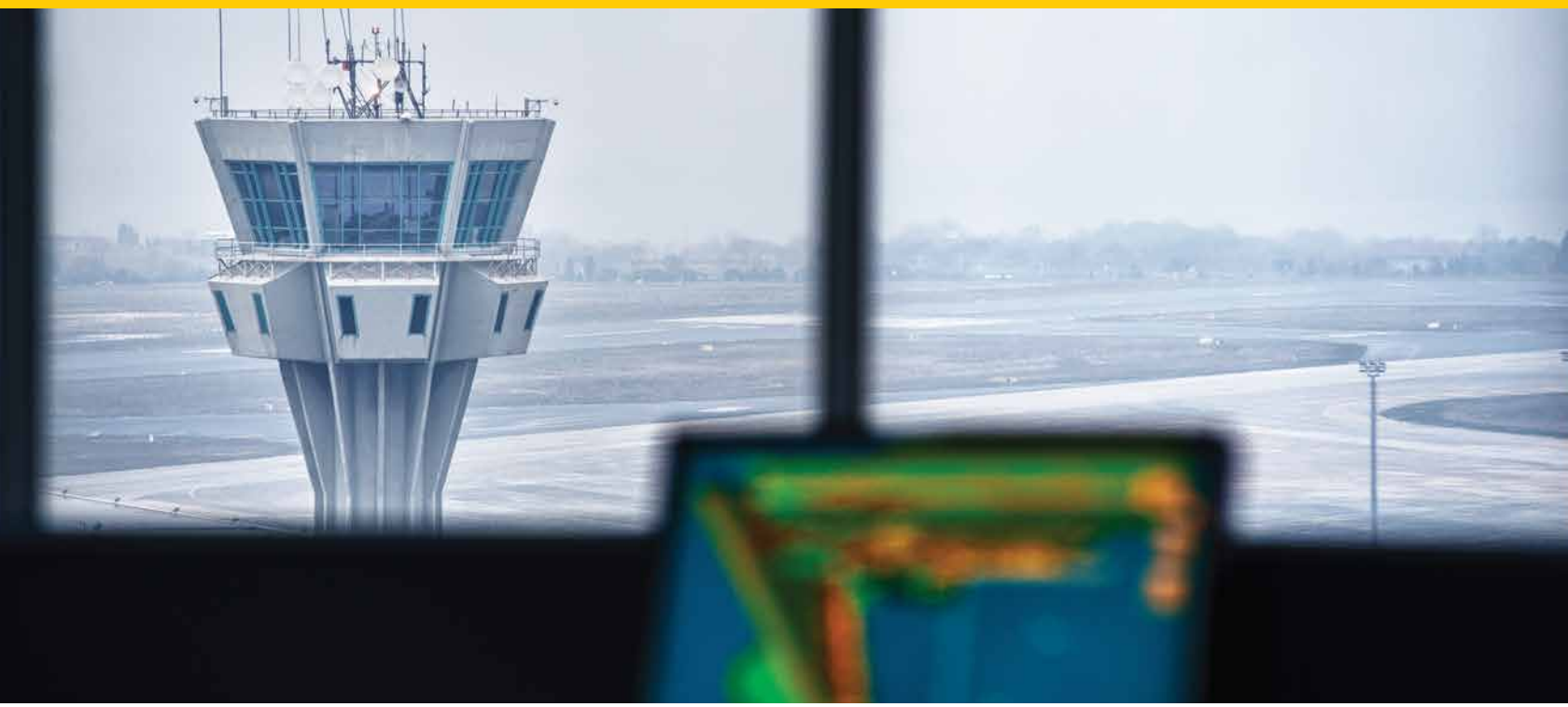
ICAO

Doc 10056

Manual on Air Traffic Controller Competency-based Training and Assessment

Volume II — On-the-job Training Instructor (OJTI)

First Edition, 2022



Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ICAO

Doc 10056

Manual on Air Traffic Controller Competency-based Training and Assessment

Volume II — On-the-job Training Instructor (OJTI)

First Edition, 2022

Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Published in separate English, Arabic, Chinese, French, Russian
and Spanish editions by the
INTERNATIONAL CIVIL AVIATION ORGANIZATION
999 Robert-Bourassa Boulevard, Montréal, Quebec, Canada H3C 5H7

For ordering information and for a complete listing of sales agents
and booksellers, please go to the ICAO website at www.icao.int

First Edition, 2022

Doc 10056, *Manual on Air Traffic Controller Competency-based Training and Assessment*
Volume II — *On-the-job Training Instructor (OJTI)*
Order Number: 10056-2
ISBN 978-92-9265-720-8

AMENDMENTS

Amendments are announced in the supplements to the *Products and Services Catalogue;* the Catalogue and its supplements are available on the ICAO website at www.icao.int. The space below is provided to keep a record of such amendments.

RECORD OF AMENDMENTS AND CORRIGENDA

AMENDMENTS		
No.	Date	Entered by

CORRIGENDA		
No.	Date	Entered by

FOREWORD

The Next Generation of Aviation Professionals (NGAP) initiatives were launched to ensure that sufficient numbers of qualified and competent aviation professionals will be available to operate, manage and maintain the future international air transport system. In May 2009, the NGAP Task Force was created and was instrumental in supporting the preparatory work for the NGAP Symposium conducted at ICAO from 1 to 4 March 2010. Among the outcomes drawn from the NGAP Symposium were: the need to develop regulatory frameworks that enable and support the use of modern training and learning technologies (competency-based training, evidence-based training and increased use of simulation) and that are not an obstacle to industry best practices; and the need to define competencies for all aviation activities affecting safety in order to facilitate, through the use of internationally agreed upon standards and assessment practices, the free-flow of professionals.

The effective performance of the air traffic management (ATM) system depends on competent and qualified air traffic management professionals. The ATM system is evolving towards a globally integrated and collaborative system. Air traffic controllers (ATCOs) managing and operating this system must have a shared understanding of what is expected of them in terms of performance wherever they may work in order to support a globally interoperable system and to achieve optimum capacity within acceptable safety limits. Similarly, those training the ATCOs in live traffic situations are also obligated to ensure the appropriate balance between capacity and safety while providing an optimal learning environment. An on-the-job training instructor (OJTI) provides this training.

In February 2015, procedures for the implementation of competency-based training and assessment for ATCOs were included in the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868). These procedures provide States, air navigation service providers (ANSPs) and training providers with guidance on how to structure their approach to training and assessment of controllers. The procedures provide a flexible framework that stakeholders can adapt to their local operational context and requirements. Subsequent amendments to Part IV of the PANS-TRG reviewed the ICAO competency framework for air traffic controllers and developed new provisions (see PANS-TRG, Part IV) on the ICAO competency framework for ATC OJTIs.

Some of the provisions included in the PANS-TRG are of a generic nature and can apply to all aviation functions including ATM personnel. The purpose of this manual is to provide additional guidance to the provisions of the PANS-TRG and support stakeholders in the successful implementation of competency-based training and assessment for ATC OJTIs.

The division of the *Manual on Air Traffic Controller Competency-based Training and Assessment* (Doc 10056) into Volume I — *Air Traffic Control (ATC)* and Volume II — *On-the-job Training Instructor (OJTI)* was accomplished in 2021 as a result of the work conducted by the ICAO Competency-based Training and Assessment Task Force (CBTA-TF). Prior to 2021, all Doc 10056 material was contained in a single document. Since then, the material contained therein has been updated for publication as the second edition of Volume I, which provides guidance to support the implementation of competency-based training and assessment for air traffic control officers (ATCOs) and expands on the procedures included in the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868). Volume II of Doc 10056 focuses on OJTIs, and provides guidance on how to identify the OJTI competencies necessary for their environment and how to design the training and assessment needed for OJTI development.

Comments concerning the manual should be addressed to:

The Secretary General
International Civil Aviation Organization
999 Robert-Bourassa Boulevard
Montréal, Québec Canada H3C 5H7

CONTENTS

Page

Glossary ..... II-(ix)

Publications ..... II-(xi)

Chapter 1. Introduction II-1-1

1.1 General II-1-1
1.2 Status II-1-1
1.3 Intended users II-1-2
1.4 Structure of the manual II-1-2
1.5 Regulatory requirements II-1-3
1.6 Competency-based OJTI training II-1-3
1.7 Prerequisites for establishing OJTI competency-based training and assessment II-1-5

Chapter 2. On-the-job training instructor (OJTI) and the learning environment II-2-1

2.1 General II-2-1
2.2 Understanding the learner population II-2-1
2.3 The learning environment II-2-2
2.4 Learning in the operational environment II-2-3
2.5 OJTI roles II-2-7
2.6 The OJTI competencies II-2-9

Chapter 3. Design of competency-based training and assessment II-3-1

3.1 General II-3-1
3.2 The components of competency-based training and assessment II-3-1
3.3 Overview of competency-based training workflows II-3-3
3.4 WORKFLOW 1: Analyse training need II-3-3
3.5 WORKFLOW 2: Design of competency-based training and assessment II-3-7
3.6 WORKFLOW 2 – PART 1: Design the adapted competency model II-3-8
3.7 WORKFLOW 2 – PART 2: Design the assessment and training plans II-3-12
3.8 WORKFLOW 3: Develop the training and assessment materials II-3-22
3.9 WORKFLOW 4: Conduct the course in accordance with the training and assessment plans II-3-23
3.10 WORKFLOW 5: Evaluate the course including the training and assessment plans II-3-24

Chapter 4. Instructors and assessors II-4-1

4.1 Introduction II-4-1
4.2 Practical instructing and assessing II-4-1
4.3 General requirements II-4-2
4.4 Instructors II-4-2
4.5 Assessors II-4-4

Page

Chapter 5. On-the-job training instructor (OJTI) development programme considerations II-5-1

5.1 Introduction II-5-1
5.2 Selecting OJTIs II-5-1
5.3 Obtaining an OJTI qualification II-5-2
5.4 Maintaining an OJTI qualification II-5-9
5.5 Enhancing OJTI performance II-5-11

Appendix A. Example of an analysis of a learner population ..... II-App A-1

Appendix B. Specific training techniques for the simulated ATM environment ..... II-App B-1

Appendix C. Examples ..... II-App C-1

GLOSSARY

DEFINITIONS

Adapted competency model. A group of competencies with their associated description and performance criteria adapted from an ICAO competency framework that an organization uses to develop competency-based training and assessment for a given role.

Assessment (evidence) guide. A guide that provides detailed information 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. A dimension of human performance that is used to reliably predict successful performance on the job. A competency is manifested and observed through behaviours that mobilize the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions.

Competency-based training and assessment. Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

Competency standard. A level of performance that is defined as acceptable when assessing whether or not competency has been achieved.

Conditions. Anything that may qualify a specific environment in which performance will be demonstrated**.**

ICAO competency framework. A competency framework, developed by ICAO, is a selected group of competencies for a given aviation discipline. Each competency has an associated description and observable behaviours.

Observable behaviour. A single role-related behaviour that can be observed and may or may not be measurable.

Performance criteria. Statements used to assess whether the required levels of performance have been achieved for a competency. A performance criterion consists of an observable behaviour, condition(s) and a competency standard.

ABBREVIATIONS AND ACRONYMS

ADDIE	Analyse, design, develop, implement, evaluate
ANSP	Air navigation services provider
ATC	Air traffic control
ATCO	Air traffic controller
ATM	Air traffic management
ATO	Approved training organization
ATS	Air traffic service
CPDLC	Controller–pilot data link communications
EFPS	Electronic flight progress strips
FCS	Final competency standard
ICS	Interim competency standard
KSA	Knowledge, skills and attitudes

OB	Observable behaviour
OJT	On-the-job training
OJTI	On-the-job training instructor
PANS-TRG	*Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868)
SRA	Surveillance radar approach
TWR	Tower (aerodrome control)

———————

PUBLICATIONS

(*referred to in this manual*)

Annexes

Annex 1 — *Personnel Licensing*

Annex 10 — *Aeronautical Telecommunications*
Volume II — *Communication Procedures including those with PANS status*

Annex 11 — *Air Traffic Services*

Procedures for Air Navigation Services (PANS)

Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868)

Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444)

Manuals

Manual on Air Traffic Controller Competency-based Training and Assessment
— Volume I — *Air Traffic Control (ATC)* (Doc 10056)

Chapter 1

INTRODUCTION

1.1 GENERAL

1.1.1 In air traffic control (ATC), there are a number of different types of instructors who perform their duties during the various phases of air traffic controller (ATCO) training. One of the most challenging phases occurs during operational (live) training. An on-the-job training instructor (OJTI) provides this training.

1.1.2 ATCOs are employed and trained because they have demonstrated that they have the aptitude to be competent controllers. Some of these controllers will later go on to become instructors and are then also required to demonstrate competence as effective teachers and/or coaches.

1.1.3 The on-the-job-training (OJT) phase is recognized as being extremely challenging for the OJTIs. It requires them to enable a trainee to integrate the learning from the previous phases of training into the live operational environment. The learning challenges that the trainee encounters during OJT tend to be more difficult to identify due to the nature of complex cognitive skills development.

1.1.4 This manual provides ATC approved training organizations (ATOs), air navigation service providers (ANSPs) and/or operational units with guidance on how to identify the OJTIs' competencies necessary for their environment and how to design the training and assessment needed for their development.

1.1.5 Since it is well recognized that ICAO regions, Member States and operational ATC units have differing regulatory, operational, technical and organizational environments, this manual does not prescribe a "one-size-fits-all" training programme. Instead, it describes how to develop an adapted competency model and an OJTI training/development programme that is appropriate for each specific environment.

1.1.6 Annex 1 — *Personnel Licensing* requires that ATCOs who are providing OJT in the operational environment shall be appropriately qualified as OJTIs. The *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868) supports this requirement with an ATC OJTI competency framework that may be used to establish the competencies required to become a qualified ATC OJTI.

1.2 STATUS

While Annex 1 requires ATC OJTIs to be qualified, the manner in which this is achieved may vary among organizations. One method may be through a competency-based approach. This manual provides guidance on how to design a local competency-based training and assessment programme specifically for ATC OJTIs. Implementation of competency-based training and assessment for ATC OJTIs is optional. However, should ANSPs and/or ATOs choose to implement such training, the relevant procedures in the PANS-TRG, Doc 9868, supported by this manual, should be used.

1.3 INTENDED USERS

1.3.1 This manual is intended for personnel who are responsible for the design of ATC OJTI training and development programmes. This includes:

a) designers who are creating a completely new training system;

b) designers who already have an established training system and who intend to evolve their system towards a competency-based approach; and

c) any other personnel involved in OJTI training.

1.3.2 It is expected that the personnel listed above will be familiar with the ATC sections of Annex 1 — *Personnel Licensing*, the *Procedures for Air Navigations Services — Training* (PANS-TRG, Doc 9868) and the *Manual of Air Traffic Controller Competency-based Training and Assessment* (Doc 10056) — Volume I — *Air Traffic Control (ATC)*.

1.4 STRUCTURE OF THE MANUAL

Note.— For simplicity, ATC OJTI, OJTI and on-the-job training instructors are used interchangeably throughout the text of this manual and have the same meaning unless otherwise specified.

This manual contains five chapters, as follows:

Chapter 1 provides an overview of the regulatory requirements for OJTI training, an overview of competency-based OJTI training, the competency framework, the organization of OJTI training, and how to use this manual.

Chapter 2 considers the organizational environment of the ANSP or ATO, the learning principles that are applicable to the training of ATCOs in that learning environment, and the expectations of the ANSP regarding the role of the OJTI. It elaborates on some of the issues that are particular to learning in the ATC operational environment and that should be considered when developing training and/or development programmes for OJTIs. This chapter also considers the various roles that an OJTI may be required to perform and elaborates on the competencies that are included in the PANS-TRG ATC OJTI competency framework. This chapter will be of benefit to any organization establishing an OJTI training and/or development programme, irrespective of whether the training is competency-based.

Chapter 3 describes, in detail, the step-by-step process for analysing and designing competency-based training for OJTIs.

Note that since some of the fundamental aspects of successful competency-based training and assessment are carried out during the “Develop”, “Conduct” and “Evaluate” workflows, this chapter also highlights these specific aspects. However, for these last three workflows, the chapter does not provide a complete process, as most of the information is of a more general nature and details can be found in many instructional design documents. Only the aspects of OJTI competency-based training and assessment that are particular to these workflows are highlighted.

Chapter 4 is a direct copy of the section in the *Manual of Air Traffic Controller Competency-based Training and Assessment* (Doc 10056) — Volume I — *Air Traffic Control (ATC)* that deals with the general and specific requirements for instructors and assessors who are performing their duties in a competency-based training and assessment environment.

Chapter 5 elaborates on factors to consider when designing development programmes for OJTIs, in order to acquire, maintain and enhance their instructing competencies.

1.5 REGULATORY REQUIREMENTS

1.5.1 Annex 1 makes it clear that before an ATC licence is issued, a number of criteria must be met. Some of these criteria relate directly to the training of an ATCO. These include the knowledge, skills and practical experience requirements for all controllers and the specific requirements for each of the ratings.

1.5.2 In addition, Annex 1 states that, "The applicant shall have completed an approved training course and demonstrated the required competence, having accomplished not less than three months of satisfactory service engaged in the actual control of air traffic under the supervision of an air traffic control (ATC) on-the-job training instructor (OJTI)."[1]

1.5.3 It further elaborates that, "an air traffic controller acting as an air traffic control on-the-job training instructor shall hold an appropriate rating and be qualified as an air traffic control on-the-job training instructor."[2] In addition, the PANS-TRG (Doc 9868) states that, "On-the-job training shall be performed under the supervision of a qualified ATC on-the-job training instructor who has been authorized to provide instruction in the area for which the rating shall be issued and be conducted under the SMS of the ANSP."[3]

1.5.4 Annex 1 does not detail training and experience requirements or recommended practices on how the training of ATC OJTIs should be carried out so that they may be issued with an OJTI qualification. Consequently, Member States, along with their ATOs and operational units, are able to structure and conduct their ATC OJTI training programmes in a manner that is appropriate to their regulatory contexts and their operational, technical and organizational environments.

1.5.5 PANS-TRG (Doc 9868) contains an ATC OJTI competency framework that may be adapted and used as the basis for determining that an ATCO is competent to perform the duties of an ATC OJTI. This manual explains how to adapt the ATC OJTI competency framework to a local environment and develop a training programme for OJTIs.

1.6 COMPETENCY-BASED OJTI TRAINING

1.6.1 Developing competency-based training

1.6.1.1 This manual describes a systematic approach for identifying the OJTI competencies and performance criteria that are relevant for a particular organization. The training and/or development programme is then based on the competencies that were identified, and a process for assessment is developed to ensure that the identified competencies have been achieved.

1.6.1.2 Unlike the ATCO training described in Volume I of this manual, Volume II does not structure OJTI training into identifiable "phases", but rather encourages the ANSP to decide how to structure the OJTI training and development programme to suit the OJTIs' needs and regulatory requirements. It does, however, acknowledge that:

a) all trainee OJTIs need some form of foundational training or development that will enable them to progress into providing OJT (under supervision initially) in the live operational environment;

b) once qualified, OJTIs need support to maintain their instructional competencies; and

1. Annex 1, 4.4.1.3.1.
2. Annex 1, 4.4.1.3.2.
3. PANS-TRG (Doc 9868), Third edition, Part IV, Chapter 2, 2.3.2.

c) there are significant benefits for organizations to embark on a programme designed to enhance OJTI performance.

Note.— The term "trainee" is used throughout this manual. It is a generic term for a person performing a learning activity without any reference to the person's status. Unless otherwise specified, within this manual, the term "trainee" means an ATCO acquiring a new qualification as an OJTI or an OJTI performing a learning activity to maintain or enhance the OJTI's instructing performance.

