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Training Manual

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TO/AIM

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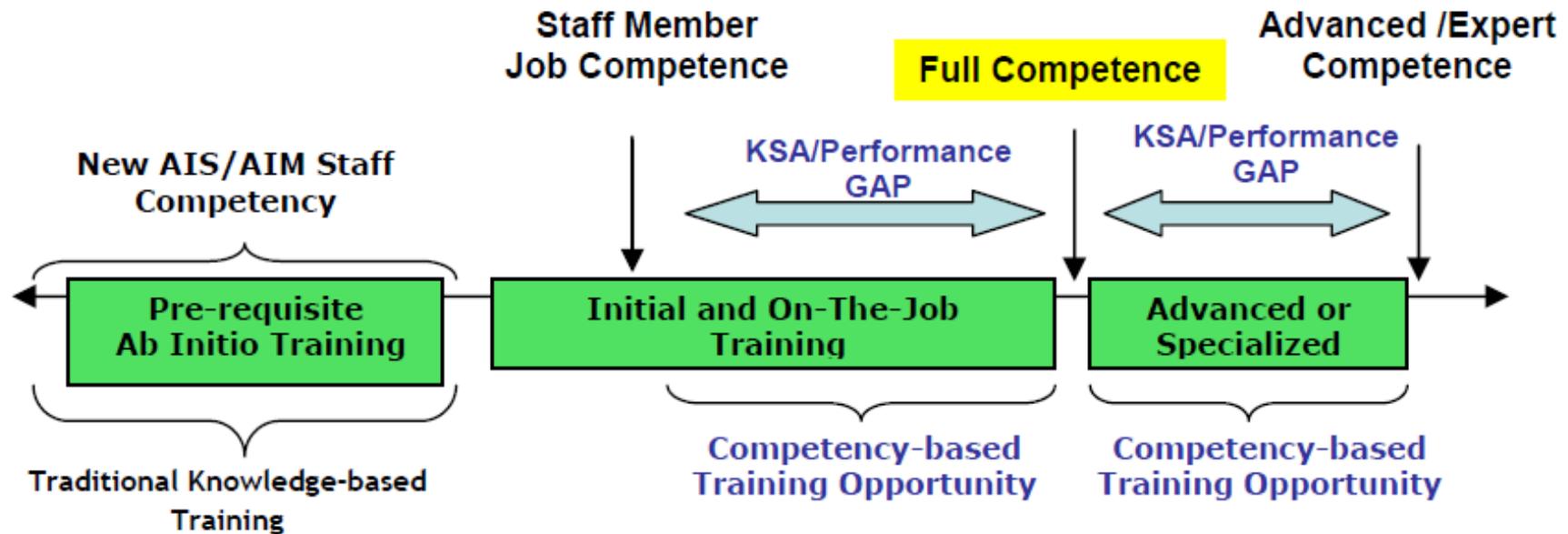
Overview

This manual was created to provide guidance in developing competency-based training for Aeronautical Information Services (AIS)/Aeronautical Information Management (AIM) staff at various levels of responsibility and performance.

The development of competency-based training and assessment is based on a systematic approach whereby:

- Knowledge, skills, and abilities and their standards are defined
- Performance is measured against the standards
- Training is based on the gaps between the required competency and current performance
- Assessment tools for these competencies are developed to determine whether these competencies have been achieved after the training has been conducted

Job Competence Continuum



The underlying principle for this approach uses performance as the measurement to identify the opportunity for competency-based training and how it can address gaps in performance. This evaluation and training ensures that staff members competencies are fully developed and maintained



Performances: KSAs

“Knowledge” is generally considered to be information that is directly applied to perform a function.

“Skill” is an observable competence to perform a task.

“Ability” is the competence to perform an observable behavior or a behavior that results in an observable outcome.





Goals of the manual

The manual was created to provide guidance for organizations developing and/or delivering training.

The key goals are to provide:

- Guidance to the AIS/AIM organizations that are developing training plans, implementing and/or providing training to attain optimal job performance of staff members through the use of a targeted competency-based training model
- Specific guidance for training providers and course developers.
- Pre-identified competencies that need to be developed to support AIS and the transition from AIS to AIM.



