.

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b) aerodromes and heliports;

c) airspace;

d) air traffic services (ATS) routes;

e) instrument flight procedures;

f) radio navigation aids/systems;

g) obstacles;

h) terrain; and

i) geographic information.

Note 1.— Detailed specifications concerning the content of each sub-domain are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (**PANS-AIM, Doc 10066**), Appendix 1.

Note 2.— Aeronautical data and aeronautical information in each sub-domain may be originated by more than one organization or authority.

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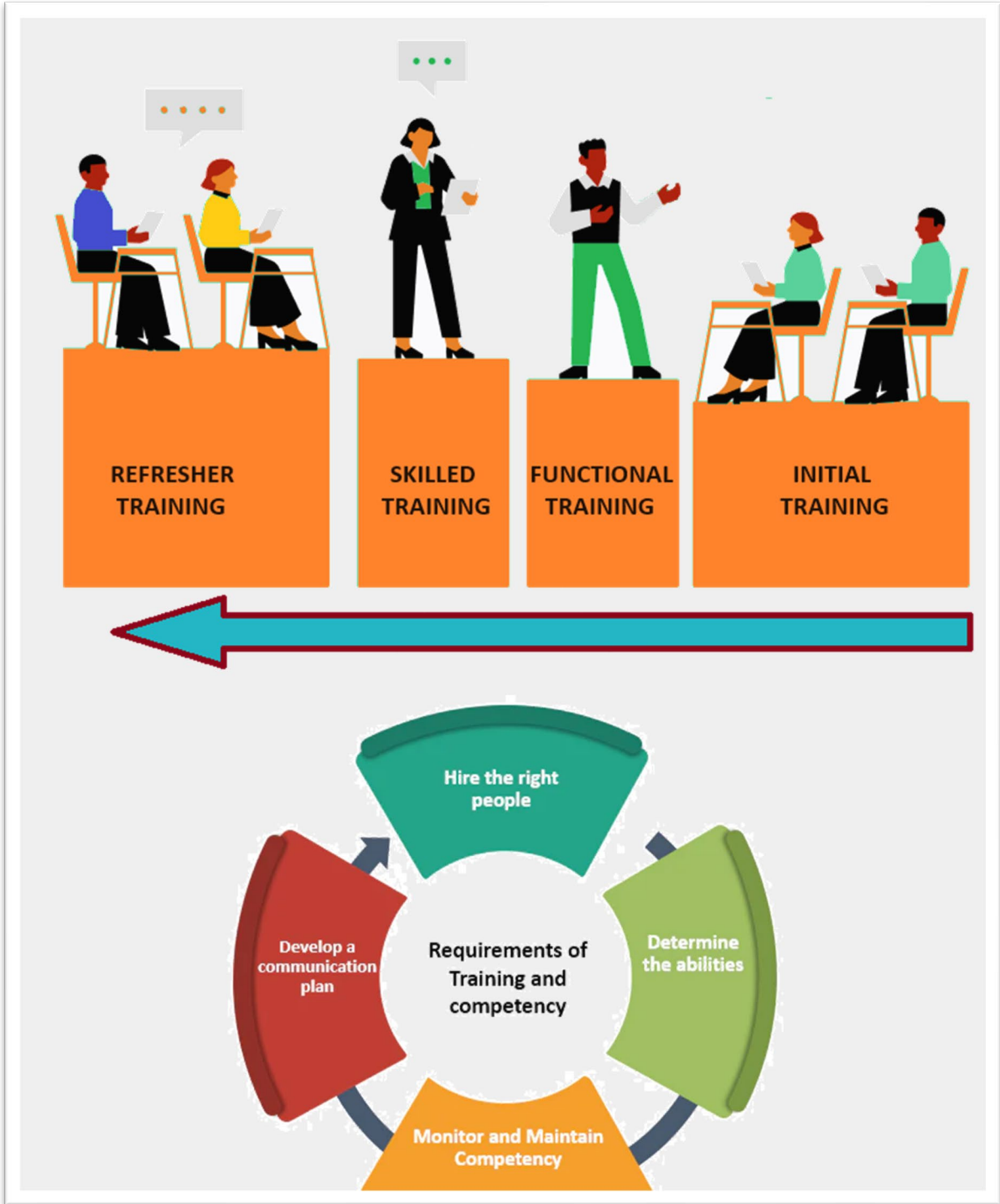
Competency-based training and assessment (CBTA):

Training and assessment that are characterized by a performance orientation, with emphasis on standards of performance and the measurements, and the developments of training to the specified performance standards.