1.6.2 Benefits

The key benefits to organizations that implement a competency-based training programme include:

a) Assurance that OJTIs can demonstrate sufficient expertise

A competency-based approach supports OJTIs in achieving a level of performance that enables them to consistently provide effective training and support to their trainees in the live operational environment while maintaining safe and efficient operations.

b) Ongoing performance evaluation of ATC OJTIs

An important feature of competency-based approaches is the identification and collection of assessment evidence, which supports decision-makers/managers in monitoring the ongoing competence of ATC OJTIs.

c) Early identification of performance gaps, and design of more effective training to close any OJTI performance gaps

Accurate identification of performance gaps can be challenging in OJTI training given the complex cognitive nature of the competencies required. Using well-defined performance criteria to identify gaps can ensure that the training is targeted and effective.

d) Training to meet individual needs

Meeting the learning needs of the OJTI means recognizing that a "one-size-fits-all" training approach will not lead to success. Being able to identify and address specific learning gaps and specific needs will ensure the development of the required competencies in each OJTI.

e) Development of effective selection tools

With a clear definition of the competencies that are required for the job, selection programmes can be tailored to identify individuals who already possess aptitudes in specific areas.

f) Improvement of the ATCO training success rate

Competent OJTIs enable trainee ATCOs the best opportunity to succeed.

1.6.3 ICAO competency framework for ATC OJTIs

1.6.3.1 The PANS-TRG ICAO competency framework for ATC OJTIs describes competencies and observable behaviours. This information is used to develop adapted competency models that address the duties and proficiency levels existing in an organization and which are appropriate for the situation within which these models will be applicable.

1.6.3.2 These models are then used to design the training and assessment and/or development programmes necessary to achieve the defined competencies. The design of the adapted competency model and the associated training and assessment must take into account the regulatory, operational, technical and organizational environment within which the ATC OJTIs will perform their tasks.

Note.— Definitions of competency, competency standard, conditions, observable behaviour, performance criteria and adapted competency models are provided in the Glossary located at the beginning of this manual.

1.6.3.3 The ICAO competency framework for ATC OJTIs is a generic, high-level structure that has been designed to apply to air traffic controllers who are providing instruction in the live operational environment. This framework has not considered the competencies required for instructing in a simulated air traffic environment; although it is acknowledged that many of the competencies are similar.

1.6.3.4 To develop an adapted competency framework, the ICAO competency framework for ATC OJTIs should be used in combination with a regional and/or national task analysis of OJTI functions, and a clear understanding of the local environment.

1.7 PREREQUISITES FOR ESTABLISHING OJTI COMPETENCY-BASED TRAINING AND ASSESSMENT

1.7.1 The personnel responsible for establishing and overseeing ATC OJTI competency-based training and assessment should have knowledge and understanding of the:

a) regulations relating to ATCOs and OJTIs in Annex 1 — *Personnel Licensing*, Chapter 4;

b) general provisions relating to competency-based training and assessment methodology described in the PANS-TRG (Doc 9868), Chapter 2;

c) provisions associated with ATC OJTI competency-based training and assessment as described in the PANS-TRG (Doc 9868), Part IV; and

d) contents of this document (Doc 10056, Volume II).

1.7.2 In addition, it would be useful to be familiar with the:

a) provisions associated with ATCO competency-based training and assessment as described in the PANS-TRG (Doc 9868), Part IV; and

b) contents of the *Manual on Air Traffic Controller Competency-based Training and A*ssessment (Doc 10056) — Volume I — *Air Traffic Control (ATC)*.

———————

Chapter 2

ON-THE-JOB INSTRUCTOR (OJTI) AND THE LEARNING ENVIRONMENT

2.1 GENERAL

2.1.1 Prior to adapting the ICAO ATC OJTI competency framework and creating a local OJTI competency model, it is helpful to consider the organizational environment of the ANSP or training organization, the learning principles that are applicable to the training of ATCOs, and the expectations the ANSP has regarding the role of the OJTI in the learning environment. If these issues have been considered, then the competency framework that is developed for the OJTIs is likely to support the organization's training philosophy and goals.

2.1.2 Consequently, this chapter considers some of the issues to consider prior to implementing or modifying an OJTI training programme. As some of the competencies in the OJTI competency framework may not have been considered before, this chapter also elaborates on the rationale behind these competencies.

Note.— Where this manual uses terminology in a particular way, or has focused the terminology on ATCO training, this is explained. These terms may not be applied in exactly the same way in other learning environments.

2.2 UNDERSTANDING THE LEARNER POPULATION

2.2.1 Understanding the target audience that the OJTIs train is vital for ensuring that the OJTIs are adequately prepared and fully capable of making use of the set of tools, techniques and methods that are available to them. Their training should enable them to call on the competencies required to deliver training that is appropriate for the phase of training and tailored to each trainee's individual learning needs.

2.2.2 In an ATC operational environment, there are many different circumstances where some form of training is required and, likewise, the personnel who require this training may have varying learning profiles. Trainees in their early twenties, who are most likely to be starting their first professional job and gaining their first ATC rating, will bring with them a particular approach to learning and their expectations of the support they will receive from the organization and instructors. The trainees may, for example, have come from a learning environment that promotes group collaboration and inclusive interactions, where they may have been encouraged to challenge authority and are therefore keen to suggest "improvements" such as how training is conducted, or how procedures and regulatory requirements are delivered. Conversely, trainees may come from a learning environment where they have not been considered academically mature enough to have valid opinions and therefore have been studying and analysing the views of experts only. Other trainees may come from environments that have placed a strong emphasis on individual performance with limited collaboration.

2.2.3 OJTIs who have an understanding of the learning environment that their trainees have come from and have an adequate set of tools and techniques to work with, will be able to take advantage of the positive aspects of the trainees' learning backgrounds. The OJTIs will also be flexible enough to adapt their instructing styles to help trainees achieve the performance objectives they are required to demonstrate.

2.2.4 However, trainees are not necessarily all young or new to the ATC environment. There are likely to be many occasions when the OJTIs will be training more mature ATCOs who may have moved from one sector or unit to another, or may be undertaking refresher training or remedial training. While intergenerational factors have an influence on interaction with instructors, these learners are likely to bring with them the learning behaviours of the ATCO training environments to which they were previously exposed. This may include instructor-dominated practical teaching interactions and a heavy emphasis on assessment, but could also include a high level of self-directed support learning.

2.2.5 When analysing the background of the population that the OJTIs will be required to instruct, it may be helpful to consider the following:

a) What kind of learning environment are the trainees accustomed to?

b) What role did the trainees play in their previous learning?

c) What was the role of the instructor?

d) What knowledge, skills and attitudes (KSA) does the trainee already have?

e) What is the trainee's educational background?

f) Where are the trainees coming from (i.e. same country/many countries or different regions of same country)?

g) What is the age range of the learner population?

2.2.6 An example checklist, that may be used to facilitate the learner analysis is contained in Appendix A.

2.3 THE LEARNING ENVIRONMENT

2.3.1 Having a clear understanding of the learning philosophy inherent in an organization, as well as of the beliefs and norms in the training environment, will help the designer to develop an OJTI competency model and an associated training/development programme that are appropriate for the environment where the instruction will take place.

2.3.2 At this early stage, it may be useful to also reflect on the organization's long-term training goals to make sure that the OJTIs are given the tools and techniques they will need to enable these goals. An understanding of the current training challenges faced by the ATCO training section and how the OJTIs are evolving will help the designer to develop a programme that addresses some of these challenges.

Example

A unit that traditionally had OJTIs who believed that new trainees must come in and prove themselves before being accepted as a team member. Consequently, the entire team, including the OJTIs, exclude or distance themselves from the trainees. This has been recognized as a limiting factor for the development/progress of trainees, therefore the organization wishes to evolve to a more inclusive, coaching environment. As a result, the ANSP develops a session on understanding biases and uses examples from the operational environment to challenge perceptions and attitudes within the unit.

2.3.3 When considering the current learning philosophy and beliefs about how training should be carried out, it may be useful to ask the following questions:

a) What roles do you expect the OJTI to carry out (e.g. teacher, coach, mentor, assessor, motivator of the trainee centred model)?

b) What is the role of the trainee in the learning process (e.g. committed partner, self-advocate, receptive learner, self-aware trainee, resilient, professional)?

c) How best is the training instructor or trainee led (e.g. trainee-centred, instructor-led, coachdriven, self-study)?

d) Who else within the organization contributes to a trainee's success (e.g. supervisor, manager, members of the unit, support programmes, wellness programmes, educational specialists, peers)?

e) Do you believe that a trainee in the operational environment should be exposed to as many OJTIs as possible, or should the trainee have a limited number of OJTIs, or should this vary (e.g. primary instructor or team approach)?

f) Are the OJTIs responsible for the social integration of the trainee into the team/unit (e.g. trainee onboarding, guidance through administrative processes, mentor, advisor regarding rules and etiquette)?

g) Do the personnel involved in training have a positive approach towards trainees and their success (e.g. awareness of impact on trainee, understanding of own role in the learning environment, influenced by developmental bias)?

2.4 LEARNING IN THE OPERATIONAL ENVIRONMENT

2.4.1 The OJTI competency framework was developed from the belief that OJTIs are working in a time- and safety-critical environment where both the training demands and the operational requirements are complex. As such, it is important that OJTIs understand how learning takes place in this environment, what factors influence this learning and what competencies are necessary to provide training in this context. Factors that may affect or influence the operational learning environment are considered below.

2.4.2 Simulated versus operational training

2.4.2.1 Simulation training is able to replicate the tools, procedures and traffic flows of the live operational environment to varying degrees of realism. Synthetic training devices, however, are not able to fully replicate the complex nature of the live operational environment, including the social and psychological environment and the dynamics of real operational interpersonal communications within a team. Therefore, it becomes important for the OJTI to recognize that live operational training is the place where a new trainee is first going to experience these pressures and dynamics and needs to be prepared to support the trainee.

2.4.2.2 However, OJTIs should also be aware that the simulated operational environment has invaluable benefits compared to the live operational environment. It provides a controlled and individually tailored learning environment where certain deficiencies in the trainee's performance could be addressed without any risk to operations. Often, when trainees have consistent deficiencies in some skills and techniques or lose confidence, it becomes very difficult to achieve any progress when training them in a live operational environment. It is a lot more productive to temporarily remove such trainees from this environment and address these confidence and/or skill issues in a more controlled simulated operational environment. Then, when trainees are ready and regain their confidence, they can return to the live operational environment. For more details about simulator use, see Appendix B.

2.4.3 Maintaining a safe environment

2.4.3.1 The responsibility to maintain operational safety rests with the OJTIs. Recognition should be given to the fact that the OJTIs have to maintain a safe operational environment and provide training at the same time, which may not always be possible. The OJTIs may elect to stop the training for a period of time during the shift and take full control of the traffic from the trainees. This choice may not be driven by the relative lack of the trainees' competencies, but rather by the OJTIs' self-assessments of their own abilities to maintain situational awareness, understand the intentions of the trainees, and simultaneously ensure safe operations.

2.4.3.2 An OJTI should ensure that training is provided in a way that enables the trainee to continue to manage the traffic safely. Examples of this may include:

a) the possibility for the OJTI to request a sector or tower position to be split so that the trainee can continue training and the OJTI can retain the ability to maintain a safe environment;

b) choosing sectors that are commensurate with the trainee's competence level;

c) coordinating with adjacent sectors to manage the flow of incoming traffic; and

d) starting a session with the trainee on a less busy sector and if performance is high, merge with another sector to increase complexity and/or traffic levels.

2.4.4 Learning through mistakes, errors and/or misjudgments

2.4.4.1 It is common knowledge that the value of learning is often through the mistakes, errors and misjudgments that we make. However, this approach to learning needs to be carefully managed by the OJTI in the operational environment, primarily due to it being a safety-critical environment but also potentially due to a focus on providing an efficient service. The challenge for the OJTI is to achieve a balance between allowing the trainee time to recognize and self-correct mistakes and misjudgments and the OJTI maintaining safety and an acceptable level of efficiency through timely intervention.

Examples

1. **Trainee ATCO issues a climb clearance to an aircraft that is head on to opposite direction traffic in a clearly unsafe position:** in this situation, the OJTI decides not to correct the trainee, having immediately determined that the traffic complexity is low and there is sufficient time to intervene before the situation becomes dangerous. The OJTI then asks the trainee to identify conflicts the trainee is currently monitoring. From the trainee's answer, it is clear that the trainee has not identified the climb conflict. The OJTI further prompts the trainee to determine the rate of climb of the aircraft that will cause the conflict. At this point, the trainee identifies the climb conflict and turns the climbing aircraft away from the oncoming traffic.

2. **Trainee ATCO issues a climb clearance to an aircraft that is head on to opposite direction traffic in a clearly unsafe position:** in this situation, the OJTI decides not to correct the trainee having immediately determined that the traffic complexity is low and there is sufficient time to intervene before the situation becomes dangerous. The OJTI then asks the trainee to identify conflicts they are currently monitoring. From the trainee's answer, it is clear that they have not identified the climb conflict. The OJTI further prompts the trainee to determine the rate of climb of the aircraft that will cause

the conflict. At this point, the trainee has still not identified the climb conflict and the OJTI determines that, if the situation runs for much longer, it will become unsafe and so identifies the conflict to the trainee. The trainee then turns the climbing aircraft away from the oncoming traffic.

3. **ATCO trainee misjudges the arrival sequence:** in this situation, the ATCO trainee has chosen an arrival sequence that will not be the most efficient and will increase the workload considerably. The OJTI determines that the situation remains safe, that the extra track miles to touchdown for some aircraft will not be excessive and that none of the aircraft will be positioned so that they are at risk of an unstabilized approach. Consequently, the OJTI does not correct the trainee but rather works with the trainee to achieve the sequence. After the sequence has been achieved, the trainee comments that it has become “really busy” and that the trainee needs to work extra hard to make the sequence work. The OJTI agrees and suggests that for the next sequence the trainee should concentrate on ways to manage the traffic that will reduce the workload and be more efficient for the aircraft. After the session, the OJTI and trainee discuss why the first sequence created so much workload and how it could have been performed differently.

2.4.4.2 OJTIs should also recognize that no one performs correctly 100 per cent of the time. A more realistic reflection of ATCO performance would be to recognize that ATCOs are constantly making decisions and revising them as the traffic situation evolves. A trainee ATCO may need to revise decisions more frequently than a qualified ATCO simply due to a lack of experience. These “revisions” can sometimes be evaluated as mistakes or proof of ATCO trainee deficiencies; OJTIs should be careful to differentiate between genuine mistakes and adjustments based on an evolving traffic situation.

2.4.5 Visual and auditory cues that aid the OJTI

Many ATC units operate with technology that automates various controlling actions. This influences the number of visual and auditory cues available to the OJTIs to maintain their situational awareness and their understanding of what the trainee is thinking and planning. When the cues change, it makes it far more difficult for the OJTI to know what the trainee is aware of and how the trainee might be thinking. Consequently, when new technology is implemented, it is necessary to reflect on the resulting impact it has on the OJTI’s ability to maintain situational awareness. Teaching and coaching strategies have to be adapted accordingly.

Examples

1. **A unit is implementing electronic flight progress strips (EFPS) or transitioning to a stripless environment:** in an environment where control is accomplished by using paper strips, controllers, traditionally, would record warnings on the strips, highlight (cock or tilt) the strip when an immediate action is required, and/or rearrange the sequence of strips to align with the planned sequence. In an environment where there are no paper strips and, instead, an electronic strips display is used (or all the required information is displayed on the data tag), it might be challenging for the OJTIs to know how the trainees are prioritizing their work. For instance, in an EFPS environment, it can be difficult to see what strips the trainee is manipulating, or what notes the trainee is writing down on the strips, or what strips are highlighted as requiring immediate action, or simply what strips are missing/left on the board.

2. **A unit is implementing an ATS system where routes are electronically presented to the controller and/or frequencies are displayed at the time of doing a transfer:** without visual aids on the controller screen, trainees are required to know where the waypoints, NAVAIDs, air routes, etc., are located, so that they have a mental picture of where aircraft are crossing and where conflicts are likely to occur. They are also required to memorize the frequency/sector pairing and potentially much more information. With ATM systems that have the ability to display dynamically to the controller the routes, frequencies, NAVAIDs, etc., it may be challenging for the OJTI to know whether the trainees have a mental picture of the required information or if they simply rely on the visual aids displayed on the screen. Therefore, it may be required to:

   a) question the trainee on these elements; and/or

   b) ask the trainee to point out on the screen certain elements without using the automated functions of the ATM system; and/or

   c) from time to time, work without certain elements of the system to check the capacity of the trainee to work without these automated functions.

3. **A unit starts using CPDLC:** as a result, the OJTI struggles to see precisely what the trainees are typing/inputting as an instruction/clearance. To mitigate this, the OJTI asks the trainees to verbalize what they are inputting.

2.4.6 Current learning is not a guarantee of future learning

2.4.6.1 It is well recognized that trainees have very different learning trajectories. Some trainees are able to maintain a positive learning curve throughout their training. However, it is more typical that trainees will have periods where they plateau before climbing again. In some instances, the trainee's learning trajectory may even take a slight downward turn before it begins to rise again. OJTIs are usually well aware of this phenomenon and are able to support the trainee through the plateaus. The challenge for the OJTI is to determine if the slowdown in learning is simply because the trainees' need some time to consolidate lessons, or if it is an expected levelling-off in relation to the progress, based on a "normal" learning curve, or if it is a result of gaps in their skill sets that need to be addressed. OJTIs must be able to differentiate between a normal decrease in the rate of progress, a plateau in progress, and regression.

2.4.6.2 However, there may be situations where a trainee's learning plateaus for a considerably longer period than is typical or takes a significant downturn. The danger in these situations is that the OJTIs may conclude that the trainee is not capable of reaching competence and stop putting effort into enabling the trainee to improve performance. OJTIs should be aware that current performance might not always be indicative of future performance and continue to support the trainee.

Example

After demonstrating moderate and sustained progression, the trainee's performance begins to plateau. As the OJTI works to implement strategies to resume the learning progression, the trainee begins to make repeated mistakes and shows little insight. The OJTI reports that the trainee has few resolutions for resolving challenges and suspects that the trainee has plateaued and is now at risk of regression. Following an analysis of the learning progression made by the OJTI team, the trainee is provided with two weeks of leave. Upon return, the trainee is assigned to a quieter sector for the first few shifts and works with a very experienced OJTI who is skilled at building up trainees' confidence. When the trainee shows

a progressive upward trend, the trainee is reallocated to busier sectors and returns to regular OJTIs. The trainee's learning progression rapidly accelerates and the trainee is able to complete training successfully.

2.5 OJTI ROLES

2.5.1 As considered in 2.3, it is important to understand the ANSPs learning culture, but it is equally important to understand the ANSPs expectations of how the OJTIs will perform when engaged with trainees. These expectations can arise from the belief that an OJTI should be an effective teacher, human factors expert, a mentor and, at times, a part-time "psychologist". The reality is that the OJTIs are seldomly formally educated in any of these fields and their expertise will come from the training and development activities that are provided by the ANSP.

2.5.2 Expectations of what OJTIs are capable of delivering should be based on an understanding of the factors that influence learning in the operational environment and the roles that the OJTIs are expected to play in managing these factors. Their roles in operational training are challenging, therefore investment in developing the competencies that OJTIs require is critical to their success as instructors.

2.5.3 At the same time, the organization needs to recognize that even when OJTIs have been appropriately trained and prepared, there is no guarantee that all trainees will progress through the training successfully.

2.5.4 The competencies in the OJTI competency framework enable an OJTI to perform various roles in the training environment. These roles may include that of the teacher/instructor, coach, mentor and/or assessor.

2.5.5 Training organizations are responsible for determining which roles their OJTIs carry out and whether these roles are combined or carried out by separate individuals.

Examples

ANSP 1 has decided that their OJTIs should be competent to deliver instruction to all trainees, irrespective of where they are in the training progression. In this case, the OJTIs will perform the roles of teacher/instructor for new trainees and coach for the more experienced trainees or trainees who are in the later stages of their training. The OJTIs are also required to fulfil the role of mentor to some trainees in the team who are progressing towards competence. These OJTIs are also capable of delivering OJT to any validated controller, who, for whatever reason, requires a period of OJT, e.g. when returning after a long absence. They have, however, decided that the role of assessor is separate from that of the OJTI and they have a dedicated pool of ATC competence assessors.

ANSP 2 has a lengthy training programme for trainees who are doing their first validation at the area control centre and they have decided that their OJTIs are going to specialize. Some OJTIs carry out the primary teaching/instructing role that is required in the earlier stages of training, while another group of OJTIs are specialized coaches who take over the training towards the end of the programme. These OJTIs are also considered to be assessors and can determine if a trainee has demonstrated the performance required to be declared competent.

