

# SEMINARIO INTERNACIONAL DE CAPACITACIÓN BASADA EN LA COMPETENCIA PARA ATCOS Y PERSONAL ATSEP

Decimoctava Reunión de Directores de Centros de Instrucción de Aviación Civil de la Región  
Sudamericana de la OACI (CIAC/18)  
(Lima, Perú, del 1º al 5 de abril de 2019)



**Mag. William Aranda**

## Propósito del Seminario

*Identificar los conceptos y criterios de implementación de la capacitación basada en la competencia para Controladores de Tránsito Aéreo (ATCOs) y Personal ATSEP (Air Traffic Safety Electronic Personnel) y compartir experiencias para la mejora continua de la instrucción aeronáutica en la Región Sudamericana de la OACI.*



# INTRODUCCIÓN





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## Competency-based Training Goal

- Perform a job applying the competencies – K/S/A – identified for the job, to the required standard (criteria) for the job





# ICAO Competency-based Training





# Workshop Purpose

- Provide guidance for the implementation of Competency Based Training and Assessment for ATSEP and ATCOs





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# Guiding drafting Principles

- Generic: Applicable in all contexts
- Flexible: Adaptable to all contexts
- Usable by all stakeholders



# Definición de Competencia

*“Una composición de Conocimientos, Habilidades y Actitudes, requeridas para desempeñar una tarea, de acuerdo a la norma prescrita”.*



# Conocimiento

*Contenidos específicos de una disciplina, que incluyen conceptos, teorías e información fundacional.*