Recommended to be applied to all phases of AIM/AIS training, namely: initial, functional, specialized and refresher trainings.



02

AIM Publication Products: Required Knowledge

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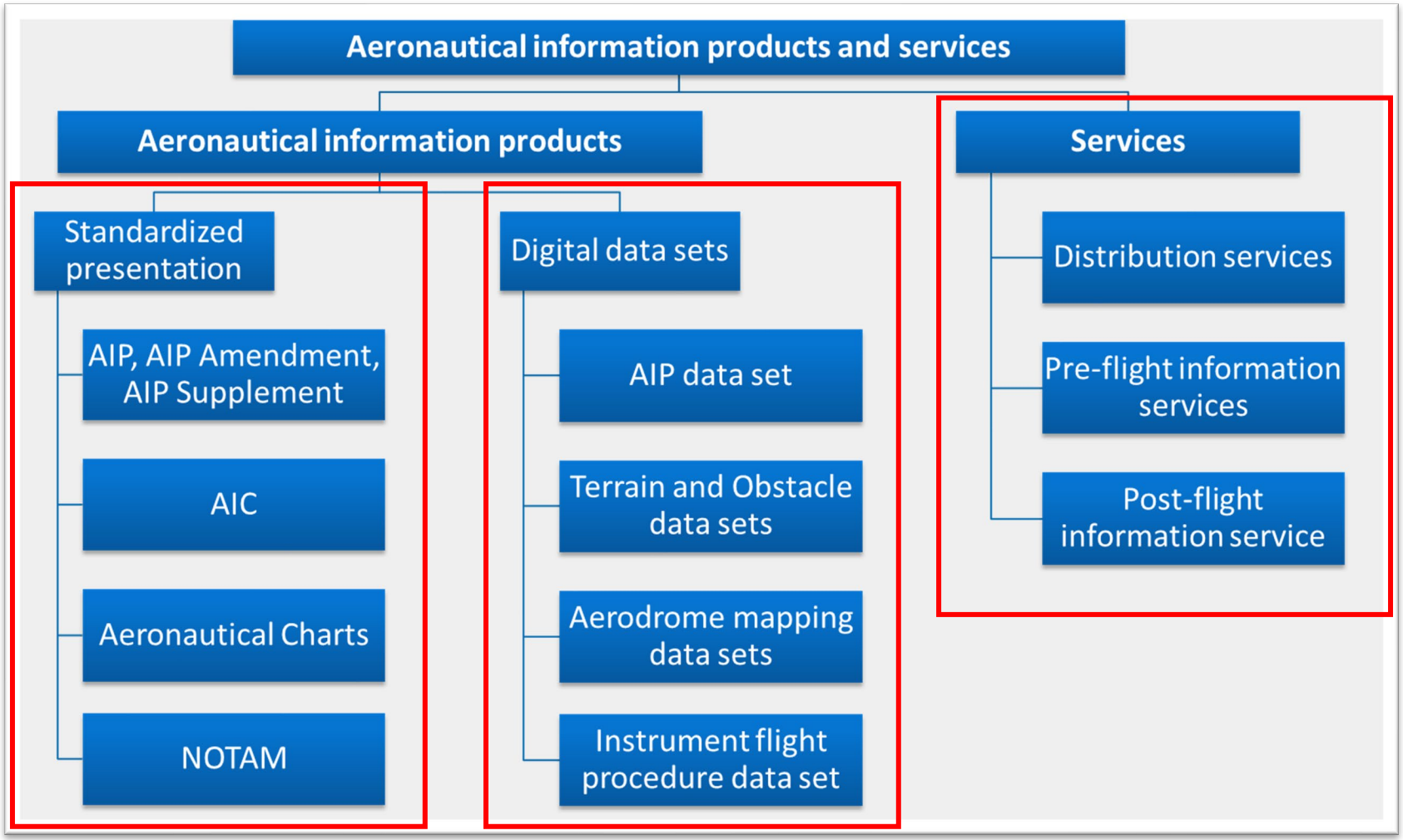