ANSP 3 is obliged by national regulations to ensure that personnel responsible for determining if a trainee is competent, are not the same personnel who provide the instruction. Consequently, this ANSP has split the teacher/instructor and coach roles from the assessor role. Furthermore, this ANSP assigns each trainee a mentor who is not involved in the day-to-day training activities.

2.5.6 When developing the training programme(s) for OJTIs, the designer must have a clear understanding of how these roles have been assigned within an ANSP. This information is typically captured during the completion of the training specification (which is detailed in Chapter 3).

2.5.7 The different roles that the OJTI may perform are described below. Please note that a training organization or ANSP may already have an understanding of these roles and that these may differ slightly from how they are described in this manual. Organizations are free to adapt the competencies and associated observable behaviours to match their understanding of these roles.

2.5.8 Teacher/Instructor

In the operational environment, the OJTI who is teaching/instructing, is engaged in explaining to a trainee how the trainee should do or achieve something and then actively ensures that decisions are made and actions are carried out as anticipated. The OJTI may engage the trainee with questions or prompts but the engagement is largely in one direction: from OJTI to trainee. OJTIs who carry out the teaching role typically have been trained in pedagogical techniques and understand cognitive processes.

2.5.9 Coach

OJTIs typically carry out a set of activities that are aimed at guiding and supporting a trainee's progress to independent performance. This includes enabling a trainee to refine already acquired competencies to transitioning to integrated and independent performance. Confidence, as a coach, is acquired when the OJTI has a clear understanding of the operational environment and the ability to predict the likely consequences and outcomes of a trainee's actions in that environment.

2.5.10 Mentor

OJTIs may perform the role of a mentor to encourage and support trainees in developing positive attitudes and behaviours towards their training and integration into the team and wider professional environment. This role may be assigned to a person who is not providing instruction.

2.5.11 Assessor

2.5.11.1 The assessor evaluates performance to determine if required competency standards are met.

2.5.11.2 Although this section has separated out the role of teacher/instructor and coach, it should be evident that during an OJT session, the OJTI may use both instructing and coaching depending on the context at the time and the actions of the trainee.

2.6 THE OJTI COMPETENCIES

2.6.1 When an organization develops an OJTI competency model, consideration should be given to how relevant the competencies described in the ICAO competency framework for ATC OJTIs are to the organization; to help with these considerations, this section describes some of the rationale behind the competencies and how they may be relevant to the OJT environment.

2.6.2 Situational Awareness

2.6.2.1 One of the key competencies for an ATCO is situational awareness, but for an OJTI, this competency extends further than situational awareness in relation to only the traffic situation. An OJTI should have the additional capacity to maintain situational awareness in relation to the impact the trainee's performance is having on the surrounding sectors and/or units.

2.6.2.2 More importantly, OJTIs should be aware of their trainee's current mental and emotional state so that the OJTIs can take timely steps to prevent cognitive overload or extreme stress reactions. As such, the OJTI should be able to recognize the early signs of cognitive overload and unhealthy stress.

2.6.3 Safety and Efficiency Management

2.6.3.1 As part of the learning process, it can be beneficial for trainees to observe the outcome of the decisions that they have made. These outcomes may be either positive or negative but both types provide an opportunity for the trainees to learn something about their performances. This may include, for example, situations where the trainee has set up an arrival sequence or an in-trail sequence, or decided on a particular method to separate aircraft, or determined how to prioritize a multitude of competing tasks.

2.6.3.2 When an outcome is likely to yield a positive result (e.g. an efficient arrival sequence or resolution of a conflict with a few well-chosen instructions that resulted in minimal delay to aircraft), the OJTI may use this learning event to reinforce positive behaviours and encourage self-confidence.

2.6.3.3 However, when the outcome may not be optimal or desirable, the OJTI has to balance the potential for the trainee to learn from the situation by letting it "run", against safety and efficiency considerations. The OJTI has to determine when and for how long it is appropriate to allow an undesirable situation to develop; this includes taking into account the ability of the OJTI to recover the situation before safety is compromised.

2.6.3.4 Safety is without a doubt a determining factor in deciding when to intervene with a trainee's actions but what may be less clear for an OJTI, is when to intervene if efficiency is compromised but there is no safety risk. In this case, the OJTI should be aware of the organization's efficiency goals.

2.6.4 Mentoring

2.6.4.1 In non-operational environments, mentoring has traditionally been seen as an activity that takes place separately from any training activity (e.g. teaching, instructing and coaching). Usually a mentor is assigned to trainees to support them as they develop in their careers. Mentors encourage the trainees to self-reflect with the purpose of improving performance, helping them to stay motivated during challenging events, providing practical advice on how to navigate the workplace and develop goals for the future. The mentor would not normally be involved in the day-to-day training of the trainee.

2.6.4.2 In ATCO training, a mentor may be an OJTI who is not actively involved in providing OJT for that trainee. In some ANSPs, the mentor may not be an ATCO.

2.6.4.3 Regardless of the way in which an ANSP assigns the mentoring role, there are some mentoring behaviours the OJTI should display that will enhance a trainee's learning experience. These include, promoting positive working relationships and a positive approach to training and helping the trainees build confidence in the workplace. If the trainee is assigned to a team, all the team members could play a mentoring role for the trainee.

2.6.5 Teaching/Instructing and Coaching

2.6.5.1 The notions of teaching/instructing and coaching have been included in this competency because in the ATC operational training environment, these notions are typically used interchangeably by the OJTI depending on the needs of the trainees at any particular point in their training. This competency recognizes that the OJTI provides different levels of learning support at different stages of training. During the early stages of operational OJT, the trainee may be learning routines and traffic flows with active teaching from the OJTI. It may be appropriate, at this stage, for the OJTI to provide clear and positive instructions to the trainee on, for example, what to prioritize and how to manage certain situations, with reflection coming later during the debriefing. As the trainee gains confidence, the OJTI enables the trainee to start controlling independently through various coaching techniques. Towards the end of the training, the OJTI is primarily monitoring and facilitating the trainees' self-reflection on their individual performances.

2.6.5.2 The switching between active teaching/instructing and coaching is not necessarily linear. As trainees encounter new or novel situations, technologies, or procedures during the life cycle of their training, the OJTI may be required to revert to active teaching techniques until such time as the trainees have automated the required behaviours.

2.6.5.3 The coach often displays behaviours that are also associated with mentoring.

2.6.6 Communication

2.6.6.1 The ATCO competency dealing with communication is focused on the communication with flight crew and other ATC units; whereas this competency, in the context of the OJTI, is associated with effective communication with a trainee.

2.6.6.2 Communicating in an operational training context can be a complex activity. Not only do the OJTIs need to consider what they are saying to the trainees and how, but also if it is the right time. The OJTIs also need to take into account the way in which the message or question is delivered so as to convey the appropriate amount of concern or urgency.

Example

A trainee's performance has been less than optimal for the previous three weeks. The trainee is losing confidence and this is having an additional negative impact on the trainnee's performance. During a moderately busy shift, the OJTI observes that the trainee is setting up an arrival sequence that is going to be very difficult to achieve and likely to increase the trainee's workload to unmanageable levels. The OJTI wants the trainees to determine for themselves that the sequence is not going to work and develop an alternative plan.

Whichever coaching techniques the OJTI elects to use, the OJTI will also have to consider how to communicate during this interaction. The OJTI may need to consider whether it is more appropriate to speak calmly so as not to further stress the trainee, or to speak more urgently conveying that it is important to find a new plan soon. The OJTI needs to figure out

how much information the trainee can absorb at that moment because a long explanation may act as a distraction and become counter-productive. The OJTI may decide that a few pointed questions will be enough to help the trainee identify the problem with the arrival sequence.

Furthermore, the OJTI will need to figure out a way to later explain to the trainee how the the trainee might think about the planning process for arrival sequences. Additionally, the OJTI will need to consider the right tone for dealing with this interaction, knowing that the trainee is already under confident.

2.6.7 Assessment

2.6.7.1 This competency is related to both formative and summative assessments.

2.6.7.2 In the context of formative assessments, the observable behaviours are focused on evaluating a trainee's performance for learning purposes. OJTIs should be able to analyse a trainee's performance so that they can determine if the trainee is competent, or if not, the root cause of performance issues and then work out the actions required to overcome those issues.

2.6.7.3 Within an ANSP, the conduct of the summative assessments may be formalized as a separate assessor role. In this case, the assessor would be responsible for determining if a trainee meets the final competency standard (FCS).

2.6.8 Collaboration

2.6.8.1 Within an ANSP, there are a number of contributors to the eventual success of a trainee. Some of these contributors, such as OJTIs and the training team, are in routine contact with the trainee and have a significant role to play in enabling the trainee to achieve competence. Collaborating with this team to ensure that the trainee gets the best possible training experience, improves the likelihood of a successful training outcome.

2.6.8.2 However, it is not only the training team and OJTIs that play a role. Human factors specialists, mentors, resilience coaches and learning specialists are just some of the personnel who can contribute to the success of the trainee. For an OJTI, knowing who else in the organization can help, and, as the frontline support for the trainee, knowing when such assistance is necessary, ensures that the trainee is given every opportunity to succeed.

2.6.9 Self-assessment

2.6.9.1 Reflective competence is recognized as a strong trait of an effective OJTI and the behaviours described in this competency are focused on self-assessment to improve the OJTIs instructional capabilities.

2.6.9.2 Self-assessment is a key motivator for continuous learning and professional growth. All highly skilled instructors engage in regular self-assessment and continuous education aimed at developing the OJTIs' instructional capacity to better serve the learning needs of trainees.

2.6.10 Ethics and Integrity

2.6.10.1 This competency is focused on ensuring that OJTIs give a trainee a fair and honest opportunity to succeed. Rules regarding privacy and confidentiality may be derived from both national regulations and organizational policies and the OJTI needs to be aware of these rules.

2.6.10.2 Some of the observable behaviours may be driven by the organization's code of conduct (or equivalent); however, other behaviours such as "managing professional relationships with the appropriate role boundaries" may be culturally driven. If such observable behaviours are included in the OJTI competency model, then it must be clear to the OJTI what this behaviour means in terms of the relationship with trainees. To make this clear, an evidence guide may provide statements and examples of acceptable behaviour.

———————

Chapter 3

DESIGN OF COMPETENCY-BASED TRAINING AND ASSESSMENT

3.1 GENERAL

This chapter provides a step-by-step guide for organizations intending to establish OJTI competency-based training and assessment that is specific to the organization's environment and requirements. It makes use of the ICAO competency framework for ATC OJTIs and the ADDIE (analyse, design, develop, implement and evaluate) instructional design model.

Note.— Readers who are already familiar with Doc 10056, Volume I, Chapter 2, will recognize that the descriptions of the components (3.2) and the workflows (3.3) in this volume are similar. From 3.4 onward the method has been tailored to the OJTI training and development considerations.

3.2 THE COMPONENTS OF COMPETENCY-BASED TRAINING AND ASSESSMENT

3.2.1 The aim of competency-based training and assessment for OJTIs is to develop competent instructors to guide trainees in the live operational environment for the purpose of trainees attaining their professional qualifications.

3.2.2 To achieve this aim various components are necessary. These components appear in Figure II-3-1.

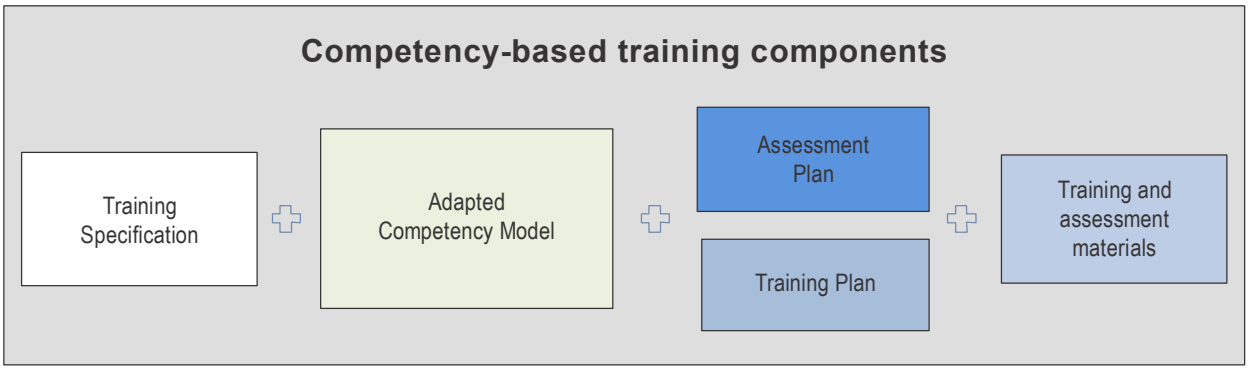
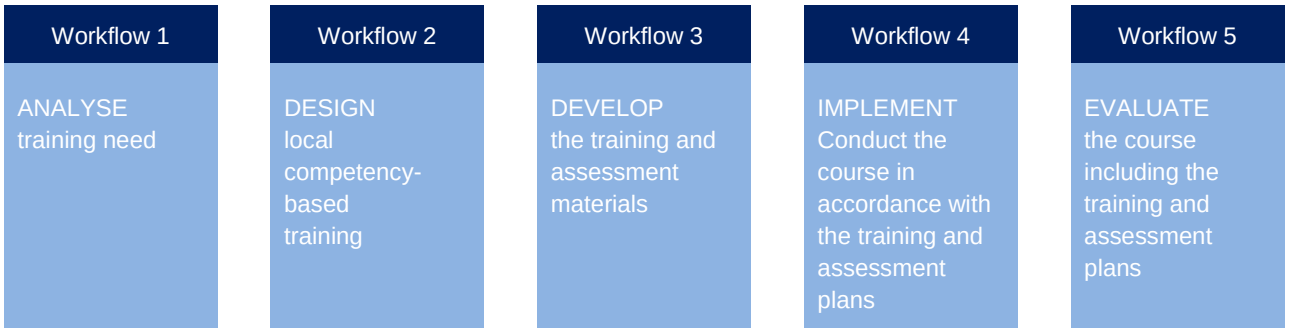


Figure II-3-1. Components of competency-based training

Training Specification	The document that describes the purpose of the training, the task list and the requirements that shall be fulfilled when designing the training.	
Adapted Competency Model	A group of competencies with their associated description and performance criteria adapted from an ICAO competency framework that an organization uses to develop competency-based training and assessment for a given role. The components of an adapted competency model are:	
	Competencies	The competencies required to be achieved by the end of training.
	Performance criteria	Statements used to assess whether the required levels of performance have been achieved for a competency. A performance criterion consists of an observable behaviour, condition(s) and a competency standard.
Assessment Plan	The document that details the assessment events and tools (evidence guide, competency checklist, competency assessment form) that will be used to determine if competence has been achieved.	
Training Plan	The document used for structuring, developing and delivering the training.	
Training and assessment materials	All the materials used to deliver the training in accordance with the training plan. These may include course programme, training notes, manuals, presentations, simulated exercises, etc.	

3.3 OVERVIEW OF COMPETENCY-BASED TRAINING WORKFLOWS



3.3.1 The first two workflows, ANALYSE (i.e. analyse training need) and DESIGN (i.e. design local competency-based training and assessment), establish the training specification, the adapted competency model, the assessment plan and the training plan that will be used to DEVELOP and IMPLEMENT the training course. The EVALUATE the course workflow reviews the effectiveness of the training and assessment conducted and recommends improvements, as appropriate.

3.3.2 This chapter focuses on the Analyse and Design workflows.

3.3.3 An overview of the remaining workflows is provided at the end of the chapter to highlight the important issues directly related to competency-based training and assessment.

3.3.4 A stepped approach is worked through for each of the Analyse and Design workflows and details:

a) the inputs required;

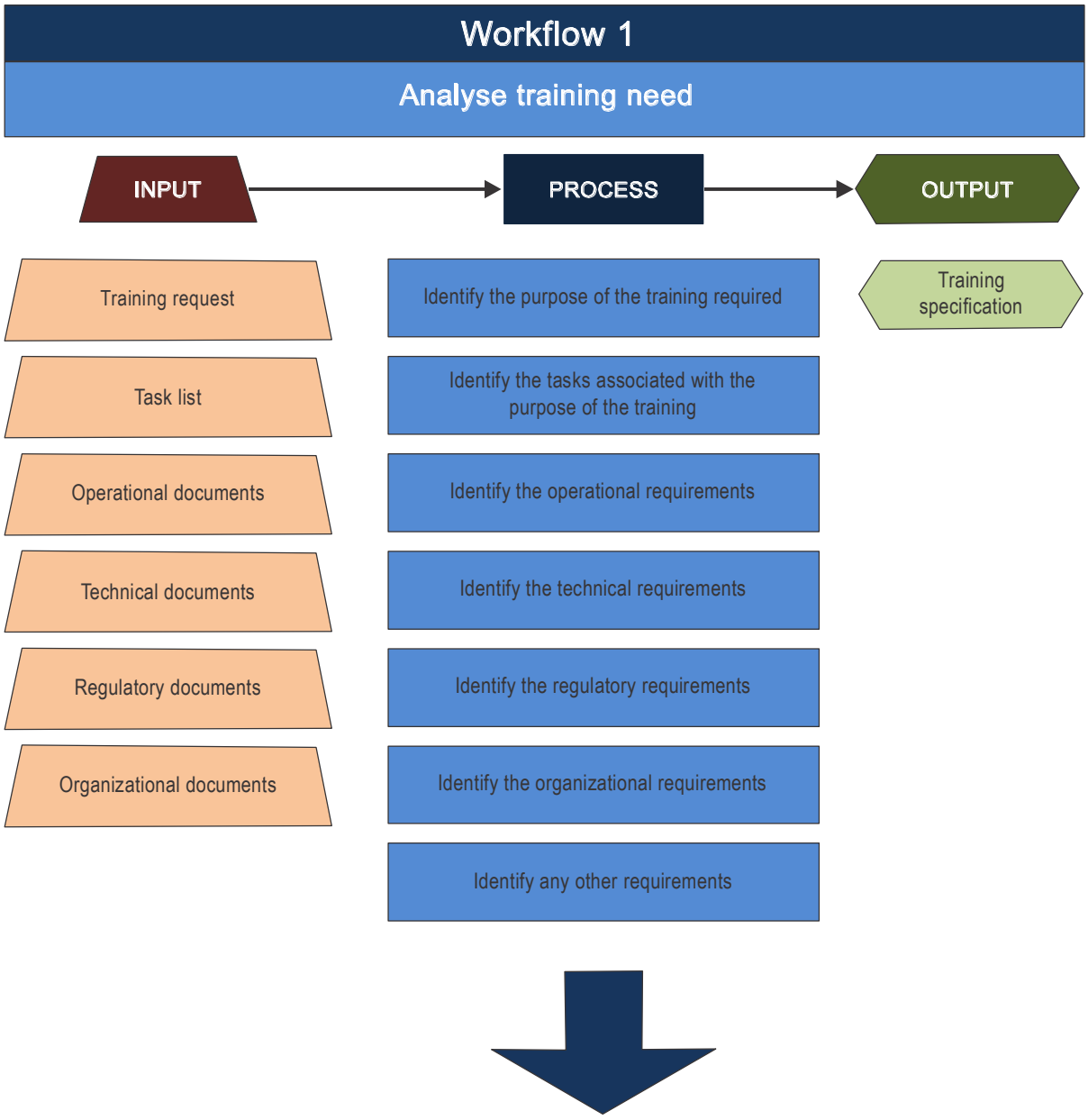
b) the process to be worked through; and

c) the outputs achieved on completion of each process.

3.3.5 Note that the “Analyse” output becomes one of the inputs for the “Design” workflow.

3.4 WORKFLOW 1: ANALYSE TRAINING NEED

3.4.1 The need to train/develop OJTIs, maintain their competencies, and enhance their performances, may be triggered in various ways and have differing requirements based on the regulatory environment and/or the organization’s needs. Once a request has been received, the first step is to carry out a training needs analysis. During the training needs analysis, the purpose of the training is considered as it relates to these requirements. A training specification describes, among other things, the end state to be achieved.