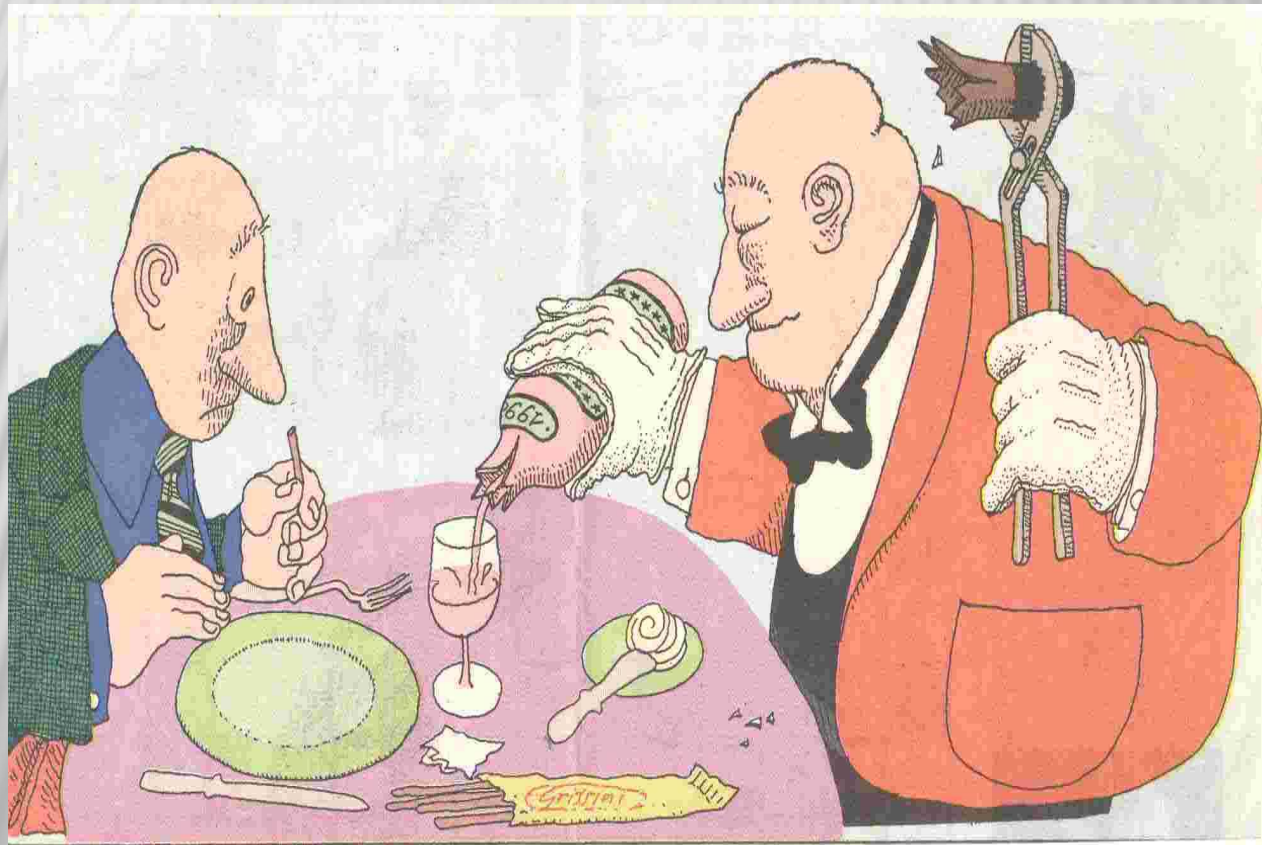
# HABILIDAD

Competencia, facilidad o destreza adquirida o desarrollada a través de instrucción o experiencia. Es la aplicación de la teoría en las tareas prácticas.



# Actitudes

*Las maneras establecidas de responder a las personas y situaciones, basadas en las creencias, valores y presunciones que tenemos. La forma como respondemos a las situaciones y nuestro comportamiento, puede reflejar nuestra actitud.*



# Competencias



- Definen las habilidades, conocimientos y actitudes (H/C/As) aplicadas;*
- Son relevantes para las responsabilidades del puesto del trabajo de los individuos;*
- Son una manera de verificar el aprendizaje.*

# Capacitación Basada en la Competencia



*Es la capacitación y evaluación que se caracteriza por una **orientación al desempeño**, por el **énfasis en normas de desempeño y su medición** y el **desarrollo de instrucción según las normas de desempeño especificadas**.*

# Estructura del Marco de las Competencias



Unidades de  
Competencia



Elementos de  
Competencia



Criterios de  
Desempeño

# Ventajas de la Capacitación Basada en Competencias

Están orientadas a la misión.



Justo a tiempo



Es desarrollada por los que contratarán al personal.



La capacitación nunca se detiene.