AIM Publication Products: Required Knowledge

ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

	Product	Additional information	Required Skills / Knowledge	Appropriate Competency
Standardized Presentation	**AIP, AMDTs, SUPs**	Computerized textual information management, Document / report / Spreadsheet creation, …	Word processing, spreadsheet program, Data entry and formatting. Creating simple formulas. Navigating the Excel interface. Sorting and filtering data in ascending or descending order. Subtraction, multiplication and division. PANS-AIM, Annex 15. Doc 8126	Text Editing Spreadsheet management, Aviation Knowledge.
	AICs	Same as above. Add: Aviation law (State and international)	Same as above. Add: Knowledge of the aviation and space sector. Good analytical & logical reasoning skills. Knowledge of technology. Good at written communication. PANS-AIM, Annex 15. Doc 8126	Same as above. Add: Ability to interpret legal texts related to ATM

AIM Publication Products: Required Knowledge

ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

	Product	Additional information	Required Skills / Knowledge	Appropriate Competency
Standardized Presentation	**Aeronautical Charts**	Visual and radio aids to navigation, airports and illustrations, (un)controlled airspace, restricted/prohibited/danger areas, obstructions, and the related data (coding tables)...	ICAO Annex 4, GIS, Aeronautical Chart Symbols, Topography, Coordinates (long. + lat.), distance / measurements… Chart editing / creation	Chart (Aeronautical) Management. Managing Data and Information Accuracy*: *Acting precisely, carefully and impeccably when performing work* Analytical thinking
	NOTAM	Operational information essential to personnel concerned with flight operations…	Ability to distinguish information type and purpose. PANS-AIM, Annex 15. Doc 8126	Problem solving Multi tasking Timeliness Accuracy* Analytical thinking

AIM Publication Products: Required Knowledge

ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

	Product	Additional information	Required Skills / Knowledge	Appropriate Competency
Digital Data Sets	**AIP Data Set (DB)**	Consist of data of Navaids, Points, Airports, Airspace, Routes, etc.	Data entry & analyzing PANS-AIM Knowledge on: Aerodrome data, Airspace data, ATS and other routes data…	Problem Solving Accuracy*
	TOD	Digital representation of terrain and obstacles provided as datasets satisfying user requirements for a series of airborne and ground application such as EGPWS, TAWS, A-SMGCS, MSAW, Procedure Design etc.	Able to understand specific characteristics that must be/are provided in the data set delivered.	Data management Chart (Aeronautical) Management.

AIM Publication Products: Required Knowledge

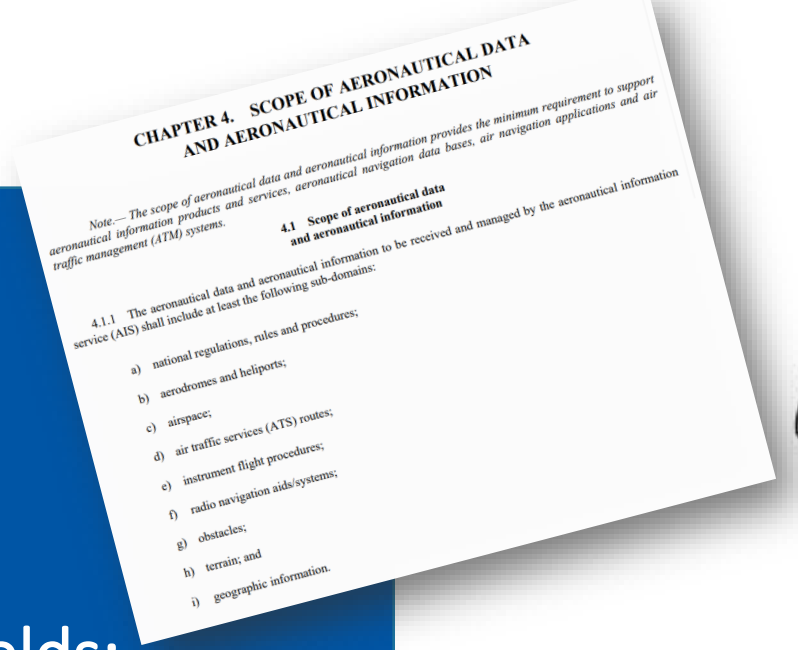
ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