Workflow 1
Analyse training need
INPUT
PROCESS
OUTPUT
Training request
Task list
Operational documents
Technical documents
Regulatory documents
Organizational documents
Identify the purpose of the training required
Identify the tasks associated with the purpose of the training
Identify the operational requirements
Identify the technical requirements
Identify the regulatory requirements
Identify the organizational requirements
Identify any other requirements
Training specification

3.4.2 The training specification should provide sufficient detail to answer the following questions:

	Purpose
What is the purpose of the training?	This is taken directly from the training request.
State the phase(s) of training.	This document does not define different phases of OJTI training; however, the designer should identify from the request if the purpose of the training is to develop ATCOs to become OJTIs, or to maintain the OJTIs' competencies, or to enhance their performances as instructors.
What qualification, if any, will the trainee achieve on successful completion of the training?	In some instances, a formal qualification will be achieved at the end of the training, e.g. OJTI endorsement in the ATC licence, formalized coaching qualification. In other instances this is not the case, e.g. after routine OJTI refresher training to maintain competence.
	Tasks
Describe the tasks associated with the purpose of the training.	What role(s) do your OJTIs perform? Given the complexity of the job, some organizations may choose to have different levels of OJTI, e.g. OJTIs for new ATCO trainees, OJTIs for the late stage of OJT and OJTIs for managing challenging learning issues. Some organizations may require the OJTI to fulfil the role of instructor only, while others require the OJTI to be a coach, instructor and assessor. It is important to first establish the tasks, roles and responsibilities for the OJTI instructional positions in order to properly adapt the competency model and design training that matches the roles and responsibilities of the OJTIs. For the purposes of defining the training specification, as a minimum, a task list is required. This task list may be extracted from a completed job and task analysis or may need to be developed.
	Operational requirements
Which operational procedures will be applied?	If the training requires the trainee OJTI to perform instructional duties in the live operational environment, the procedures relating to how training (of the OJTIs) is conducted should be described. For example, some organizations require the trainee OJTI to be monitored by a senior OJTI in the live operational environment until the trainee OJTI is declared competent to provide OJT independently.
Describe the operational environment where the training will take place.	The designer may consider questions such as, are there any specific procedures already established for the training of OJTIs?
Describe the nature of the traffic necessary to achieve the purpose of the training.	If the training of the trainee OJTI is going to take place in a simulated environment, then a description of the traffic environment is needed. Some considerations: a) Will the airspace and type of traffic be the same as the airspace that the trainee OJTI currently works in, or will it be a generic airspace?

	b) Will the traffic levels be the same as the live operational environment or less/more?
Which non-routine situations are necessary for successful completion of the training?	For example: Emergencies, unusual situations, degraded modes, but it may also include instructing trainees who are under or over confident or seeing challenging behaviours as opportunities.
Describe the working position configuration.	Typically, the configuration is one OJTI to one trainee in the live operational environment.
Technical requirements	
List any specific operational (or simulated) systems and/or equipment that are necessary to achieve the purpose of the training.	This may, for example, include consideration of the OJTI's access to information. In some surveillance systems, access to data and flight information can only be achieved through the trainee ATCO's console. It may be necessary for the OJTIs to have their own working position alongside their trainees so that the OJTIs can access information independently.
Regulatory requirements	
Which rules and regulations are applicable?	Detail which regulations apply to the training of OJTIs.
Are there any regulatory requirements that will affect the following aspects of the training design: a) duration; b) content; c) assessment procedures; d) course approval; and e) any other (equipment, qualifications of instructors, trainee to instructor ratios, etc.).	These are recorded in the training specifications to ensure that they are taken into consideration during the training design. Typical regulatory requirements may include a minimum number of instructing hours in the live operational environment under supervision, a minimum list of knowledge subjects to be covered, etc.
Organizational requirements	
Describe any organizational requirements that may impact the training.	Are there any organizational policies that govern the behavioural norms of OJTIs? Organizations and States often have their working norms and laws guiding acceptable behaviours. Examples may include an organizational code of conduct or legislation around human rights. Reviewing these in the context of providing training is important to ensure the training specifications and ultimately the training content are aligned with local practices regarding behaviour.

	What are the organization's beliefs about learning and how are these reflected in what is expected from the OJTIs? Organizations and States have differing perspectives on how people learn. The behaviours outlined in the ICAO OJTI competency model may or may not reflect local norms. Understanding and articulating local philosophy towards instruction and learning is important for developing an effective OJTI competency model. This is because developing OJTIs is often based on an understanding of the needs of the learner. Different educational philosophies and systems can lead to different learner needs and differing OJTI competencies. The population analysis and learning environment analysis in Chapter 2 may be used to populate this section.
Other requirements	
Describe any other requirements that may impact the training.	This question captures any other requirements that may not have been covered in the previous questions, e.g. two languages to be used.
Simulator equipment	
List the simulation requirements, if any, that are necessary to achieve the training outcome.	Either state the type of simulator (e.g. part-task trainer, hi-fidelity simulator, operational controller, work position emulator) or the simulator/manufacturer name.

Appendix C provides an example of a completed training specification.

3.5 WORKFLOW 2: DESIGN OF COMPETENCY-BASED TRAINING AND ASSESSMENT

3.5.1 The purpose of the design of competency-based training and assessment workflow is threefold:

a) to establish an adapted competency model that is aligned with the training specification identified in the previous workflow;

b) to design an assessment plan that will be used to assess the competence of trainees; and

c) to design the training plan that will enable the development and delivery of the training course.

3.5.2 In the following sections, Workflow 2 is shown in two parts:

Workflow 2 — Part 1 deals with the design of the adapted competency model.

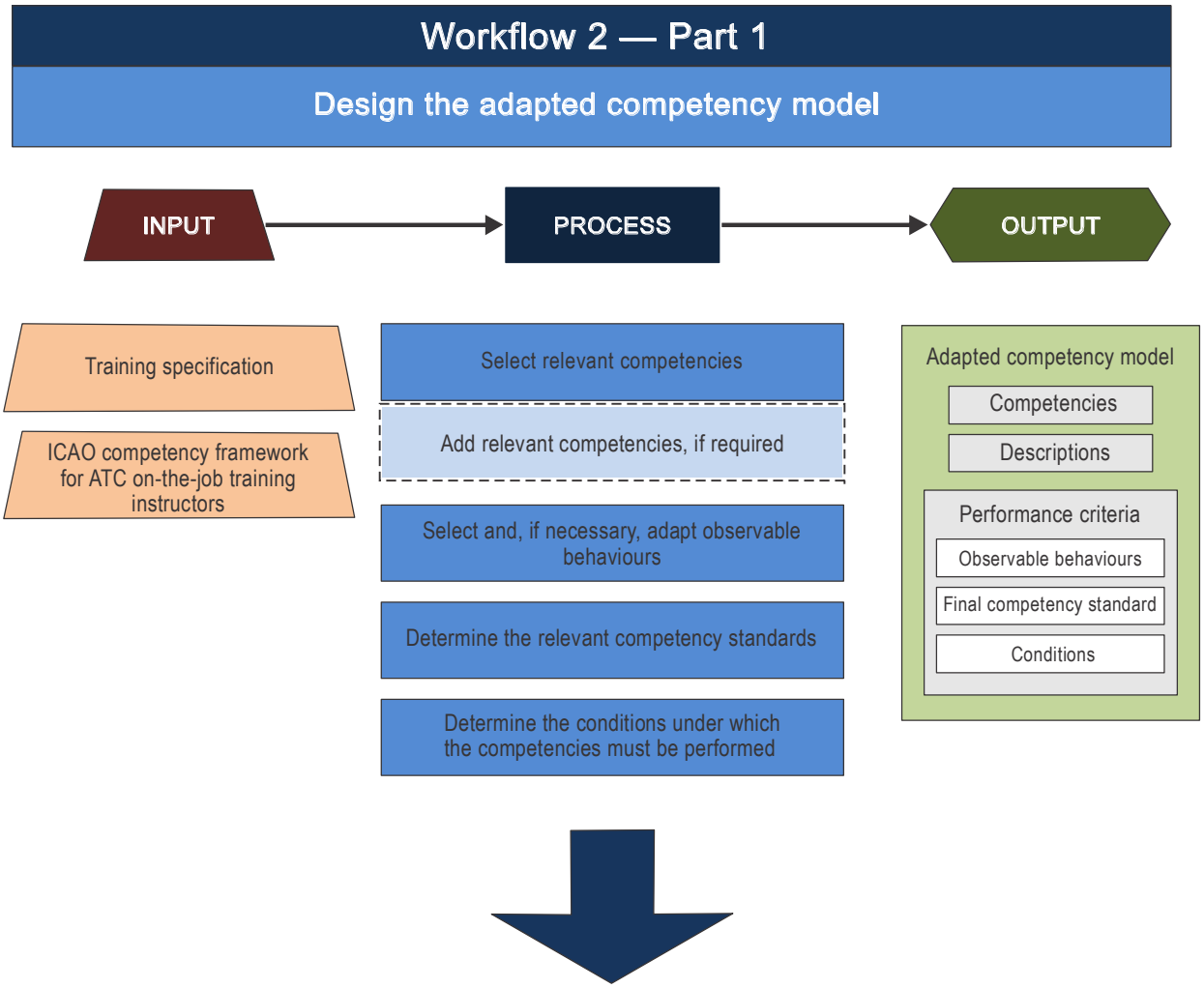
Workflow 2 — Part 2 deals with the design of the assessment and training plans.

3.5.3 Note that the processes for developing the assessment and training plans are iterative, however, the outputs are separate. Consequently, Workflow 2 — Part 2 incorporates both processes and both outputs.

3.6 WORKFLOW 2 — PART 1: DESIGN THE ADAPTED COMPETENCY MODEL

3.6.1 To design the adapted competency model, the PANS-TRG OJTI competency framework is adapted to meet the local OJTI competency requirements. The information contained in the training specification is used to make this adaptation.

3.6.2 The workflow diagram below may be used to aid the design process.



3.6.3 Selection and/or addition of the competencies

3.6.3.1 The ICAO ATC OJTI competency framework provides a set of generic competencies that may be applicable to the OJTI, depending on the various requirements that influence the role. Although not mandatory, it is anticipated that, as a minimum, the competencies concerned with situational awareness, safety and efficiency management, teaching and instructing and communication would be included in all adapted competency models. When a training designer decides to add or remove a competency, there should be a clear and justifiable reason to do so.

Examples of competencies that may not be included in an adapted competency model

Mentoring — ANSPs may decide that the mentoring role is carried out by someone who is not part of the instructing team and, therefore, this competency is not one that their OJTIs require.

Self-assessment — while ANSPs may recognize that this is a beneficial competency for the OJTIs to have, the ANSPs may not yet have the culture or learning environment that enables fair evaluation of this competency. The ANSPs may decide to make this something that they aspire to achieve without it being formalized in the competency model.

Ethics and Integrity — ANSPs may determine that they do not have codes of conduct that are sufficiently mature to enable fair and objective assessment of the required behaviours.

3.6.3.2 In some instances, it may become necessary to add an additional competency to the adapted competency model. In this case, the designer should also develop the associated observable behaviours.

3.6.4 Selection and adaptation of the observable behaviours

3.6.4.1 The ICAO ATC OJTI competency framework provides a comprehensive list of observable behaviours associated with each of the competencies. The observable behaviours that are appropriate in the local environment should be selected and, if necessary, adapted.

Examples of observable behaviours that may need to be adapted or not included

In the communication competency, consider the observable behaviour: *Explains cognitive strategies clearly*.

This observable behaviour is primarily focused on training new ATCO trainees who may need guidance on how to go about analysing situations or figuring out how to think about prioritization. ANSPs may have decided to teach these types of cognitive strategies during initial training or pre-OJT. If this were the case, the ANSPs would not expect their OJTIs to be doing this and may delete this behaviour.

In the assessment competency, consider the observable behaviour: *Determines remedial actions required to address deficiencies in performance, when appropriate.*

An ANSP allocates training responsibilities so that the determination of what remedial actions are necessary is carried out by the training manager and not the OJTI. In this case, the observable behaviour may be deleted or adapted so that the OJTI provides input that will help the training manager work out what remedial actions are necessary.

Other examples of observable behaviours that may not be applicable in all environments:

In the collaboration competency: *Request supplementary resources to help trainee, when required (e.g. learning support specialist, counselling, and additional practice on the simulator).* This may not be feasible if there are no additional resources that can be requested.

In the self-assessment competency: *Improves performance through self-evaluation of the effectiveness of actions.* It may not be possible to assess this type of improvement in the time frame permitted.

3.6.4.2 In some instances, the observable behaviours in the ICAO ATC OJTI competency framework include examples to give an indication of what is intended. When selecting the observable behaviour for the adapted competency model, these examples need not be included as they are provided for explanatory purposes only. If the designer does not wish to lose the examples, the applicable examples may be included in the evidence guide used to support the observation of the required behaviours.

Examples

Safety and efficiency management: *Manages own and trainee's workload to ensure safe and efficient operations (e.g. sector splitting, increased spacing, adapting instructional techniques).*

Teaching and instructing: *Uses targeted training techniques to enable learning (e.g. verbal problem-solving techniques, demonstration, immediate bad habit correction, trainee involvement, questioning techniques).*

3.6.5 Determining competency standards

Competency standards apply to all observable behaviours and relate to compliance with the standards and procedures, rules and regulations as described in the relevant documents (e.g. national rules, Manual of Air Traffic Services).

3.6.6 Determining conditions

3.6.6.1 Conditions refer to anything that may qualify performance in the local environment. For OJTI training, conditions may relate to the air traffic environment in which OJTIs carry out their training (including simulated environments) and the tools and systems and/or equipment that are used. Additionally, conditions may also relate to the type of learning environment in which OJTIs are required to work. The training specification completed in Workflow 1 may be used to identify some of these conditions.

3.6.6.2 Most of the conditions will apply generically to all of the observable behaviours that have been identified as part of the adapted competency model. However, in very few instances, specific conditions may be associated with some observable behaviours.

3.6.6.3 There are different types of conditions that may be considered for the FCS:

Conditions relating to air traffic environment:

Examples of these types of conditions are similar to ATCO training and include:

a) ATC environment (area airspace with surveillance, tower environment, etc.)

b) traffic levels (low, medium, high);

c) traffic complexity (non-complex, average complexity, high complexity);

d) type of traffic (instrument flight rules (IFR)/visual flight rules (VFR)/special visual flight rules (SVFR), arrivals, departures, overflights, etc.); and

e) environmental context (different types of adverse weather, configuration of sectors).

Conditions relating to tools and systems or equipment

Examples of these types of conditions are also similar to how they are described for ATCO training and include:

a) tools, equipment and/or systems available under normal operating conditions (MTCD [medium term conflict detection] SMR [surface movement radar], CPDLC [controller-pilot data link communications), DMAN [departure manager], SMAN [surface manager]); and

b) whether the performance takes place in a simulated or live operational environment.

Conditions relating to the learning environment

Examples of these types of conditions include:

a) Team environment in which the OJTI is expected to collaborate with others, including supervisors and other OJTIs.

b) ATCO trainees include:

1) inexperienced trainee ATCOs, e.g. first validation; and

2) experienced ATCOs, e.g. moving to a new unit after 10 years in first unit;

c) ATCO trainees representing a wide range on the learning spectrum, e.g. fast learners who are self-motivated and ambitious, steady progress learners who are self-directed, learners who are very slow to progress, etc.

Appendix C contains an example of an adapted competency model.

3.7 WORKFLOW 2 — PART 2. DESIGN THE ASSESSMENT AND TRAINING PLANS

3.7.1 Prior to developing the assessment and training plans, it is important to appreciate:

a) the principles of competency-based assessment;

b) typical assessment methods;

c) FCSs; and

d) the relationship between the adapted competency model, the training plan and the assessment plan.

3.7.2 The principles of assessment in a competency-based environment

3.7.2.1 In a competency-based environment, the following principles apply:

3.7.2.2 *Clear performance criteria are used to assess competence*

The adapted competency model establishes these performance criteria.

3.7.2.3 *An integrated performance of the competencies is observed*

The trainees undergoing assessment must demonstrate all competencies and their seamless interaction with each other.

3.7.2.4 *Multiple observations are undertaken*

To determine whether a trainee has achieved the FCS, multiple observations must be carried out.

3.7.2.5 *Assessments are valid*

All of the components that comprise the adapted competency model must be assessed. There must be sufficient evidence to ensure that the trainee meets the competency specified in the FCS. The trainee must not be asked to provide evidence for, or be assessed against, activities that are outside the scope of the adapted competency model.

3.7.2.6 *Assessments are reliable*

All assessors should reach the same conclusion when performing an assessment. All assessors should be trained and monitored to achieve and maintain an acceptable level of inter-rater reliability.

3.7.3 Assessment methods

3.7.3.1 The primary method for assessing performance is the conduct of practical assessments because the focus is on an integrated performance of competencies. It may also be necessary to supplement practical assessments with other forms of evaluation such as oral assessments, theoretical examinations or simulation. The supplemental evaluations may be included as a result of regulatory requirements and/or a decision that these methods are necessary to confirm that competence has been achieved. Practical assessments take place in either a simulated or live operational environment. There are two types of practical assessment: formative and summative.

3.7.3.2 *Formative assessments*

3.7.3.2.1 Formative assessments are a part of the learning process. Instructors provide feedback to the trainees on how they are progressing toward the FCS.

3.7.3.2.2 This type of assessment enables the trainees to progressively build on knowledge, skills and competencies already acquired and should aid learning by identifying gaps as learning opportunities.

3.7.3.2.3 If trainees receive feedback or are assessed only at the very end of the training, they have no opportunity to use that information to improve their performances.

3.7.3.2.4 The frequency and number of formative assessments may vary depending on the duration of the training.

3.7.3.2.5 Formative assessments should serve to:

a) motivate trainees;

b) identify strengths and weaknesses; and

c) promote learning.

3.7.3.3 *Summative assessments*

3.7.3.3.1 Summative assessments provide the method whereby a trainee demonstrates competence. This method enables the instructor or assessor to work with a trainee to collect evidence of competence.

3.7.3.3.2 Summative assessments are carried out at defined points during the training and/or at the end of training.

3.7.3.3.3 During summative assessments, the decision is either “competent” or “not competent”. However, this can be further developed into a more refined grading system with a scale of judgments to improve feedback to the trainee and training personnel.

3.7.3.3.4 Summative assessments that are conducted during the course to evaluate the progress of the trainee are typically carried out by the instructing team. It may be advantageous if instructors conducting these assessments are not the same instructors who work routinely with the trainee.

3.7.3.3.5 Summative assessments of OJTIs have both legal and safety implications, and therefore the personnel carrying out these assessments should have the necessary competencies to assess objectively and meet the authority’s requirements. These personnel should be provided with the tools necessary to collect evidence in a systematic and reliable manner in order to ensure inter-rater reliability.

3.7.3.4 *Oral assessment*

3.7.3.4.1 Oral assessment is a method that may be used to supplement a summative assessment.

3.7.3.4.2 Practical assessment has some limitations including:

a) it may not be possible to observe a representative cross section of all the competencies and/or the unit’s operation; and

b) it is not feasible to enter into discussions with trainees while they are undertaking the practical assessment.

3.7.3.4.3 The oral assessment provides the assessor with an opportunity to target those areas of performance that could not realistically be observed in the practical environment (e.g. a particular type of challenging behaviour from the trainee) and to refocus on certain actions observed during the practical assessment that may have been cause for some concern.

3.7.3.4.4 Oral assessments are usually scenario-based and are designed around situations that the assessor wants to explore further. The assessor explains the scenario and then asks the trainees to describe what actions they would take. After the trainees have described their actions, the assessor may ask further clarifying questions. The assessor then assesses the trainees' responses in relation to the adapted competency model.

3.7.3.5 *Examinations*

3.7.3.5.1 Examinations are used to evaluate theoretical knowledge and to a lesser extent the application of some basic skills. Examinations may be written or completed with the aid of digital equipment and/or online applications.

3.7.3.5.2 Typical areas that are evaluated through examinations include:

a) ANSP training processes and procedures, including unit- or centre-specific procedures;

b) theories of learning;

c) regulatory aspects of the role;

d) types of questions;

e) methods of intervention; and

f) coping mechanisms.