# ICAO PANS – TRG (Document 9868)



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Doc 9868

PROCEDURES FOR AIR NAVIGATION SERVICES

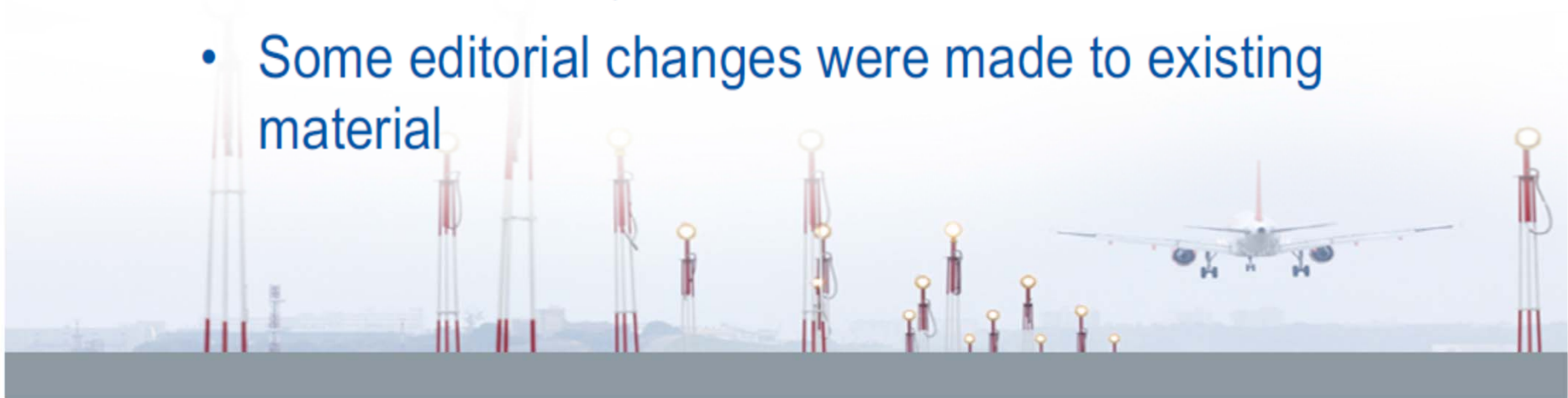
Training

Second Edition, 2016



# What changed on 10 Nov 2016?

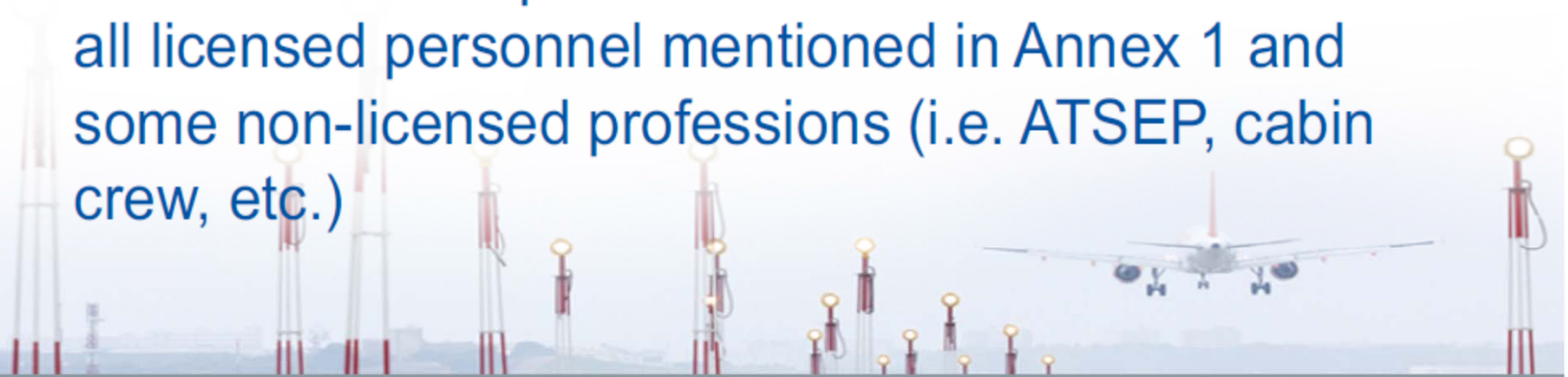
- Amendment 4 became applicable
- Document was re-structured & re-issued as the Second Edition, 2015
- Some editorial changes were made to existing material





# What changed on 10 Nov 2016?

- Competencies were added for ATCOs and ATSEPs
- For the first time provisions were made to cover all licensed personnel mentioned in Annex 1 and some non-licensed professions (i.e. ATSEP, cabin crew, etc.)





## Part 1- General procedures



- **Chapter 1** – Definitions and Acronyms
- **Chapter 2** - General provisions for CBT and assessment
- **Chapter 3** – Qualifications of course developers and instructors





## Part 4- Training & Assessment for ATM Personnel



- **Chapter 1** – General procedures for CBT&A for ATM personnel
- **Chapter 2** – CBT&A for ATCOs
  - Appendices with Guidelines for implementation for ATCOs + CU, CE and PC (OB)
- **Chapter 3** – CBT&A for ATSEPs
  - Appendices with Guidelines for implementation for ATSEPs + CU, CE and PC (OB)





# Competency-based approach to training

Training and assessment that are characterised by:

- Performance orientation
- Emphasis on standards of performance and their measurement
- Development of training to the specified performance standards

***Implementation of such training is optional***



# Basic Principles

- The development of CBT&A shall be based on a systematic approach whereby:
  - competencies and their performance criteria are defined
  - training is based on the competencies identified
  - assessments are developed to determine whether these competencies have been achieved





# Basic Principles

The training process consists of filling the gap between existing competencies and expected competencies through training and demonstrating the outcome in an assessment process.