	Product	Additional information	Required Skills / Knowledge	Appropriate Competency
Digital Data Sets	**AD Mapping**	Aerodrome geographic information, to improve the user's situational awareness or supplement surface navigation. Increases safety margins and operational efficiency.	GIS (aerodrome geographic information).	Analytical thinking Managing Data and Information
	Instrument Flight Procedure	Procedures used by aircraft flying in accordance with the IFR, which are designed to achieve and maintain an acceptable level of safety in operations, including instrument approach procedure, SIDs, planned departure routes ...	Understand the practical aspect presented on the charts. Provision of various information to enable pilots to fly approaches safely in instrument conditions, as prescribed by the ATCS.	Analytical thinking

AIM Publication Products: Required Knowledge

ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

	Product	Additional information	Required Skills / Knowledge	Appropriate Competency
Services	**Distribution**	Provision of quality compliant service to the users of the published/shared products.	Planning Doc 8126 PANS-AIM Costumer Service (QMS)	Problem solving. Collaboration Communication. Analytical thinking.
	Pre-Flight Information			
	Post-Flight Information			



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i) geographic information.

03

Other Fields: Competencies and Skills - No License & License Required

Examples of various functions with task similarities
ICAO Annex 1

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Other Fields: Competencies and Skills - No License & License Required

Examples of various functions with task similarities, ICAO Annex 1

Flight Dispatcher

- Why relatable to AIM?
  - Knowledge
    - Air law, Aircraft general knowledge, Aeronautical Meteorology, Principles of Air Navigation,
- Skills & Competencies:
  - identify and to retrieve aeronautical data and other information relevant for the analysis of operational situations and risks.

Other Fields: Competencies and Skills - No License & License Required

Examples of various functions with task similarities, ICAO Annex 1

Air Traffic Controller

- Why relatable to AIM?
  - Knowledge
    - Air law, General knowledge such as principles of flight; principles of operation and functioning of aircraft, principles of air navigation, etc…
- Skills & Competencies:
  - the skill, judgement and performance required to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Other Fields: Competencies and Skills - No License & License Required

Examples of various functions with task similarities, ICAO Annex 1

ICT Specialist

- Why relatable to AIM?
  - Knowledge
    - Technical understanding, process improvement, Data processing, Reporting research results, Networking knowledge, Presenting technical information, Written communication, Operating systems.

- Skills & Competencies:
  - Problem solving, Communication, Hardware and software configuration, Effective written and verbal communication skills, Coding, Detail-oriented, Cybersecurity, Project management, Technical, Analytical abilities, Customer service, Documentation

Other Fields: Competencies and Skills - No License & License Required

Examples of various functions with task similarities, ICAO Annex 1

Cartographist

- Why relatable to AIM?
  - Aeronautical Chart design, updates and changes

- Skills & Competencies:
  - Study, design, produce and distribute digital and printed maps, charts, and diagrams.
  - The ability to meet complex demands to draw, design and interpret geographical information

Other Fields: Competencies and Skills - No License & License Required

Examples of various functions with task similarities, ICAO Annex 1

Data & Workflow Management

- Why relatable to AIM?
  - Data management & Data entry
  - Data validation & verification
  - Workflow related to processes and procedures
  - Traceability, original & change history of recorded data