3.7.4 The assessment plan

3.7.4.1 The purpose of the assessment plan is to detail how competence is going to be determined. It supports the principles of assessment in a competency-based environment. The assessment plan details:

a) the FCS;

b) the list of assessments (e.g. formative and summative assessments, examinations, oral assessments);

c) when these assessments should take place;

d) the pass marks for oral assessments and/or examinations;

e) if required, the minimum number of formative assessments to be undertaken prior to starting summative assessments;

f) the number of observations required to assess performance; and

g) the tools used to collect evidence during practical assessment.

3.7.4.2 Note that in this document it is assumed that the organization has a Training and Procedures Manual that describes the administrative procedures relating to:

a) which personnel may conduct assessments and the trainees' qualifications;

b) roles and responsibilities of personnel during the conduct of assessments;

c) assessment procedures (preparation, conduct and post-assessment);

d) conditions under which assessment is undertaken;

e) record-keeping; and

f) actions to be taken when a trainee fails to meet the requirements of the assessment.

3.7.5 The training plan

3.7.5.1 The purpose of the training plan is to detail the:

a) composition and structure of the course;

b) syllabus;

d) modules, training events and their delivery sequence; and

e) course schedule.

3.7.5.2 The training plan will be used by the training designer(s) to create the training and assessment materials.

3.7.6 Relationship between the adapted competency model, the training plan and the assessment plan

3.7.6.1 The relationship between the adapted competency model, the training plan and the assessment plan is fundamental to understanding how competency-based training and assessment works.

3.7.6.2 The training specification serves as the common basis for the development of the adapted competency model, the training plan and the assessment plan.

3.7.6.3 Generally, when developing the adapted competency framework, the task list is used to aid the selection of the observable behaviours from the ICAO ATC OJTI competency framework. The operational, technical, regulatory and organizational requirements aid the development of the conditions and standards that will apply to the competencies and observable behaviours.

3.7.6.4 The same task list and requirements are used to develop the training plan. This training plan is used to prepare the trainees to undertake assessment to determine if they are competent in accordance with the adapted competency model.

3.7.6.5 The adapted competency model and the training plan are used to develop the assessment plan.

3.7.6.6 The syllabus in the training plan is composed of tasks and subtasks, as well as the underlying KSA required to support these tasks. However, when assessing if competence has been achieved, the adapted competency model, not the syllabus, is referenced. Consequently, performance criteria are used to assess if competence has been achieved and the tasks/subtasks that are carried out by the trainee are the "vehicle" for enabling the assessment to be conducted.

3.7.6.7 Figure II-3-2 illustrates the relationship between Workflow 1 and Workflow 2.

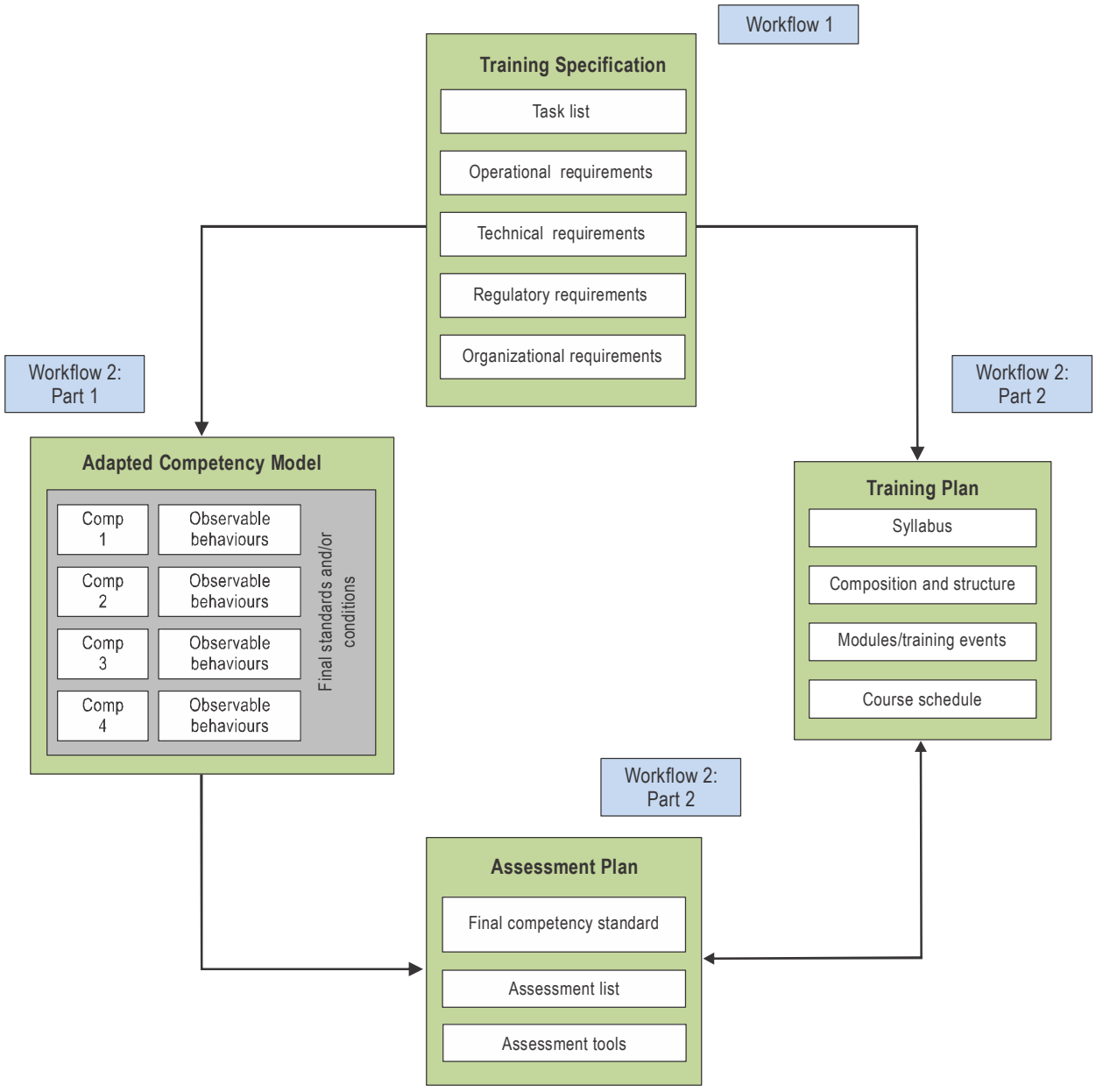
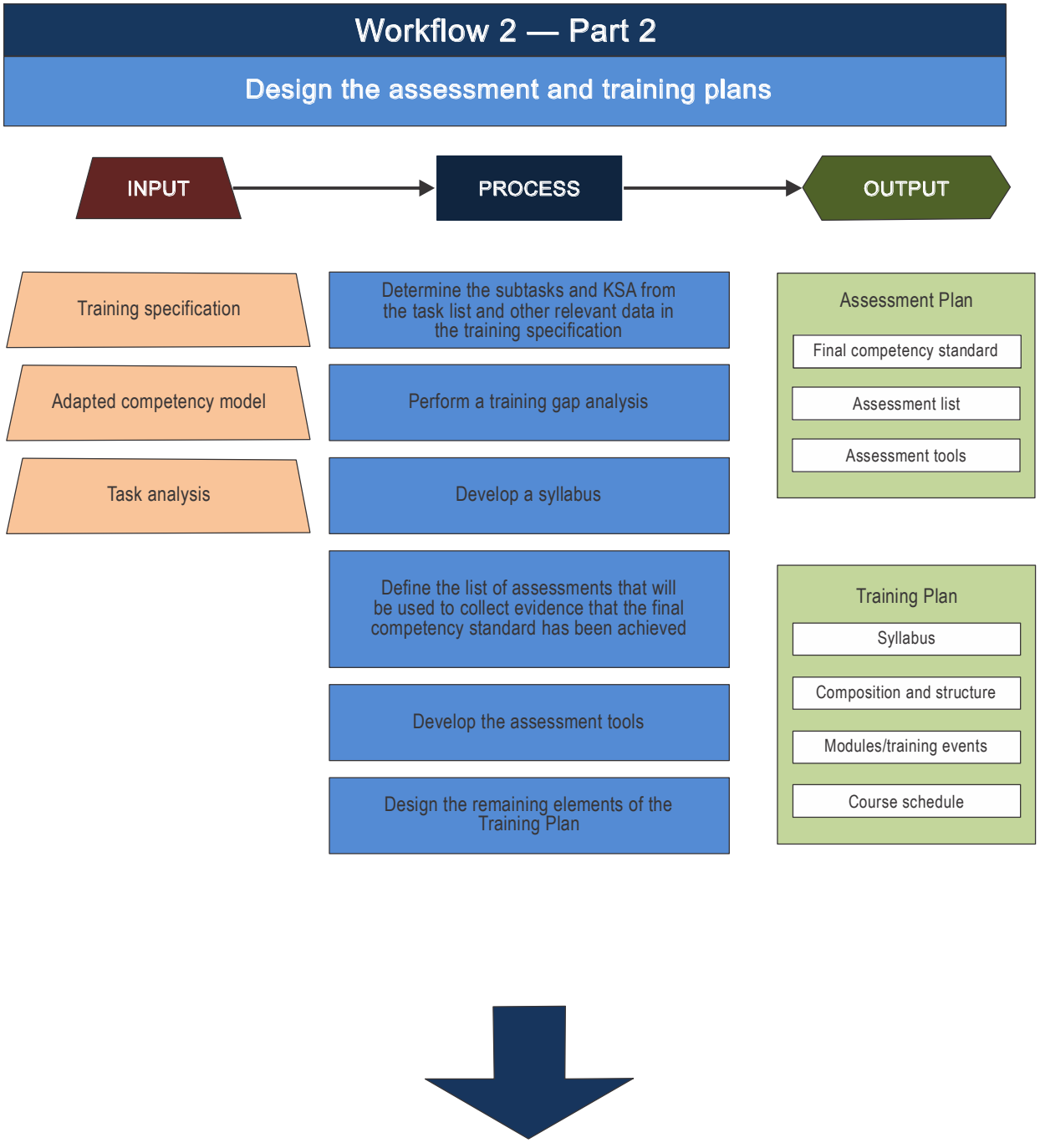


Figure II-3-2. Relationship between Workflow 1 and Workflow 2

3.7.7 The process for designing the assessment and training plans

3.7.7.1 The workflow diagram below may be used to aid the design process.



3.7.7.2 *Determining the subtasks and knowledge, skills and attitudes (KSA)*

3.7.7.2.1 To develop the training, it is necessary to determine the tasks and subtasks that the trainee will perform and the KSA required to do so. The task list has already been recorded in the training specification (Workflow 1). Therefore, the subtasks and KSA are determined on the basis of the task list, in conjunction with any detailed task analysis (if available) and taking into account the operational, technical, regulatory and organizational requirements.

3.7.7.2.2 It is not necessary to list a knowledge element, a skill element and an attitude element for each task; only the required elements are listed.

3.7.7.2.3 It is inevitable that there will be some duplications of the KSA from task to task. A consolidated list should be prepared that contains the required tasks, subtasks and KSA, without duplication.

3.7.7.3 *Perform training gap analysis*

The training gap analysis is used to compare the tasks/subtasks and KSA required to perform competently (i.e. the list prepared in 3.7.8.1.1) and the trainee population's current level of task execution and KSA. The end result of the training gap analysis is a list of tasks/subtasks and KSA that will be used to develop the syllabus. In some instances, it may not be possible to accurately analyse the target population (because it is not yet known). A baseline level of tasks/subtasks and KSA is assumed to exist and the training developed on this assumption. Clearly, once the target population is known, it must be verified that the assumption is still correct and, if not, adjustments should be made to the tasks/subtasks and KSA.

3.7.7.4 *Develop syllabus*

The syllabus is the list of tasks/subtasks and KSA that have been formulated into training objectives and structured in such a way that it will be possible to gauge the scale of the training. The syllabus is an element of the training plan.
Appendix C contains an example of a syllabus.

3.7.7.5 *Define the list of assessments*

3.7.7.5.1 The number of assessments required and the methods that will be used are determined by the complexity of the training and any regulatory requirements.

3.7.7.5.2 An example of an assessment list for simulated OJTI training in preparation for performing the job in the live operational environment is provided below. For this example, the course lasts two weeks, with the first three days being carried out in the classroom and the remaining days in the simulator. Each participant will have completed a series of exercises as the OJTI, as the trainee ATCO and as an observer.

3.7.7.5.3 The FCS will be achieved when the candidate has successfully completed the following:

Formative assessments	
A minimum of four formative assessments have been completed with the candidate performing as the OJTI.	
Written examinations	
Subject	*Pass mark*
OJTI Theory	80 per cent
Summative assessments	
The candidate must demonstrate consistent performance of the competencies defined in the adapted competency model for at least two consecutive summative assessments.	A competent/ not competent judgment is made for each assessment.
Oral assessment	
The candidate must successfully pass an oral assessment. The duration of the oral assessment is 15 to 20 minutes. The oral assessment will be comprised of scenario-based questions relating to OJTI procedures and will include at least one scenario that is significantly influenced by the behaviour of the ATCO trainee. The oral assessment shall take place after the successful completion of summative assessments and may include scenarios based on the practical performance during these assessments.	*Pass mark* 80 per cent

3.7.7.6 *Develop assessment tools*

The following documents should be designed to support practical assessments.

Evidence guide

3.7.7.6.1 An evidence guide contains word pictures for each performance criterion. It translates the performance criterion from the adapted competency model into practical examples of observations that assessors and instructors can expect to see. It is used to eliminate different interpretations among instructors and assessors and ensures valid and reliable evidence is gathered. It details competencies, their associated observable behaviours, and the expected performance that should be observed at the competency standard.

3.7.7.6.2 Appendix C contains an example of an evidence guide.

Competency checklist

3.7.7.6.3 A competency checklist details the competencies and performance criteria and is used to record achievements during each formative and summative assessment. The assessment plan details how many assessments should be completed.

3.7.7.6.4 Appendix C contains an example of a competency checklist.

3.7.7.6.5 *Competency assessment form*

The competency assessment form is used to summarize the results of all assessments and examinations that have been undertaken by a trainee (practical, oral and written) and then to decide if the FCS has been achieved. The number and method(s) of assessments are described in the assessment plan. The competency assessment form must correlate with the assessment plan.

3.7.7.6.6 Appendix C contains an example of a competency assessment form.

3.7.7.7 *Design the training plan*

The training plan is made up of the following elements.

Composition and structure

3.7.7.7.1 This is a high-level description of what will be taught (composition) and how the various elements of training relate to each other (structure). An OJTI course of five to 10 days would typically have a simple, linear structure. If, however, the training course was to encompass the initial training of the OJTI in the classroom and simulator, followed by practice in the live operational environment with a qualified OJTI, as well as theory lessons on advanced instructing and coaching techniques, then the structure would be more complex and it would be important to show how the different elements relate to each other.

Syllabus

3.7.7.7.2 The syllabus is the list of training objectives that will need to be covered by the end of the course. The training objectives are derived from the tasks/subtasks and associated KSA identified in 3.7.7.2 and the training gap analysis as described in 3.7.7.3. A syllabus does not prescribe the order or sequence of learning, it simply lists the training objectives. To make the process of assigning training objectives to the various modules and training events easier, it is useful to structure a syllabus into logical groups of subjects.

Modules, training events and sequence

3.7.7.7.3 Depending on the number, type and complexity of the training objectives, it may be helpful to further subdivide the training into modules.

3.7.7.7.4 Whichever substructure is determined as appropriate (course, milestones, modules), training events are developed to support the substructure. Training events are the smallest unit of learning and include classroom-based lessons, simulator exercises, web-based training exercises, case studies, etc. Training events contain the following information:

a) which objectives are grouped and taught together (i.e. a training event);

b) the number of sessions needed to teach each group of objectives;

c) what method(s) should be used (e.g. lessons, case studies, individual simulation, briefing, self-study);

d) which media are used (e.g. simulators, visual aids, textbook);

e) the learning rate (i.e. self-paced, time-restricted or real time); and

f) whether the training is delivered to individuals or in groups.

3.7.7.7.5 Training events should be sequenced into an order of delivery that takes into account sound pedagogic practice, the defined substructure and the assessment requirements. Training events are the template that the training designers use to create the training materials necessary to deliver the course.

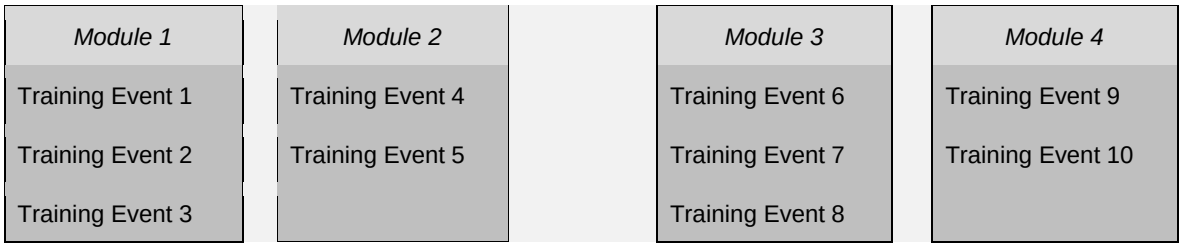
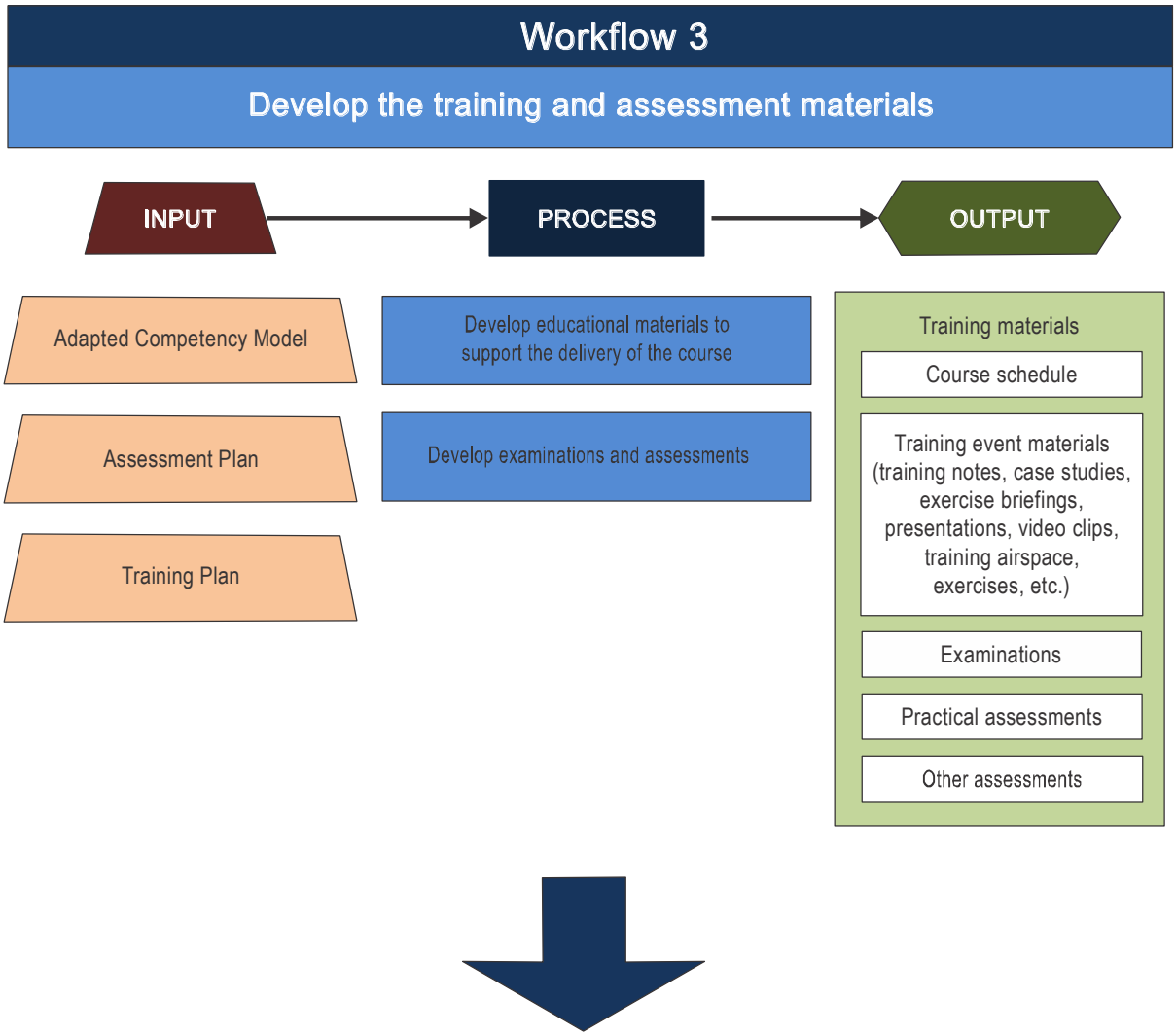


Figure II-3-3. Training events within modules

3.7.7.7.6 *Course schedule*

The course schedule indicates how training events and assessments fit together into the total duration of the course.