Local Adaptation =  
Conditions + Standards



Assessment (Evidence) Guide

Observable Behaviour



## ***Competency***

A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard

## ***Competency unit (CU)***

A discrete function consisting of a number of competency elements

## ***Competency element (CE)***

An action that constitutes a task that has a triggering event and a terminating event that clearly defines its limits, and an observable outcome



## ***Performance criteria (PC)***

Simple, evaluative statements on the required outcome of the competency element and a description of the criteria used to judge whether the required level of performance has been achieved

## ***Range of variables (conditions)***

The conditions under which the competency units must be performed





## ***Assessment (Evidence) guide***

A guide that provides detailed information (e.g. tolerances) in the form of evidence that an instructor or an evaluator can use to determine whether a candidate meets the requirements of the competency standard

Competency units, competency elements and performance criteria shall be further developed from job and tasks analysis of ATM personnel and shall describe observable outcomes.

# EJEMPLO





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# CU

## Coordination

*Manage coordination between personnel in operational positions and with other affected stakeholders*



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## CE

- *Determine the need for coordination*
- *Select appropriate method of coordination*
- *Perform coordination*



## PC – Observable Behaviour

- *Coordinates with personnel in other operational positions and other stakeholders, in a timely manner*
- *Selects coordination method based on circumstances, including urgency of coordination, status of facilities and prescribed procedures*
- *Coordinates the movement, control and transfer of control for flights using the prescribed coordination procedures*
- *Coordinates changes of status of operational facilities such as equipment, systems and functions*



## PC – Observable Behaviour

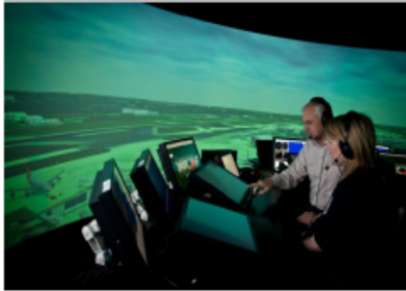
- *Coordinates changes of status of airspace and aerodrome resource*
- *Uses clear and concise terminology for verbal coordination*
- *Uses standard ATS message formats and protocol for non-verbal coordination*
- *Uses clear and concise non-standard coordination methods when required*
- *Conducts effective briefings during position handover*



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## Conditions

The trainee will be able to demonstrate an integrated performance of all the competencies under the following conditions:

- *High fidelity 360° simulated environment of Heathrow Tower*
- *Two parallel runways in single mode operations (AIR Departures)*
- *Use of all 4 possible runways (09L, 09R, 27L, 27R)*
- *Departures and VFR/SVFR overflights only*
- *In all weather conditions including CAT3C LVPs*



## Conditions

The trainee will be able to demonstrate an integrated performance of all the competencies under the following conditions:

- *With the following traffic levels and complexity:*
  - *High traffic levels and complexity with contracted runway rate 40 aircraft/hour*
  - *Mix of IFR and VFR/SVFR (90/10 % ratio) with high percentage of H and J wake turbulence categories*
- *With the use of following tools and equipment:*
  - *Aerodrome Traffic Monitor displaying positions of aircraft within 25nm from Heathrow. PSR and SSR with Mode S.*
  - *EFPS, CPDLC, DMAN, SMR, RIMCAS, reconfigurable touchscreen communication panels*
- *Without any assistance or prompts from instructor*



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## Standards

The trainee will be able to demonstrate an integrated performance of all the competencies following procedures and standards described in:

- *Standardised European Rules of the Air (SERA)*
- *UK AIP*
- *National Regulations: CAP493, CAP413*
- *Manual of Air Traffic Services Part 2 Heathrow*
- *Letters of agreement with London Terminal Control Centre*





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Defined in the PANS-TRG framework & refined in adapted competency model