Target Audience of the Manual

AIS/AIM staff generally includes those who are responsible for the functions undertaken by the AIS/AIM provider as well as other functions based on the internal organizational structure. This may include:

- Data and information management
- Static data information
- Dynamic data information
- Additional products
- Pre- and post-flight Information
- ATS Reporting Office (ARO) functions.



Training and Course Providers

Regulators

Regulators may use this manual as a guideline to:

- Establish criteria for a training course/program conducted by training providers
- Establish its own training course/program
- Evaluate potential courses
- Facilitate audits

Aviation-Related Organizations

Organizations that send staff members to a training provider should utilize this manual as a guideline to evaluate training providers' courses or to develop training courses/programs that focus on certain competencies as identified in the framework



Assumptions

1. The AIS/AIM organization:

- Has **specific job descriptions/profiles for staff** performing AIS/AIM functions (regardless of whether the individuals are employees, contractors, or other named providers).
- Can clearly define who (person or organization) provides each of the required services and whether they take place within their AIS/AIM organization or elsewhere.
- Has access to the appropriate physical training facilities (to include the appropriate technology support) needed to deliver the training.
- Has implemented a quality management system that includes standard operating procedures (and/or documented work instructions).
- Will develop (or has available) a training program that includes, for example, the specified training courses, assessments, and the associated records.
- Has access to the services for competency-based course developers and competent instructors.
- Will provide on-the-job training, following a training course, in order for a trainee to apply and/or reinforce the training objectives.

2. The competency framework is aligned with the general principles of AIS and the ICAO Roadmap for the Transition from AIS to AIM and expected to be updated accordingly.

Assumptions

- 3. While this manual provides guidance on how to develop a competency-based training curriculum specifically for staff members, it should not be used or considered as a textbook on course content identification but rather as guidance on how to develop targeted training**
- 4. Competency-based training assumes that trainees will have a basic understanding of aviation fundamentals that are not addressed by this manual.**





Quality

Annex 15 and the Aeronautical Information Services Manual (Doc 8126) further cite the need for each State to establish a quality system and put in place a quality management system. Quality management should be applicable to the entire aeronautical data chain from origination to distribution to the next intended user. **“Within the context of the established quality management system, the skills and knowledge required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained.** States shall ensure that personnel possess the skills and competencies required to perform specific assigned functions, and appropriate records shall be maintained so that the qualifications of personnel can be confirmed.”





What is a Competency?

A competency statement should consist of the following:

- Action verb (observable or measurable activity related to the job)
- Content (subject matter, type of performance, specific task)
- Context (limitations or conditions)

Training generally focuses on obtaining **a change in an individual's behaviour**. Competencies are generally behaviours that can be observed as individuals perform their work and that can be measured against their performance. These competencies are the applied knowledge, skills and abilities that enable an individual to perform a job. Therefore, individuals who have and use the appropriate competencies will achieve the requirements of the job as evidenced by their performance.



Competency- based training

The goal of competency-based training is to focus training to specific competencies that an individual has not yet attained and to see evidence of a change in their behaviour and performance following training. Change in behaviour should be evidenced as a progression from the pre-training status to a post-trained status where a more advanced competency level has been attained and ultimately reflected in a change in job performance.

Competency-based training provides specific training that:

- **Is AIS/AIM organization specific.**
- **Neither over-trains nor under-trains an individual, ensuring an effective use of time and resources.**
- **Keeps the trainee motivated during the training period and subsequently on the job.**

Competency Units

Competency Elements

Terminal Objectives

Enabling Objectives

Learning Objectives



Competency- based training

Competency Units

The following competency units have been identified within the AIS/AIM competency framework:

- Data and Information Management
- Static Data Information
- Dynamic Data Information
- Additional Products
- Pre- and Post-flight Information,
- Air Traffic Services Reporting Office (ARO) functions
- Business Continuity

Each of these units is comprised of competency elements that further describe the knowledge, skills and abilities required by each competency unit.



Competency- based training

Competency Elements

Each Competency Element within a Competency Unit has associated terminal objectives that link to performance on the job. A Terminal Objective describes performance within the framework

Terminal Objectives

A Terminal Objective is a statement that describes the performance standard and is used to develop Learning Objectives. It may also be referred to as “performance criteria

Enabling Objectives

Enabling objectives are those sub-sets of knowledge, skills and abilities that are required to accomplish the terminal objectives. The training provider/course developer is responsible for developing and identifying the enabling objectives associated with each Terminal Objective for each course.