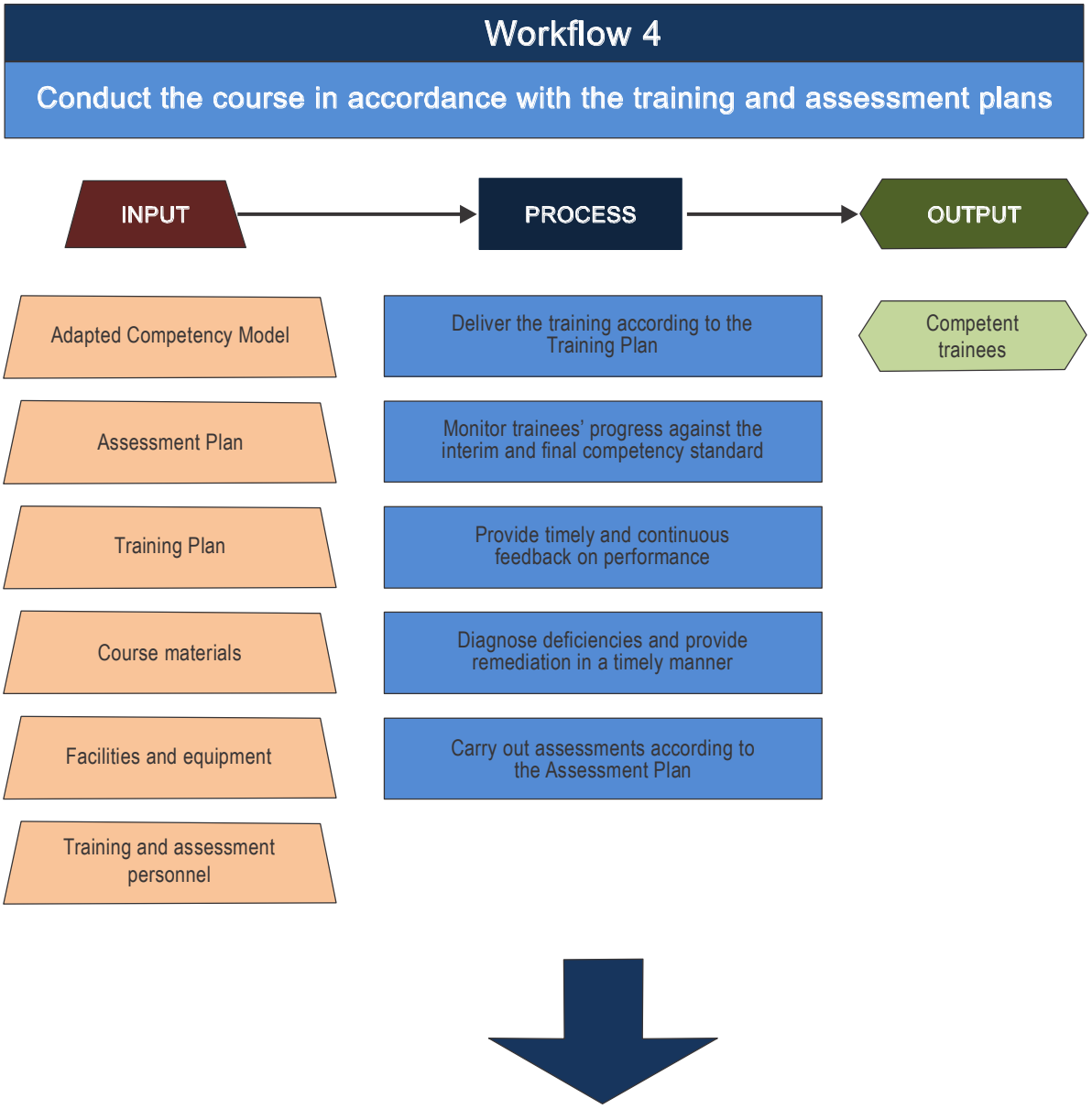
3.8 WORKFLOW 3: DEVELOP THE TRAINING AND ASSESSMENT MATERIALS



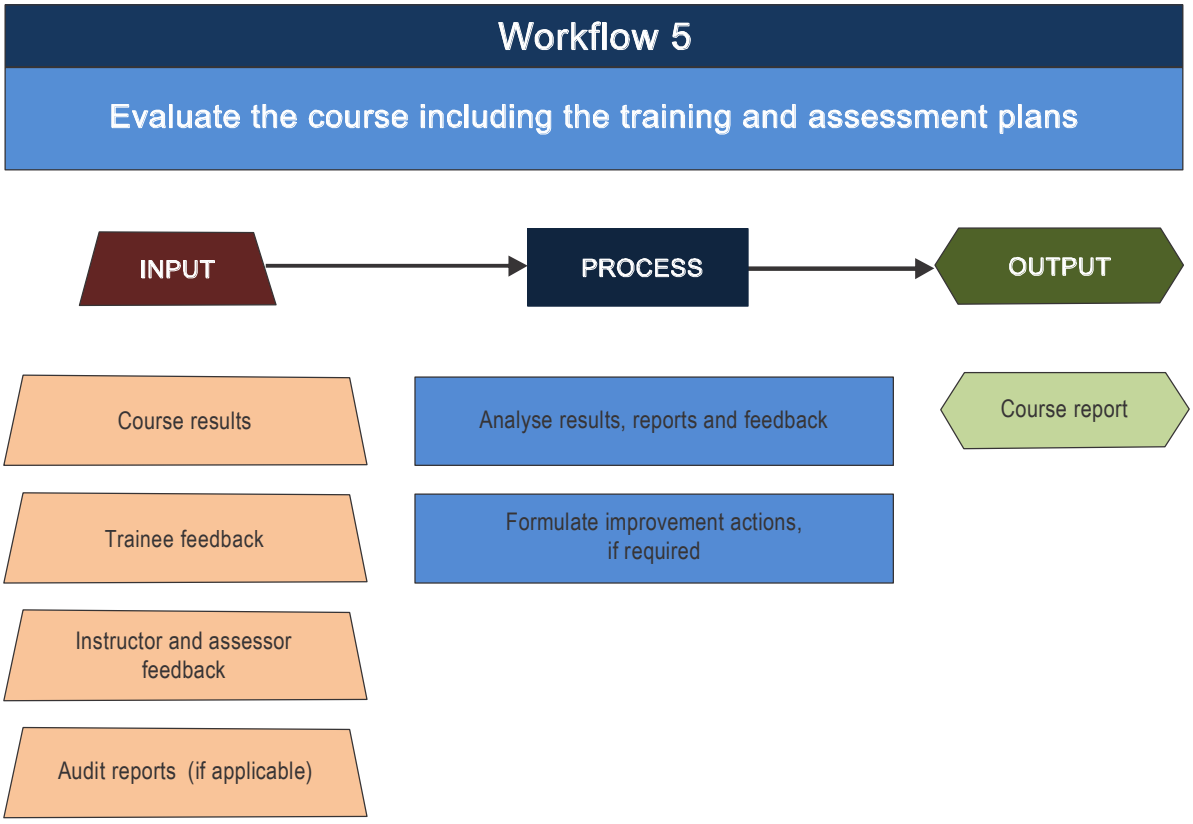
3.8.1 During this step, all training and assessment materials are developed based on the adapted competency model, the training plan and the assessment plan. Training and assessment materials include, but are not limited to, training notes, exercise briefings, practical exercises, case studies, presentations, video clips, self-test quizzes, examinations, assessments and assessment tools.

3.8.2 On completion of this workflow, the outputs should include all training and assessment materials, schedules and any other applicable training resources.

3.9 WORKFLOW 4: CONDUCT THE COURSE IN ACCORDANCE WITH THE TRAINING AND ASSESSMENT PLANS



3.10 WORKFLOW 5: EVALUATE THE COURSE INCLUDING THE TRAINING AND ASSESSMENT PLANS



At the end of a period of training, feedback from trainees, instructors and assessors is gathered to determine how well the course met its objectives and supported the progression of learning towards competence. This evaluation may lead to changes or improvements being made to the course.

Chapter 4

INSTRUCTORS AND ASSESSORS

4.1 INTRODUCTION

4.1.1 Chapter 3 of the *Manual on Air Traffic Controller Competency-based Training and Assessment,* Volume I, describes the role of on-the-job training instructors (OJTIs) and assessors in a competency-based training and assessment environment. The content of this chapter has been repeated in this manual (modified to focus on the OJTI), as it is vital that any training or development programme established for OJTIs takes into account the competency-based elements of instructing.

4.1.2 OJTIs and assessors make use of the adapted competency model, the training plan and the assessment plan and associated materials to implement an ATCO training course, or in the case of the OJTI, to deliver the operational training. To do this effectively, the OJTIs must be competent to deliver competency-based training and assessment.

4.1.3 While all instructor and assessor roles require knowledge of the applications of an adapted competency model, specific focus on this is required for the OJTIs, as they support the development of the trainee ATCO during the most challenging phase of training, both from a learning and safety perspective.

4.1.4 OJTIs in a competency-based environment shall have an understanding of the overall competency-based training and assessment approach.

4.2 PRACTICAL INSTRUCTING AND ASSESSING

4.2.1 One of the requirements of competency-based training and assessment of ATCOs is that multiple observations are conducted throughout a course or training session. Two types of assessment normally take place:

a) formative assessments are mainly teaching and feedback sessions and are aimed at helping trainees to determine how they are progressing and identifying any performance deficiencies that may exist; and

b) summative assessments are used to establish if the FCS or an ICS have been achieved.

4.2.2 In the case of a formative assessment, the OJTI is both teaching and “assessing” at the same time and therefore needs to be competent to perform both functions. In practice, the results of the assessment aspect of the session are recorded and discussed with trainees as part of their development. Formative assessments would not include a competent or not yet competent result, but they would provide feedback about positive aspects of the performance and where improvements may be necessary.

4.2.3 Typically, during summative assessments, there is no teaching taking place as the objective is to determine if a standard has been reached. However, in a competency-based environment, there are some exceptions to this norm. If a course has been divided into milestones, with ICSs linked to those milestones, it is possible that during the earlier assessments, the trainee may have been given some assistance from the instructor (this would be clearly stated in the ICS for that milestone). In this case, the assessor would also be performing some instructing functions.

4.2.4 When the assessment is conducted in live traffic situations, it must be explicitly clear who is responsible for ensuring safety. In most cases, this would be the person(s) conducting the assessment, but it may also be an additional instructor who is monitoring the trainee, but not conducting the assessment.

4.2.5 In a competency-based environment, the same person can instruct and assess. The following subsections describe the general requirements for instructors and assessors to be able to do their jobs in the competency-based environment.

4.3 GENERAL REQUIREMENTS

To instruct or assess in a competency-based environment, personnel should:

a) fully understand the principles of competency-based training and assessment;

b) have detailed knowledge of the adapted competency model and assessment plan. This is especially important when the assessment plan includes multiple milestones with ICSs; and

c) use the tools and documentation that ensure a fair and objective assessment of interim and final competency standards (i.e. evidence guides, competency checklists and competency assessment forms).

4.4 INSTRUCTORS

To teach effectively, an instructor will need to demonstrate many competencies, and personnel who are to take up instructing duties should be adequately trained. For competency-based training, the instructors will specifically need:

a) **To instruct based on the training plan and associated training materials**

The training plan details the structure and order of the training, which is directly linked to the requirements of the assessment plan.

b) **To understand the merits of, and provide timely and continuous feedback on, a trainee's performance**

Feedback is an important component of learning that helps trainees to progress towards the interim and final competency standards. Feedback may be positive to reinforce desirable performance or it may be information about how a trainee's performance differs from the standard. Feedback should be supportive and timely, and trainees should finish each session with a clear understanding of what they need to do to improve.

c) **To use the adapted competency model to diagnose the root cause(s) of performance difficulties**

The adapted competency model, particularly the performance criteria, helps the instructor to analyse a trainee's performance and identify which competencies have not yet been fully mastered.

For example, the trainee is routinely becoming overloaded and, as a result, starts making poor control decisions. In this case, the instructor could easily begin focusing exclusively on correcting poor control decisions; however, with the aid of the adapted competency model, the instructor may consider identifying a wider number of possible performance issues that could be the root causes affecting the trainee's performance, including the:

1) trainee's failure to make use of the tools and equipment that increase efficiency;

2) trainee is putting too much focus on the use of the tools and equipment and not enough on the traffic situation;

3) trainee is not fully familiar with the standard procedures and so is using a significant amount of time thinking of how to work out what to do; and/or

4) trainee is not taking appropriate action to ensure that demand does not exceed capacity.

If the instructor in the above example focuses only on correcting the trainee's control actions when, in reality, the problem is incompetent use of the tools available to increase efficiency, the problem is likely to persist and very slow progress will be made.

d) **To recognize the challenges associated with instructing and diagnosing deficiencies in the cognitive processes**

It is not possible to observe what a trainee is thinking, so it is difficult to monitor the development of competencies such as:

1) situational awareness,

2) problem-solving and decision-making,

3) some aspects of traffic and capacity management, and

4) some aspects of separation and conflict resolution.

At best, the instructor can observe the trainee's performance and infer from the outcomes that the trainee's strategies, problem-solving and planning are effective. However, without any further exploration of the trainee's thinking, it is also possible that the observed outcomes were achieved by chance.

To address this challenge, instructors may ask their trainees to explain their control plan prior to carrying it out, their reasons for performing certain actions, or their priorities at a particular moment in time. Of course, the instructor should recognize when it is appropriate to ask these questions and when it would distract trainees from their tasks. The instructor should also recognize that the questions must be appropriate for the phase of training being conducted; for example, it is unlikely that the questions asked of new trainees who have just started their first rating at a unit would be the same as the questions asked of experienced ATCOs who are undertaking conversion training onto a new system. If it is not possible to ask these questions during the training session, the instructor should save these discussions for the debriefing afterwards. Obtaining insight into how the trainee is thinking will help the instructor to diagnose if a problem with competencies needs to be addressed.

e) **To manage issues related to attitude**

Attitudes are identified in the adapted competency model and elaborated in the evidence guide. Instructors should use the evidence guide to identify attitudinal issues. They should be able to employ the appropriate technique(s) to support trainees in acquiring or adjusting attitudes (e.g. coaching, mental fitness).

4.5 ASSESSORS

4.5.1 In a competency-based environment, the assessor:

a) gathers evidence of competent performance through practical observations (and any associated interviews); and

b) analyses all the evidence to determine if the trainees' performances demonstrate that they have acquired or maintained the competencies detailed in the adapted competency model.

4.5.2 A nominated person within the organization gathers all the competency checklists and competency assessment forms that have been completed and the results of any examinations or other assessments that have been undertaken, and then compares them with the FCS requirements detailed in the assessment plan. If all the requirements are fulfilled, the trainee is considered to be competent.

4.5.3 The assessor of the practical performance of a trainee should:

a) **Be able to assess an integrated performance and, at the same time, evaluate the performance of separate competencies**

Since one of the competence requirements is that the trainee demonstrates an integrated performance of the competencies, the assessor is required to evaluate if this integration has been achieved. In addition, when the performance is not at the competence standard that is being assessed, the assessor should be capable of identifying if any of the individual competencies may be inadequate and provide clear evidence for the resulting conclusions.

b) **Conduct assessment(s) by gathering evidence of competent performance**

Assessors obtain and assess evidence to determine if a trainee is competent. To do this effectively, the assessor should be capable of sound judgment, possess analytical skills and be able to distinguish crucial or essential issues from those less important.

A significant part of gathering evidence is done through observation of performance; however, it may be necessary to ask trainees to explain some of their thinking so as to evaluate their cognitive skills. The assessor should be able to manage this interaction with the trainees tactfully and recognize when it is most appropriate to make these enquiries. To this end, the assessor should be constantly aware of the effects of assessment observations and personal interactions during the assessments. It may be necessary, or possibly even planned, that these questions take place during a dedicated interview or as part of a debriefing after the practical session.

The assessor should use the evidence obtained to reach a substantiated conclusion about the practical performance of the trainee.

c) **Use the tools provided in the assessment plan**

The assessment plan provides not only the details of when and what will be assessed, but also includes the tools to be used to assess competence. These include the evidence guide, the competency checklist and the competency assessment forms.

Assessors should be sufficiently familiar with the evidence guide and competency checklist to ensure that during summative assessments their attention is focused mainly on observing the performance of the trainee and not on finding information in the tools or working out how to use the tools.

d) **Debrief the trainees in a manner that will aid their progress**

Being assessed, particularly in the case of summative assessments, can be a stressful experience for trainees. Nonetheless, the assessor should be able to debrief the trainee in a manner that encourages a positive mindset and a willingness to continue to learn and make progress.

In some instances, particularly where the trainee's performance has been considerably below the standard, the assessor should take into account the human aspects of delivering difficult messages and ensure that the feedback is objective, can be substantiated and that the trainee understands what needs to be changed to improve performance.

Chapter 5

ON-THE-JOB TRAINING INSTRUCTOR (OJTI) DEVELOPMENT PROGRAMME CONSIDERATIONS

5.1 INTRODUCTION

5.1.2 Performing the role of an OJTI is challenging. Clearly, the quality of the instructors affects the learning experience and outcome for each ATCO trainee. It also affects the productivity of the ANSPs training section and its ability to supply competent ATCOs to the operational units. A significant amount of learning occurs in the live operational environment that requires the OJTIs to be adequately trained to fulfil their roles. Training that is focused on active learning experiences, connections to real life, ongoing support, coaching, and mentoring are typically more likely to ensure sustained changes in behaviour. Likewise, adequate and effective training time is necessary to allow for understanding, consolidation, and incorporation of new competencies. Additionally, ongoing professional development and learning will help to ensure that OJTI's competencies are maintained and further developed.

5.1.3 There are many different ways in which ANSPs may approach the development of their OJTIs. This may range from providing dedicated training courses, to pairing a trainee OJTI with a qualified OJTI as a mentor, to enhanced pedagogic training outside of the ATM domain. Irrespective of how the development programme is carried out, as a minimum, the OJTIs will need to obtain their OJTI qualifications and subsequently maintain their ATC OJTI competencies.

5.1.4 This chapter considers some of the challenges of developing OJTI programmes and suggests possible ways to address some of those challenges. Please note that the suggestions and examples are provided to aid internal discussions on how to develop an OJTI programme and in no way are intended to be mandated.

5.1.5 Irrespective of how the development programme is structured, ANSPs should consider how they select their OJTIs, how these OJTIs achieve their OJTI qualifications, how they maintain their competencies and how these competencies may be enhanced. The sections on maintaining OJTI competence and enhancing competencies are written separately but in practice, some activities that are designed to maintain competence could as easily be considered as enhancement activities.

5.1.6 Furthermore, when this chapter refers to an "OJTI qualification", it should be understood as a generic way to refer to the result of the process that an ANSP establishes to determine that a candidate is competent as an OJTI. This process should meet any regulatory requirements for the qualification of OJTIs. This "qualification" can be manifested in different ways, for example, as an endorsement in a licence, as a certificate, or as a record in the ANSPs database.

5.2 SELECTING OJTIS

5.2.1 ANSPs select candidates from their pool of ATCOs to develop as OJTIs. The methods used to make this selection are varied but should at least recognize that:

a) high performing ATCOs do not automatically make for competent OJTIs, as the OJTIs must also have the ability to build up solid learning relationships, coach and mentor trainees and be able to self-reflect on their respective performances as OJTIs, even in challenging circumstances;

b) the candidate should be a competent ATCO who is respected and accepted in the operational environment;

c) a strong desire to enable others to succeed is a powerful motivator for a potential OJTI;

d) the ATCO has already demonstrated commitment to continuous improvement;

e) the ATCO embodies the values of the organization; and

f) some key OJTI competencies are already evident (e.g. collaboration, self-assessment).