- Skills & Competencies:
  - the abilities you use to effectively manage and use information.
  - Ability to understand database design concept, data entry according to mapped out structures
  - Ability to participate in short and long-term planning about database projects

Other Fields: Competencies and Skills - No License & License Required

Examples of various functions with task similarities, ICAO Annex 1

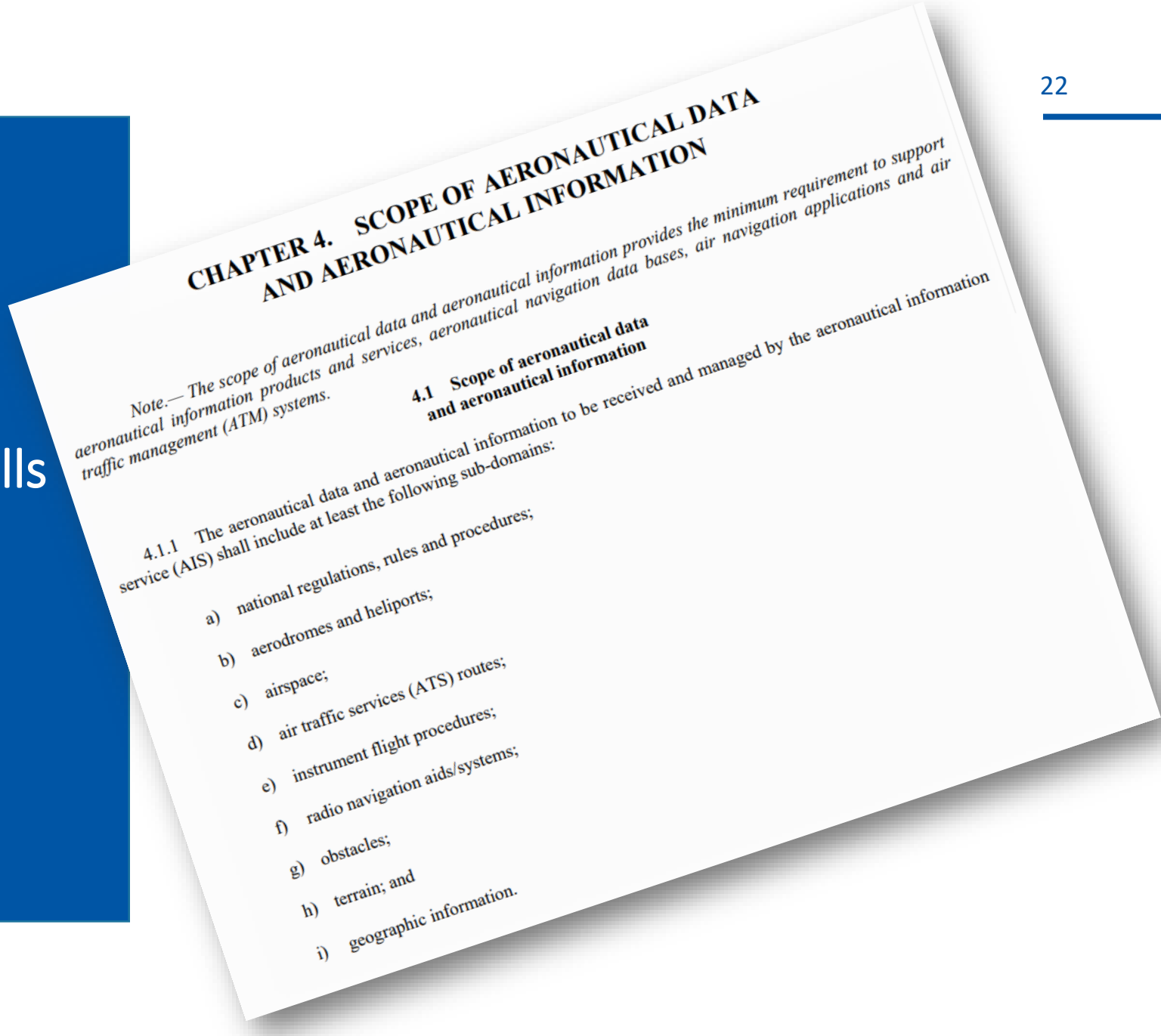
Aeronautical Station Operator

- Why relatable to AIM?
  - Knowledge
    - ATS General knowledge, Operational procedures telecommunication network, Rules and regulations related to the function
- Skills & Competencies:
  - operating the telecommunication equipment in use