Competency Unit	
Competency Element	
Terminal Objective (Performance Criteria)	
Enabling Objectives	

Competency Unit: Static Data Information	
Competency Element: Generate AIP Amendment	
Terminal Objective (Performance Criteria): Prepare Content	

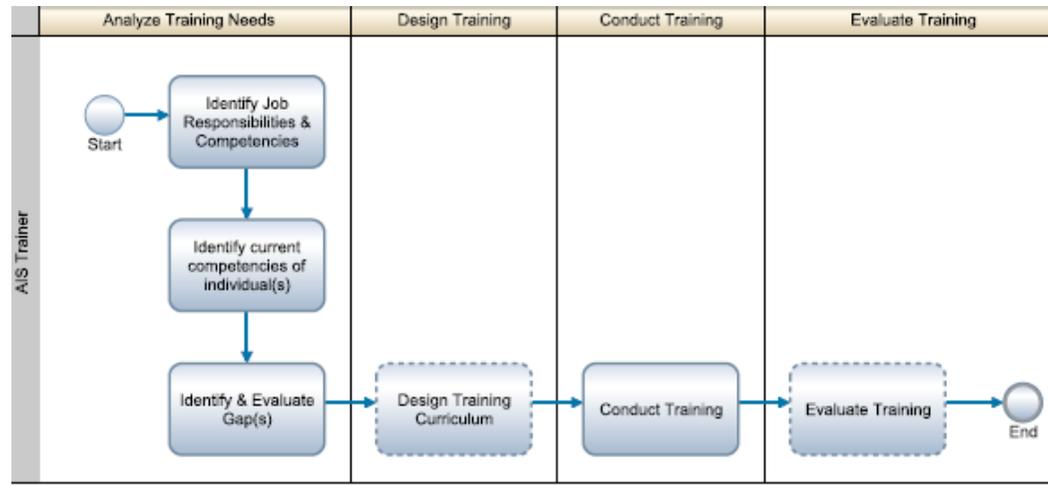


Learning Objectives

Learning objectives are derived from terminal objectives. They are statements that indicate what the trainee is expected to be able to do after the training, and they can be measured. In our example, a learning objective might be “At the end of this training the trainee will be able to generate content for the AIP Amendment.” Learning objectives are developed by the training provider and are not included in the framework in Appendix 1. The learning objective needs to describe the associated performance in a measureable way.

Competency Unit: <i>Static Data Information</i>	
	Competency Element: <i>Generate AIP Amendment</i>
	Terminal Objective (Performance Criteria): <i>Prepare Content</i>
	Learning Objective KSAs: <ul style="list-style-type: none">▪ Text Management▪ Table Management▪ Chart Management▪ Content Analysis▪ Content Verification▪ ICAO Abbreviations and Codes

Competency-Based Training Steps



- **Step One:** Analyze/Identify the job responsibilities and associated performance and measurement criteria
- **Step Two:** Identify and document the competencies to meet the job responsibilities and performance expectations/standards
- **Step Three:** Identify and document the gaps between actual and expected competencies (performance) to the standards
- **Step Four:** Design the training to address the gaps through the development of the learning objectives for each competency that needs to be addressed (generally 4 – 5)
- **Step Five:** Conduct the Training
- **Step Six:** Evaluate the training and outcomes against performance on the job