**PC = Observable Behaviour +  
Conditions + Standards**

Defined in adapted competency model



# ATCO & ATSEP frameworks comparison

Competency Framework	ATCO	ATSEP
Competency Unit	10	10
Competency Element	36	43
Observable Behaviour	98	77





ATCO		ATSEP	
Competency Unit	Definition	Competency Unit	Definition
Situational Awareness	Comprehend the current operational situation and anticipate future events	Situational Awareness	Comprehend the current status of the ATM system and anticipate future events
Traffic and Capacity Management	Ensure a safe, orderly and efficient traffic flow and provide essential information on environment and potentially hazardous situations	Engineering	Collaborate in developing, modifying and integrating systems, networks and equipment



ATCO		ATSEP	
Competency Unit	Definition	Competency Unit	Definition
Separation and Conflict Resolution	Manage potential traffic conflicts and maintain separation	Service Provision	Ensure availability and reliability of CNS/ATM systems and capabilities
Communication	Communicate effectively in all operational situations	Communication	Communicate effectively in all situations
Coordination	Manage coordination between personnel in operational positions and with other affected stakeholders	Coordination	Manage coordination with operational stakeholders and with other affected stakeholders



# General implementation principles

- The use of competency frameworks is recommended but is not mandatory.
- Appendices to ATCO and ATSEP Chapters include guidelines for ATO, ANSP and Authority.





# General implementation principles

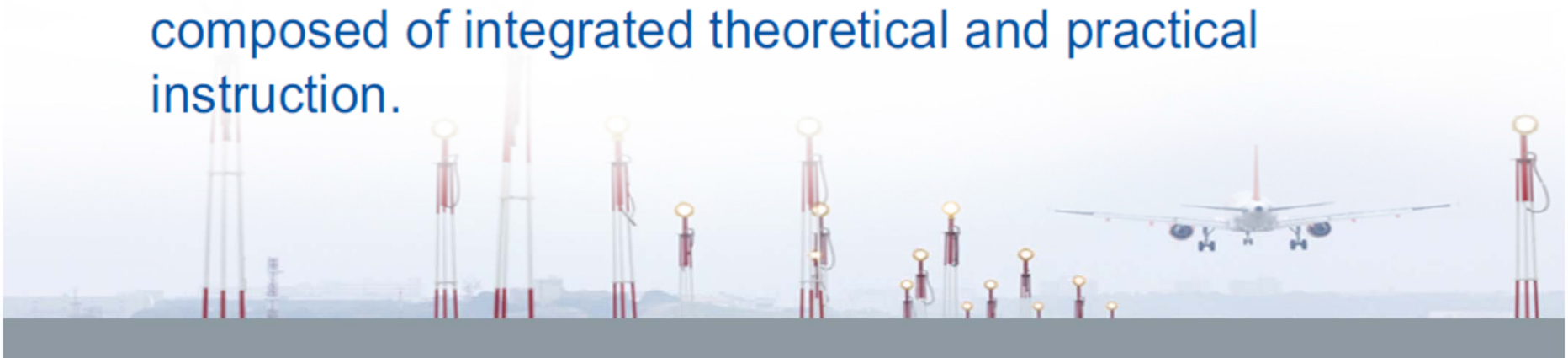
- Competency frameworks defined in PANS-TRG shall be used as the basis for the development and approval of local CBT&A programmes.
- Local implementation includes selecting competencies appropriate to the local context.





# General implementation principles

- All CBT shall be developed with the use of a systematic methodology such as ISD or equivalent.
- The competency-based training programme shall be composed of integrated theoretical and practical instruction.





# General implementation principles

- Start by using the existing training programme as a reference and progressively implement the new CBT programme using ATCO Training manual (Doc 10056) or ATSEP Training Manual (Doc 10057) for guidance.
- Progressive manner means that successive evolutions of the training programme introduce higher level of CBT.





# ATCO/ATSEP implementation specifics

Some very high level guidance in PANS –TRG Part 4  
(see appendices to Chapters 2 & 3)

See these for more details

ATCO  
Doc 10056

ATSEP  
Doc 10057

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