04

Competencies and Skills Reflected for AIM

ICAO Annex 15
ICAO Doc 8126
PANS-AIM – ICAO Doc 10066



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Competencies and Skills Reflected for AIM

ICAO Annex 15, ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

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Annex 15, Chapter 4.1.1.

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Competencies and Skills Reflected for AIM

ICAO Annex 15, ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

- Within the context of the established quality management system, the **competencies and the associated knowledge, skills and abilities** required for each function shall be identified, and personnel assigned to perform those functions **shall** be appropriately trained.
- **Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions**.
- Appropriate records **shall** be maintained so that the qualifications of personnel can be confirmed.
- Initial and periodic assessments **shall** be established that require personnel to demonstrate the required competencies.
- Periodic assessments of personnel **shall** be used as a means to detect and correct shortfalls in knowledge, skills and abilities.

Annex 15, Chapter 3.6.4.

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Competencies and Skills Reflected for AIM

ICAO Annex 15, ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

- The purpose of these requirements as mentioned in Annex 15 3.6.4., is to ensure you have the knowledge and skills to get the job done safely and effectively.

- Common requirements involve certifications and licenses that prove you have specialized training in a specific area.

Competencies and Skills Reflected for AIM

ICAO Annex 15, ICAO Doc 8126, PANS-AIM – ICAO Doc 10066

- Licenses are awarded by the local, state or federal government.
  - Provide the legal authority to work in a particular occupation.
  - To earn a license, the candidate needs to meet predetermined criteria.
  - Besides Annex 15, 3.6.4, this may include for AIM personnel to earn a particular degree and passing a state-administered examination.

- When receiving a license, typically it is needed to complete continuing education acknowledgements to renew the license during an assigned period.

- For AIM, a license would confirm the educational background and training to do the job according to the global set requirements as already stated in ICAO provided documents and legally. → *i.e. State and ANSP protection if ever anything goes wrong related to AIM data provision.*

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Competencies and Skills Reflected for AIM

	Required
✗	Not required
☐	Optional

Comparison table

COMPETENCIES COMPARISON BETWEEN FIELDS RELATED AIM SKILLS, DUTIES AND TASKS

COMPETENCY / SKILL TYPE *(Aviation Professionals)*	Flight Dispatcher	ATC	ICT Specialist	Carthographist (Aviation)	Data & Workflow Management	Aeronautical station operator	Aeronautical Information Specialist
SKILLS	☑	☑	☑	☑	☑	☑	☑
Communication	✓	✓	✓	☐	✓	✓	✓
Leadership	✓	✓	☐	☐	✗	✓	✓
Time management	✓	✓	☐	✓	✓	✓	✓
Teamwork	✓	✓	✓	✓	☐	✓	✓
Adaptability	✓	✓	✓	✓	✓	✓	✓
Problem solving	✓	✓	✓	✓	✓	✓	✓
Attention to detail	✓	✓	✓	✓	✓	✓	✓
Customer service	✓	✓	✓	✓	✗	✓	✓
Stress-resistant	✓	✓	✓	✓	✓	✓	✓
Analytical thinking	✓	✓	✓	✓	✓	✓	✓
Clear communication	✓	✓	☐	✓	☐	✓	✓
Interpersonal communication	✓	✓	✓	✓	✓	✓	✓
Ability to comprehend technical information	✓	✓	✓	✓	✓	✓	✓
Air navigation	✓	✓	✗	✓	✗	✓	✓
Critical thinking ability	✓	✓	✓	✓	✓	✓	✓
Discipline	✓	✓	✓	✓	✓	✓	✓
Decision-making	✓	✓	✓	☐	✓	✓	✓
Quick thinking and decisiveness	✓	✓	☐	✓	☐	✓	✓