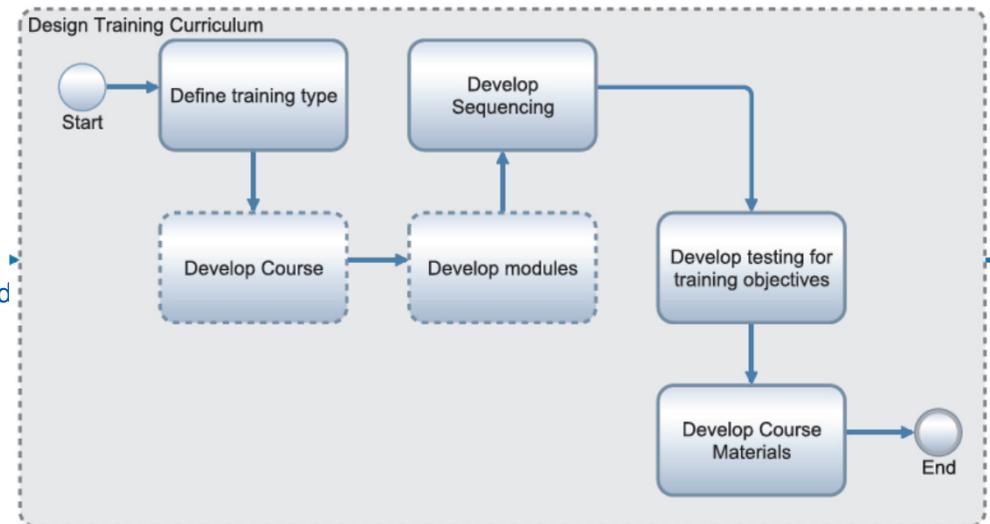


Training Curriculum Design

TYPES OF TRAINING

Each type of training may have prerequisites.

There is an assumption that all staff members will have a basic level of knowledge in the following areas and their relationship to the aviation industry (Aircraft operations and characteristics, ATM, Aerodromes, SMS, QMS, Cartography, Meteorology, CNS, AIM, Human Factors, etc)



1. Ab Initio Training

Harmonize trainees' entry competencies. the competencies and KSAs of the trainees should be assessed to identify any needed training. Ab initio Training will cover beginner level knowledge and skills that needs to be mastered prior to commencing Initial Training, and may or may not cover AIS/AIM-specific knowledge.



Training Curriculum Design

2. Initial Training

Initial Training is the first phase of training where specific AIS/AIM topics and criteria are addressed.

3. On-The-Job Training

reinforce the formal training and support the achievement of competency performance standards

4. Advanced and/or Specialized Training

augment the skills and knowledge of staff members in dealing with more specific, complex, or wider breadth of issues

5. Recurrent Training

address changes in the available criteria and regulations

6. Refresher Training

strengthen knowledge and skills that have weakened through disuse and the passage of time



Roles and Responsibilities

For training to be most effective, it is important for all parties in the training process to work together and coordinate all aspects of the training experience. Depending on the organization, this may include a **training manager, course developer, classroom instructor, subject matter expert, and an on-the-job trainer or mentor.**

Those involved in training need to ensure that the trainee has the opportunity to put classroom knowledge (theory) into practice.

Course instructors are responsible for delivery of course content and instructional events. Instructors have to demonstrate their instructional skills and their knowledge, skills and abilities in the subject matter in order to be effective.

Trainees are responsible to be actively engaged in training and the successful completion of all course module activities and assessment materials, as required.



Course Development

1. Evaluating the existing competencies of the trainees (pre-training)

KSAs of the trainees must be ascertained

2. Design – deriving terminal objectives and the associated learning objectives from the competency framework

- Conditions of performance
- Terminal objectives (performance criteria) – the expected behaviour which includes the learning objectives related to the terminal objectives
- Standards by which the performance is measured

3. Identification of KSAs – for each terminal and enabling objective

TRAINING EXAMPLE	Representative Information not all inclusive
Course goal/ Training Objective	Generate NOTAM (Framework 3.1)
Target population	NOTAM Office Trainee
Course duration	16 hours
Pre-requisite KSAs	<ul style="list-style-type: none"> ▪ Appropriate English language proficiency ▪ Familiarity with ICAO Annex 15, Chapters 5 and 6, Appendices 5 and 6 ▪ Familiarity with ICAO Doc 8126 and Doc 8400 ▪ Intermediate PC proficiency

4. Grouping learning objectives into course modules

In order to optimize training time, it may be appropriate to group similar or sequential competency elements from the same or different competency units. The grouping of training objectives together forms a training module.



Course Development

4. Sequencing learning objectives

- Adjust for the varying knowledge and experience of trainees
- Establish the most effective duration for the course
- Address individual learning styles and characteristics
- Measure results on job performance

4. Trainee assessment (following training)

- Comprehensive Assessment
- Progress Assessment
- Validity and Reliability
- Test Format
- Test Design

5. Course materials

In order to validate the complete training process, subject matter experts should verify the technical accuracy of all training materials; this helps to assure that all information presented to the trainee is accurate and current.



Summary

Competencies predict effective performance, result in valid selection criteria, recognize the transferability of employees' skills and are flexible to meet the changing needs of future requirements.



The competency model covers all aspects of what it takes to be successful in a job by examining knowledge and skills and abilities





Thank You