5.2.2 Regulatory requirements may oblige ANSPs to select candidates who have gained a minimum number of years' experience as an operational ATCO prior to becoming an OJTI.

5.3 OBTAINING AN OJTI QUALIFICATION

5.3.1 Once the candidate OJTIs have been selected, they should undergo a development programme that enables them to demonstrate that they have acquired the competencies necessary to perform as an OJTI. These competencies are defined in the adapted competency model. Only when candidate OJTIs have demonstrated competence and met other regulatory and organizational requirements, are they considered qualified and able to provide OJT independently. A qualification to provide OJT does not mean that the person is automatically entitled to provide OJT. It is the decision of the ANSP or operational unit to approve where and when the OJTI will provide instruction.

5.3.2 The development programme for OJTIs, from selection through to qualification, can take different forms. It may be, for example, a conventional training course, a mentoring programme, a project-based development or a combination of all or some of these.

5.3.3 Whichever form the development programme takes, ultimately the candidate OJTI must demonstrate, practically, the required OJTI competencies (i.e. the competencies defined in the adapted competency model) prior to being declared competent.

5.3.4 When considering the OJTI development programme, it may be useful to recognize that OJTIs need to acquire competencies that are generic to instructing, but then must also be able to apply those competencies in operational environments that have specific training and assessment processes and unique learning cultures. Each time an OJTI moves from one location to another (and sometimes even simply to a new sector group), the OJTI will need to first acquire experience in the new operational environment (e.g. new sectors, tower positions) before being able to provide OJT. Once the OJTI has enough experience in the local environment and has been selected to provide OJT, the OJTI will need to become proficient in the new training and assessment processes and instructing in the new operational environment (e.g. new sectors, tower positions), as well as to adapt to the local learning culture.

5.3.5 Many ANSPs elect to provide a classroom and/or simulator-based course to train all their OJTIs in the basics of instructing and then send them to their local environment to complete their training through live practice under the supervision of a qualified OJTI. However, there are alternative ways to manage the OJTI development programme that may be more suitable and/or more efficient for an ANSP. These could include a development programme within the ANSPs operations where the candidate OJTI learns the job through a variety of methods, including, for example, observations of live OJTI sessions, case studies, self-study of the theory, mentoring and live practice under the supervision of a qualified OJTI.

5.3.6 The structure and content of the training or development activities that an OJTI undertakes to achieve qualification will vary depending on the way the ANSP has defined the OJTI's role (e.g. instructor, mentor and assessor). The following items should be considered when designing the development programme.

5.3.7 Using a simulator

5.3.7.1 Much like trainee ATCOs undergoing OJT, candidate OJTIs should ultimately demonstrate their OJTI competencies in the live operational environment before being declared qualified OJTIs. However, there are benefits in providing some of the OJTI training in a simulated environment prior to progressing to live practice. These include:

a) no compromise to safety;

b) a controlled environment where the learning events can be designed;

c) OJTI training is not at the expense of a real trainee ATCO;

d) a trainee OJTI can experiment with various techniques without affecting live traffic efficiency;

e) an opportunity for OJTI candidates to practice their mentoring, coaching and instructing skills on actors playing the roles of trainees with different attitudes, personalities and abilities; and

f) an opportunity to develop basic skills and techniques of maintaining situational awareness as an OJTI with traffic running at a slower rate than in a real time environment.

5.3.7.2 In certain situations, it may not be possible or practical to make use of a simulator; for example, when an operational unit does not have any simulators or when it is too difficult to get human resources of required qualifications to run such complex simulations.

5.3.7.3 The following may be considered when deciding whether to make use of a simulator for OJTI training or not:

a) Are there any regulatory requirements obliging the use of simulator?

b) Are then any regulatory requirements concerning minimum hours of trainee OJTI practice in the live operational environment?

c) If simulators are available, are they fit for the purpose?

d) If simulators are available, how difficult will it be to make use of them? For example, if the simulators are part of the operations, they could be used for ATCO training, refresher training, procedures and/or system testing, remedial training and therefore difficult to gain access to them.

e) How complex is the operational environment? A busy or complex airspace may make it impractical to carry out OJTI training in the live operational environment until the trainee OJTI has gained some experience in a simulator.

f) Is the training provided to a group of OJTI candidates from different ATC domains, e.g. a mix of tower and area controllers? Consideration would need to be given to what airspace would be simulated.

g) If providing generic training, which airspace(s) and functions will be used? It may be possible to simulate any environment (i.e. tower, approach, area or a generic and non-specific airspace), or it may be preferable to have a generic course with only one airspace and function simulated.

5.3.8 Other approaches to OJTI development

5.3.8.1 It should also be noted that the simulator is not the only tool that may be used for OJTI training. For certain aspects of OJTI training, it may be more effective to use alternative teaching methods and resources. Consideration should be given to how best to achieve the established performance criteria for a particular competency.

Example

Part of the OJTI development for a particular ANSP includes enabling the OJTIs to provide resilience coaching for their trainees. The trainee OJTIs spend one day with a resilience coach doing role-play activities in a classroom. The trainee OJTIs are exposed to trainee ATCOs who display varying levels of confidence, motivation and mental strength and have the opportunity to practice discussion that promotes resilience.

5.3.8.2 In some instances, it may not be practical to use a simulator for OJTI training. It is still possible to provide development activities in the classroom environment such as, table-top exercises; role-play partnering activities; interactive demonstrations; case studies; facilitated discussion using real life examples; self-study and pairing with coaches for some pedagogic activities and observation sessions in the live operational environment.

Example

Due to an increased demand on the use of the simulators for operational training, a training organization is not able to free up its simulators for OJTI practical training. The training organization decides to develop videos of an OJTI delivering instruction and then use these videos in the classroom to discuss aspects of instructing and to practice activities such as debriefing.

5.3.8.3 Some of the competencies could be taught in a non-ATC environment, for example, communication, self-assessment, and ethics and integrity. Even though OJTI competencies will ultimately need to be demonstrated practically and in an integrated fashion, some observable behaviours associated with mentoring, teaching, instructing and coaching competencies, could also be introduced and practiced in a non-ATC environment.

5.3.9 Moving into the live operational environment

5.3.9.1 Adequate support must be given to the trainee OJTI when moving from a classroom or simulated learning environment to providing OJT in a live operational environment. This could include:

a) familiarization with the local training processes, record-keeping and approach to learning; and

b) a period of oversight and coaching for the trainee OJTI.

5.3.9.2 In a competency-based approach, at least some of the training is practical as this is the only way to ensure that an integrated and consistent OJTI performance can be observed. Without a simulator, this practical aspect would need to take place in the live operational environment. When providing OJTI training in the live operational environment, safety is of paramount importance and consideration must be given as to how this will be maintained. Possible ways to manage this include:

a) an already qualified ATCO performs the role of the trainee. This may be difficult for the “active” ATCOs as they are already qualified and therefore there is limited instructing opportunities; and

b) the OJTI that is working with the trainee OJTI assumes safety accountability while supervising live training of an ATCO trainee by the trainee OJTI. Please note that although this is the most realistic configuration, it is also the most challenging as the “active” OJTI is monitoring both the ATCO and OJTI trainees.

5.3.9.3 As already detailed in Chapter 2, instructing in the live operational environment brings with it a unique set of challenges for OJTIs, including maintaining a safe environment while giving trainees an opportunity to learn from their mistakes. Consequently, the process for the OJTIs taking over from either the ATCO or OJTI trainee, must be explicit.

5.3.10 Location-specific training

Irrespective of where the training and/or development of the trainee OJTIs takes place, they will need to be familiarized with location-specific aspects of the ATCO training. These include:

a) learning culture;

b) organization of training;

c) training and assessment processes/procedures;

d) regulatory requirements relating to training;

e) where OJTI activities fit in relation to the ANSP's code of conduct; and

f) on-boarding (bringing the OJTIs together with the ATCO trainee).

5.3.11 The value of observations

5.3.11.1 A learning activity that is often underestimated is observation of OJT sessions. When planned and used correctly, observation can bring important reflective benefits to the trainee OJTI. These sessions may be observed in either the live or simulated environment.

5.3.11.2 During an observation session, the trainee OJTI observes a training session delivered by a qualified and well-respected OJTI. During the planning of the session, it is important to determine what the trainee OJTI should get out of the observation as this may influence the choice of OJTI/trainee ATCO pairing that is being observed. For example, if the observation is focused on "teaching" methods or "interventions", then an observation of an ATCO trainee in the early stages of OJT is preferable as there is likely to be many opportunities for the OJTI to "demonstrate teaching". If the observation is focused on what an OJTI can do to help an ATCO trainee in building resilience and confidence, then the OJTI/ATCO trainee pairing that is observed would need to be with an ATCO trainee in need of this type of support.

5.3.11.3 To get the maximum benefit out of observation sessions, the trainee OJTI should have specific items to pay attention to and reflect on.

Example 1: Observing interventions

A session that is focused on intervention techniques (e.g. taking direct control; instructing the trainees to perform a specified action; instructing the trainees to decide on an action for a specified aircraft; telling the trainees there is something they have not done), is accompanied by a questionnaire that the trainee OJTI completes during and after the observation.

For example:

a) Describe the intervention techniques that were used and what the circumstances were that led to the intervention.

b) Using the list above answer the following questions:

1) Were the intervention techniques used effective?

2) What other intervention methods could have been used?

3) What intervention method would be most appropriate for the ATCO trainee observed?

4) What intervention method would you have chosen to use?

c) How did the ATCO trainee respond to the interventions?

d) Prior to observing the debriefing, decide on the conversation you would have with the trainee ATCO with respect to the main interventions.

Example 2: Observing a complete session

The trainee OJTI observes the entire OJTI session (briefing, live session and debriefing) and "marks" the OJTI using the local OJTI competency model.

After the observation, the trainee OJTI discusses with the mentor the results of the observation and reflects on how the trainee OJTI would have approached the session if they had been the OJTI.

In environments where the learning culture is sufficiently mature, the trainee OJTI and OJTI observed could discuss the session and share the strengths and weaknesses of the approach taken by the OJTI.

5.3.11.4 Owing to the sometimes stressful nature of ATCO training and especially when the observed session is in the live operational environment, the ATCO and OJTI trainees being observed should agree to be observed. There should also be an understanding of what circumstances or conditions in the live operational environment would cause the observation session to be terminated, e.g. ATCO trainee under-performing and OJTI determines that it is the effect of the observation.

5.3.12 Reflection activities

5.3.12.1 A valuable development activity for trainee OJTIs is reflection on their performances. This activity helps the trainee OJTI to consider the broader lessons learned from a training session and how to take what has been learned into future sessions.

5.3.12.2 To get the maximum benefit from reflection, the activity should be designed to achieve an objective or objectives. For example:

a) Reflect on personal performance when the traffic loading is high and there are limited possibilities to talk to the ATCO trainee.

b) Reflect on personal performance to establish a long-term development plan.

c) Reflect on personal performance during the debrief, especially when the session has been challenging.

d) Reflect on personal performance to establish if approaches and techniques were adapted to suit the ATCO trainee.

5.3.12.3 After carrying out a practical session [see 1 below], the trainee OJTIs reflect on a particular part of their performances or their entire performances [see 2 below], decide what lessons have been learned that can be taken to be used in later sessions [see 3 below] and then apply these lessons to subsequent sessions [see 4 below].

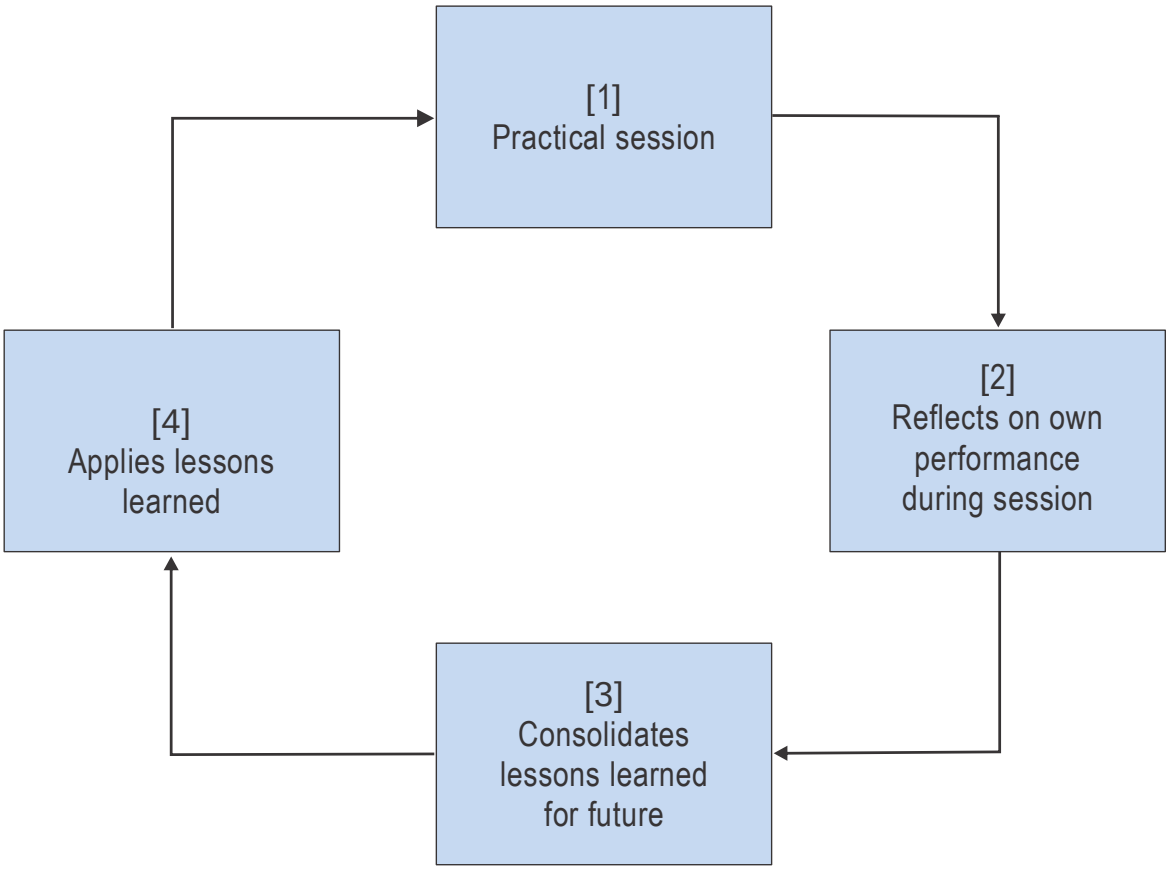


Figure II-5-1

[1] Practical session

The practical session may include all elements of providing OJT or particular aspects (e.g. preparation, briefing, live or simulated practical performance, debriefing, reporting, collaboration).

[2] Reflection

The trainee OJTIs reflect on their own performance during the session in relation to the objective of the reflection. Some questions that the trainee OJTIs may ask themselves (depending on what is being reflected on):

– What happened?
– How important is what happened (to safety, to efficiency, to the trainee's confidence, to team performance)?
– What did I do as a result?

– What was the outcome?
– How did the trainee ATCO react?
– Would another OJTI have done this differently?
– How do I feel about my performance?
– Did anything surprise me?
– What went right, what went wrong?
– What did I learn from what happened?

[3] Consolidates

– Can I apply what I learned to future sessions?
– What will I do differently in the next sessions?
– Can anyone help me to solve …?
– What do I need to learn more about?

[4] Applies lessons learned

This may be the end of the reflection activity or the start of the next cycle of reflection.

5.3.12.4 Reflection may be a routine part of a debriefing session between the trainee OJTIs and their instructor, or it could be an activity that the trainee OJTIs complete by themselves and then discuss with their mentor, coach or training manager.

5.3.13 Assessing OJTI competence

5.3.13.1 In a competency-based environment, assessment of OJTIs must include practical evaluation of their performance measured against the competencies and associated performance criteria that have been defined in the adapted competency model. Effective assessment of OJTIs' competencies is a crucial factor in ensuring the effective development of operational personnel to fulfil their duties related to instructing.

5.3.13.2 During the development of an OJTI, consideration should be given to when assessment is conducted and for what purpose. Annex 1 — *Personnel Licensing,* states that, "An air traffic controller acting as an air traffic control on-the-job training instructor shall hold an appropriate rating and be qualified as an air traffic control on-the-job training instructor."[1] In addition, the PANS-TRG (Doc 9868), states that, "On-the-job training shall be performed under the supervision of a qualified ATC on-the-job training instructor who has been authorized to provide instruction in the area for which the rating shall be issued and be conducted under the SMS of the ANSP."[2] This implies that there are two possible points at which assessment may take place:

a) In the first instance, the OJTI must obtain a **qualification** as an OJTI. This qualification is focused on demonstration of OJTI competence in general, i.e. the pedagogic and methodological aspects of being an OJTI, irrespective of the location. This assessment is typically carried out at the end of the OJTI course that is conducted in a simulated environment; however, other ways of achieving this are also possible.

b) In the second instance, the OJTI must be **authorized** to carry out OJTI duties at a specific unit (or position, or group of sectors, etc.). This authorization and associated assessment are focused on ensuring that the OJTIs are able to apply their competencies in a particular environment. This assessment is conducted at the unit, preferably in the live operational environment but may also be carried out in a simulator using the unit specific airspace and procedures. It is possible that this

1. Annex 1, 4.4.1.3.2.
2. PANS-TRG (Doc 9868), Third edition, Part IV, Chapter 2, 2.3.2.

authorization may be limited to only certain phases of the OJT programme at a specific unit (e.g. the first 150 hours of OJT) and that further authorization is granted on completion of additional training or the accumulation of a defined amount of experience.

5.3.13.3 Furthermore, consideration may be given to using multiple evaluations at various stages throughout the development process. It may be necessary to carry out some of the evaluations in the simulated environment, as not all of the behaviours could be readily observed in the live operational environment

Example

The observable behaviour “takes action to ensure safety is never compromised by taking over control from the trainee” can only be demonstrated if operational circumstances and ATCO trainee performance enable this to happen. Consequently, the ANSP decides that the evaluation of this behaviour will take place in a simulated environment (as part of a dedicated OJTI course) where an ATCO trainee can “create” a situation requiring the OJTI to take over control of traffic from the ATCO trainee. The performance of the trainee OJTI can be observed without compromising safety because it is only simulated.

5.4 MAINTAINING AN OJTI QUALIFICATION

5.4.1 Once OJTIs have achieved their qualifications, there is a need to ensure that their competencies remain current and up-to-date. It cannot be assumed that OJTIs will remain proficient instructors simply because they are providing OJT. Regular competency checks are a way to ensure that competence is maintained, but there are other ways in which the training section may become aware that an OJTI is losing competence. These include being directly informed by the OJTI, feedback from ATCO trainees or peers, or an incident.

5.4.2 There are multiple ways of supporting the OJTI in maintaining competence.

5.4.3 Routine refresher training ensures that the team of OJTIs is kept up-to-date with the way in which learning is approached at the location; this training may also address systemic issues that have been identified, e.g. a tendency by the training team to provide minimalist debriefs and limited feedback in reports.

5.4.4 An ANSP may also decide to carry out targeted activities for individual OJTIs. These activities are tailored to the individual based on either identified deficiencies or refresher needs.

5.4.5 Furthermore, maintenance of competence is not necessarily always achieved with a training activity. ANSPs should consider all the options available to them, e.g. performance feedback from training specialist.

5.4.6 What causes degradation of OJT competence?

5.4.6.1 The competence of an OJTI may degrade for many different reasons. In the interest of effective training, ANSP training departments should be aware of some of the possible reasons for degradation in OJTI performance and receptive to providing support to these groups and/or individual OJTIs.