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✓	Required
✗	Not required
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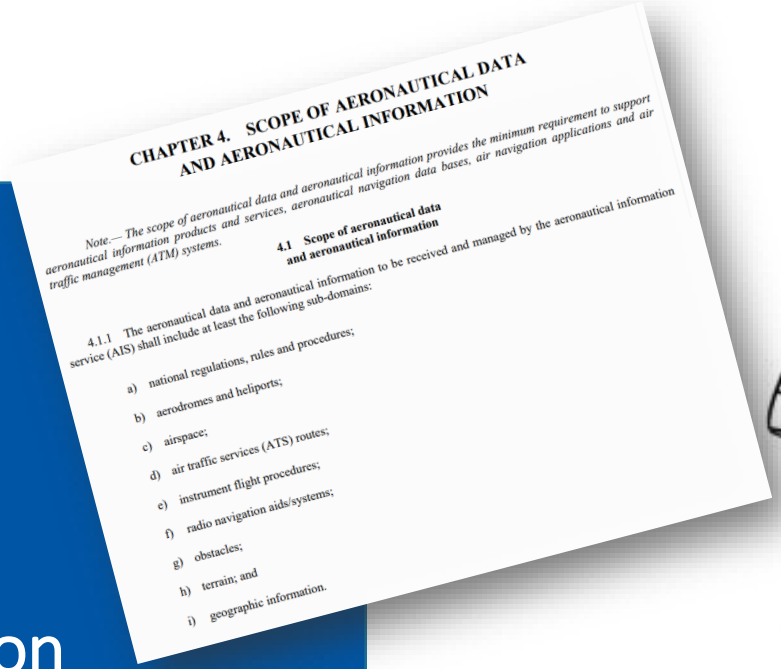
COMPETENCIES	☑	☑	☑	☑	☑	☑	☑
Proficiency in English	✓	✓	✓	✓	✓	✓	✓
Safe and efficient provision of aviation services	✓	✓	✓	✓	✓	✓	✓
Aviation Knowledge	✓	✓	☐	☐	✗	✓	✓
Flight Planning	✓	✓	✗	✗	✗	✓	☐
FPL Monitoring	✓	✓	✗	✗	✗	✓	☐
Effective Communication	✓	✓	✓	✓	✓	✓	✓
Customer Service Orientation	✓	✓	✓	✓	☐	✓	✓
Decisiveness	✓	✓	☐	✓	✓	✓	✓
Conflict resolution	✓	✓	✓	✓	✓	✓	✓
Analytic reasoning	✓	✓	✓	✓	✓	✓	✓
Initiative	✓	✓	✓	☐	☐	✓	✓

05

Conclusion

AIM competency framework defines the essential knowledge, skills, and abilities required for AIM professionals



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The Importance of AIM Competencies for a Safe and Efficient Aviation System

Conclusion

- The lack of standardized competency requirements for AIM personnel poses a significant risk to aviation safety and efficiency.
- Variations in AIM personnel skills and knowledge can lead to inconsistent information quality, miscommunications, and potential safety hazards.
- The urgent need for a global AIM competency framework that defines the essential knowledge, skills, and abilities required for AIM professionals.

The Importance of AIM Competencies for a Safe and Efficient Aviation System

Conclusion *[continued]*

- The right AIM Competencies must be based on Identify key areas of expertise, such as technical knowledge, data management, communication, problem-solving, and collaboration.

- The adoption of a standardized AIM competency framework is vital for ensuring a skilled and harmonized global aviation information management system.

- States should be encouraged to:
  - *Support the establishment and implementation of a global AIM competency framework.*
  - *Prioritize training and development opportunities for AIM professionals.*
  - *Invest in resources to promote proficiency and ensure the highest standards of AIM service.*

The Importance of AIM Competencies for a Safe and Efficient Aviation System

"A skilled and competent AIM expert is not just a goal, it's a necessity for a safe, efficient, and harmonized global aviation structure of data and information provision."

- N. L-B

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Thank You!

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