5.4.6.2 Possible reasons for degradation could be:

a) OJTI not providing instruction for an extended period of time;

b) an evolution in the ANSPs training philosophy and learning culture that leaves some OJTIs feeling outdated;

c) increases in traffic levels and complexity that result in the OJTIs only being able to instruct according to their own plans;

d) an introduction of new equipment, systems and/or procedures that causes OJTIs to have to focus on their own performances instead of the trainees;

e) overloading OJTIs with too many trainees to the point that the OJTIs lose motivation and energy to instruct;

f) personal issues;

g) conflict in the team or with management; and

h) a very experienced OJTI who is not able to relate to younger trainee ATCOs.

5.4.6.3 The support provided by the training department depends on the reason for the degradation. Nonetheless, it may be necessary to acknowledge that in some instances, it may not be possible to adequately address the degradation and consideration that will need to be given as to how to "retire" the OJTI from instructing duties.

5.4.7 What support is available?

ATCO training does not take place in isolation. An ANSP may have expertise available that can support the OJTIs when performing their jobs. In many instances, support personnel may not be a part of the training department, and so the OJTI should be made aware of the types of support/expertise that are available and how they may be obtained. This support could include:

Peer-to-peer support

The training department may have established formalized peer-to-peer support systems where OJTIs have the opportunity to consult with other OJTIs and to determine if they have encountered similar challenges and how they addressed those challenges. This support could be part of routine training department group discussions or could be established on an on-demand basis.

Training team support

Similar to peer-to-peer support, the training team the OJTI is part of may be able to provide insight into the performance of a particular trainee ATCO and observations of the performance of the OJTIs that may help the OJTIs reflect on what actions to take to modify their instructional techniques.

Educational experts

An educational expert can provide professional support for an OJTI, for example, by suggesting alternative communication and teaching strategies to be applied with the specific ATCO trainee.

Human resources personnel

Human resources personnel are there to support and resolve non-operational issues that an ATCO trainee may be encountering. This is more likely to be the case with a trainee who is new to either the location or the ANSP. Often it is the OJTI who is first to identify when trainees are experiencing non-operational issues and that these issues are impacting the trainees' performances. OJTIs are not responsible for resolving non-operational issues, but they are able to point the trainee in the right direction and, if necessary, help establish contact with the appropriate person in the HR department.

Human Factors experts

A human factors expert may support an OJTI by providing insights into how to instruct (teach) particular competencies, e.g. situational awareness, workload management.

5.5 ENHANCING OJTI PERFORMANCE

5.5.1 ANSPs who focus on enhancing the performance of their OJTIs are also investing in a more efficient training system. A more effective and efficient team of OJTIs, supported by the ANSPs' training departments and other experts, is likely to result in:

a) a reduction in training times;

b) improved pass rates;

c) motivated and positive ATCOs and OJTIs; and

d) improved performance of ATCOs.

5.5.2 As part of enhancing the performance of the overall training system, OJTIs should also routinely be contributing to the analysis of training in their environments, as they are the most likely personnel to identify systemic problems and propose possible solutions that improve the efficacy of the training programmes.

5.5.3 Types of enhancements

There are many different ways to enhance OJTI performance. Some enhancements focus on better ways for the OJTI to support the trainee, while others look at more formalized additional qualifications. Detailed below is a non-exhaustive list of possible activities that the ANSP could consider for its OJTIs.

a) Pedagogic enhancements

1) Some OJTIs could participate in formalized "teacher" training. ATCOs are employed for their abilities to control air traffic and not their abilities to teach. Even when an ATCO is selected as an OJTI, the OJTI's initial development is likely to be focused on providing instruction in a safety critical environment, with less priority on formalized teaching and learning philosophy.

2) Some ANSPs have supported their OJTIs in the completion of formalized teacher training which has enabled the OJTIs to return to the operational environment and support the integration of modern learning philosophy into this environment.

3) If releasing OJTIs for this type of training is not possible, an alternative is to provide shorter development opportunities, e.g. courses on how to teach complex cognitive skills, learning differences, evaluation, thematic training and problem-based training.

b) Resilience training

1) ANSPs and training departments have recognized that one of the key factors determining whether trainees reach competence is their resilience to setbacks in their training and learning process. This is their ability to recover from mistakes or challenging circumstances by feeling stronger and more able to cope than before, coupled with a positive mind-set towards their training.

2) ANSPs have had some success with enabling their OJTIs to participate in resilience training workshops and courses that provide them with:

   i) theory behind resilience;

   ii) ways to encourage trainees to become more mentally, emotionally and behaviourally resilient;

   iii) opportunities to practice resilience conversations; and

   iv) discuss scenarios where resilience conversations are appropriate.

3) Resilience training is closely associated with mentoring and, therefore, may also be included in a mentoring programme for OJTIs.

4) Some ANSPs' resilience training is associated with enabling the trainees to manage their lifestyle in a manner that facilitates stress and fatigue management.

c) High-performance coaching

1) In most cases, the OJTIs will acquire basic coaching competence as part of their development to achieve an OJTI qualification. This is because an OJTI, who is working with an ATCO trainee who is close to validation, or an experienced ATCO who is re-validating, is not actively "teaching" at this stage but rather guiding and supporting the trainee towards independent performance.

2) An OJTI who is trained in high performance coaching is able to manage more challenging training scenarios, such as ATCOs recovering after a significant incident; trainees with debilitating confidence issues; ATCOs struggling with significant increases in traffic volume and complexity or major changes in technology; ATCOs returning to the operations environment after burnout or a significantly stressful episode.

3) However, another major advantage of high-performance coaching is enabling the ATCO team to enhance performance by becoming more effective and efficient. The high performance OJTIs could be part of the team that delivers refresher training to ATCOs.

d) Working as a team

1) Enhancements need not be only focused on an individual's improvement, but could also be viewed as a group enhancement through cooperation among OJTIs. One of the major challenges faced by any ATCO training team is the difficulty in achieving consistent instruction and assessment across all the OJTIs. The main concern for many ATCO trainees is that they are given conflicting advice and instruction by different OJTIs. This is understandable and, to a larger extent, a competency-

based approach puts in place tools and processes that reduce the differences. However, these tools do not eliminate differences completely, and it would be unrealistic to aim for complete consistency because air traffic control is a dynamic environment where it is not possible to define all circumstances that the OJTI and trainee will encounter.

2) Nonetheless, there can be significant benefits in carrying out group activities that are focused on harmonizing the interpretation of various air traffic events and trainees' behaviours. For example, a group of OJTIs can all observe a performance together and then evaluate it using the adapted competency model. This will allow significant differences in interpretation of a performance to become visible and give the OJTIs an opportunity to discuss and harmonize their approaches.

3) Another group activity that has resulted in enhanced OJTI performance, is to let one OJTI provide instruction to another OJTI and then to provide feedback to each other with the aim of identifying strengths and areas that could improve.

Appendix A

EXAMPLE OF AN ANALYSIS OF A LEARNER POPULATION

This example analysis of the learner population is for a group of new ATCO trainees who will be starting their tower validation at Westeros Tower after finishing their initial training at BlueSkies Academy.

Topic	*Description*
Logistics	
How many people will be trained initially?	First group – seven trainees.
How many people will be trained in the future?	Additional four groups of six trainees – starting at three-month intervals.
What is the geographical distribution and location of the population?	Trainees come from Canada (x3), Germany (x1), New Zealand (x1), South Africa (x1), and the United Kingdom (x1).
Are there any specific language requirements?	Mix of native English and non-native English speakers. All trainees are at a minimum ICAO Level 5 proficiency.
Are there any special requirements (disability, etc.)?	None.
Trainees' demographics	
What is the average age of the trainees?	Between 22 and 28 years.
Are there any other commonalities?	All trainees will have spent seven months together in the BlueSkies Academy undergoing initial training.
Trainees' competency	
What knowledge, skills and attitudes (KSA) do trainees already have that are required for the job?	KSA and competencies associated with basic ATCO training and tower rating training taught at the academy.
What other background knowledge and skills do the trainees have?	Two trainees have private pilot licences. One trainee has military jet experience.
What educational environment are the trainees accustomed to?	BlueSkies Academy is residential and trainees are encouraged to work together and support each other. They will have participated in classroom lessons and simulations.

Topic	*Description*
What role did the trainees and instructors play in their previous environments?	Basic and TWR rating courses at BlueSkies Academy are primarily instructor-led; however, trainees are expected to be self-directed for 25 per cent of their learning and all simulations are group activities.
What are the trainees' level of experience in the job?	None – this will be the trainees' first validation.
What are the trainees' general attitude towards the job?	Extremely positive as they have been selected for the busiest tower in Westeros.
What are the trainees' level of formal education and training?	All have a minimum of a secondary education with math and geography achieved at a high grade in the various national education systems. Two trainees have educational degrees; one trainee has an engineering degree.
Work environment	
What are the trainees' hours of work?	Shift work as per the team roster to which they have been assigned.
Describe the physical work environment.	Westeros TWR – all positions.
How do the trainees fit into the organization?	Employees of BlueSkies ANSP.
Describe the socio-cultural environment. What are the attitudes in the workplace? Are there any conflicts or tension in the work environment?	Westeros Tower has acquired a reputation for being the busiest tower that the BlueSkies ANSP manages. Consequently, ATCOs are proud to be Westeros ATCOs and are determined to ensure that a very high standard of controlling is maintained. Some challenges with the training team accepting a group of trainees with no operational experience. This tower has previously only accepted ATCOs with a minimum of two years operational tower experience. This will be the ATCOs' first intake of trainees with no previous operational experience.

Appendix B

SPECIFIC TRAINING TECHNIQUES FOR THE SIMULATED ATM ENVIRONMENT

1. Introduction

The unique characteristics of the simulated ATM environment allows practical instructors to use training techniques that would not necessarily be suitable, or possible, while training in the live operational environment. These techniques, when used sparingly and correctly, can be very effective and significantly enhance and expedite the training process.

2. Pausing the simulation

2.1 This technique is also known as “pausing the exercise” or “stopping the clocks”. It involves the instructor asking the input team running the exercise to pause the simulation, when it is determined that the trainee can benefit from some reflection on actions that have been taken or there is a need to discuss some actions that are about to be taken. This is usually done when the instructor considers that the conversation might take some time and wants the trainee to fully concentrate on what is going to be said rather than trying to convey the message while the trainee struggles to control traffic in real time. There are a number of circumstances when this technique can be beneficial:

a) During the **early stages of training**, when there is a need to transit from the instructor demonstrating the job to the trainee, to the phase where the trainee takes control and the OJTI monitors the trainees’ performances. The “stopping the clocks” technique, allows:

   1) the instructor to arrange the transition at any point during the exercise, rather than when there is a gap in the traffic;

   2) the trainee to prepare for the switch of training methodology;

   3) the trainee to review the traffic situation and any immediate actions required after the exercise is re-started; and

   4) the trainee an opportunity to ask questions and clarify previous actions or future plans.

b) Often trainees are working at the limits of their cognitive capacity and do not have the ability to listen to the instructor’s comments and at the same time control the traffic. When the instructor tries to talk to them in these circumstances, the trainees can neither concentrate on what was said nor on their controlling actions. This causes frustration, creates a poor learning experience and does not allow the trainee to rectify deficiencies in performance effectively. Pausing the exercise in these cases allows the instructor to review previous actions and errors made by the trainee and suggest options that could have allowed the situation to be handled differently. It gives the trainee an opportunity to regain composure without the pressure of real time traffic demands and also to formulate plans to be implemented when the exercise re-starts.

c) The simulated ATM environment does not require immediate correction of safety errors during training. This gives the instructor an opportunity to allow the exercise to run until the manifestation of the consequences of these errors becomes obvious. However, for the trainee to learn from these mistakes, it is often important to discuss the reasons that lead to these mistakes while the situation and actions are still fresh in the trainee's mind, so pausing the simulation after these events gives this opportunity. It also allows the instructor to suggest remedial actions that need to be taken to correct the error when the exercise re-starts and how to avoid these types of errors in the future. It also provides an opportunity for trainees to calm down, to reflect on their actions and to explain why a particular course of action was chosen, allowing the instructor to establish the underlining reasons for an error.

2.2 Caution should be exercised when using this technique as it is very easy to get into the habit of stopping and re-starting the exercise every few minutes, without giving the trainees an opportunity to implement any plans or to get into any sort of rhythm. This start-stop mode can create a negative training experience and frustrate the trainees. It may cause trainees to "switch off" and stop making any independent efforts to deal with the traffic because they anticipate that the instructor will stop the exercise and propose a course of action. Often trainees get into the habit of stopping the clocks themselves each time they get into any kind of difficulty in an attempt to verify their solutions and plans with the instructor before even trying to implement them. This has to be discouraged and the instructor has to maintain full control of the running of the exercise.

2.3 During the briefing, when the conditions of the training session are agreed upon, it has to be clearly explained that, if the trainees need to pause the simulation, they have to indicate it to the instructor rather than stopping the clocks themselves. When the exercise has to be stopped, the trainees often feel demoralized because they interpret it as a sign that they are underperforming or not coping well with the exercise demands. Therefore, when utilizing this technique, it is very important for the instructor to provide encouragement and an explanation for the stoppage. The trainee has to feel that the simulation was paused to facilitate the learning process rather than just for sake of pointing out a mistake.

2.4 Typically, stopping an exercise should be a technique that is used more often in the earlier phases of simulated training. As the trainees progress through the simulation programme, and especially prior to starting OJT, there should be periods when they are working entire exercises without the need to stop the clocks. This allows trainees to slowly get used to the fact that in the real operational environment, traffic cannot be paused. Of course, the instructor retains the possibility to interrupt the simulation if the situation warrants such interruption, but generally, these pauses should be minimized as much as possible.

3. Running the exercise at a slower or faster pace

3.1 Often during the initial phases of training, some trainees have not yet acquired the skills necessary to deal with traffic situations presented by the exercises. This is because they are learning new skills and the pace at which they learn is very individual, whereas the exercises are designed with the "average" trainee in mind. It is inevitable that some trainees might perceive the pace of the exercise as too fast. Normally, this manifests itself through inadequate behaviours related to situational awareness, workload management and planning. When this happens, the trainee falls behind the demands of the exercise very quickly. In these circumstances, the training benefits of the exercise rapidly diminish as the trainee fights the "keep the picture" but ends up making many mistakes instead of consciously absorbing information and learning from the experience. After these training sessions, it is very difficult to objectively discuss the performance as, typically, the trainee struggles to remember what happened during the exercise because of the mental overload. It makes these sessions unproductive from a learning perspective.

3.2 One of the techniques that could be used, under these circumstances, is to run the exercise at a slower speed, if the simulator functionality allows this. The slower speed of the exercise will allow the trainee a bit of extra time to understand the traffic situation and formulate a plan of action. It will also give the instructor time to make use of effective questions and prompts that will guide the trainee into making effective decisions without the need to stop the exercise every few minutes.

3.3 Running a simulation at a pace that is slightly faster than normal can also be useful for consolidation at the end of simulation training. The faster simulation can help the trainee to automate certain routine actions to the point where these actions are performed almost subconsciously. This method is well suited for Part Task Training or Part Task Practice where the trainee concentrates only on a limited number of skills and techniques rather than the full set of behaviours.

3.4 When using these techniques, it is important to explain to the trainee that the adjusted speed of the exercise is one of the conditions under which the exercise is to be performed. It is also important to bear in mind that aircraft performance during these simulations will coincide with the speed of the exercise. Additionally, it should be noted that this technique should be used for a specific purpose and should not be used routinely or for prolonged periods of time. As soon as the trainee embeds the required routines and gains confidence, the instructor should return to a normal speed simulation either gradually or in one step. When the simulator supports this functionality, this speed transition can be made during a single exercise: where the exercise can start at a slower speed, then be paused when the instructor is satisfied that the trainee is ready for transition and then re-started again for the second part of the exercise at a faster or normal speed.

4. Removing traffic from the exercise to control workload

4.1 Sometimes during a training session, poor planning or poor execution of a plan can cause the instructor to decide that allowing the trainee to try to recover the situation or deal with the problems that were created, is well above the current competence of the trainee. These situations typically occur when some form of repositioning of one or several aircraft is required, thus adding extra movements and complexity to the exercise (aircraft versus per time ratio). Examples of these situations may be:

a) unscripted missed approaches, due to poor vectoring;

b) poor surveillance radar approach (SRA) execution (i.e. not enabling the aircraft to meet the vertical profile required for a stable approach); and

c) vectoring departing aircraft to the wrong exit waypoint and then having to reroute the aircraft against a steady flow of traffic.

4.2 The instructor may decide that allowing the trainee to try to recover the situation will create an unnecessary spike in the workload and jeopardize all other training objectives that were designed into the exercise. As a result, the instructor might decide to instruct the input team to remove (delete) the problematic aircraft from the simulation. The instructor can also reallocate an original objective that was not met by the trainee to a different aircraft. For example: an aircraft carries out a missed approach after a poorly controlled SRA and the instructor wants the trainee to try again. The instructor advises the input team to remove the missed approach aircraft from the exercise, and then gets another aircraft (that would normally have flown an instrument landing system approach) to instead request an SRA. This gives the trainee the opportunity to try the SRA again, without the unnecessary overload and complication of first having to re-vector the original aircraft back onto final approach.

4.3 When traffic is removed, or an exercise is adjusted in any way, trainees often feel demoralized because they think it is a sign that they are underperforming or not coping well with the exercise demands. Therefore, when using this technique, it is important for the instructor to explain the reasons for the exercise adjustment and encourage the trainee not to view this adjustment as having failed but rather as an opportunity to learn.

5. Using replay function

5.1 The simulator replay function can be a very powerful training tool when used correctly. As mentioned above, trainees often struggle to remember the events of the exercise and correlate their actions to the situations as they developed. Having the ability to review the exercise while discussing performance with the trainee can significantly speed up the learning process, as it provides the real traffic situation (as it happens) and a visual opportunity to explore a number of alternative solutions.

5.2 Some of the more advanced simulators go even further by providing a form of time travel that allows the exercise to be re-started in real time from any point. This gives the trainee an opportunity to return to the time where the error was originally made and to try to run the exercise differently from there.

6. Real time simulation

6.1 This is the method usually used at the end of the initial or pre-OJT training for consolidation and confidence building. This method requires the simulation to be run in a way that reproduces, as accurately as possible, the live operational environment. The trainees have to deal with all traffic situations with minimum help and support from the instructor. This encourages the trainees to learn how to manage their own workload and to develop their own style of controlling. It means that the instructors should not dictate the work rate or impose their preferences on the trainees. Discussions should be left for de-briefing, supported by exercise replays if necessary and possible.

6.2 The main differences between real time simulation and live operational training are error correction and the timing of instructor intervention. The instructors can allow the situation to develop for a significantly longer period without intervening, giving the trainees an opportunity to notice the consequences of their actions and to take steps to self-correct them.

———————

Appendix C

EXAMPLES

1. These examples are based on a fictitious ANSP called BlueSkies ANSP. This ANSP has its own training academy and has decided that OJTI trainees will first attend the academy to get a generic OJTI qualification, and then return to their units to complete their training, thereby gaining authorization to provide OJT at the specific operational unit.

2. The generic training is carried out at the BlueSkies Academy on a fictitious airspace called Earhart Sector (which has been designed as a simple airspace with generic procedures that are easy to quickly learn and apply irrespective of ATCO rating. It has been designed to enable trainee OJTIs to practice OJTI competencies without having to learn complex ATC procedures).

3. The example includes the following:

a) Training Specification;

b) Adapted Competency Model;

c) Evidence Guide;

d) ATC OJTI Course Syllabus;

e) Competency Checklist; and

f) Competency Assessment Form.

4. In these examples, only the generic part of the training that will be delivered at the ANSP's training academy is provided. The ANSP would also have developed a training specification, adapted competency model, syllabus, evidence guide, competency checklist and competency assessment form that would be used when the OJTI trainees go to their specific units. Each of the elements would be very similar to the examples in this appendix, but would include those performance criteria that could only be observed at the operational unit and over a longer period of time than is typical for an OJTI course, e.g. performance criteria associated with collaboration.

EXAMPLE 1. TRAINING SPECIFICATION

	Purpose
What is the purpose of the training?	Train new OJTI.
State the phase(s) of training.	Generic OJTI training at the BlueSkies Academy followed by familiarization at specific BlueSkies operational units.
What qualification, if any, will the trainee achieve on successful completion of the training?	OJTI qualification to be issued on successful completion of the course (i.e. certificate). Authorization to perform as an OJTI at the specific unit to be issued once competence has been demonstrated at the unit.
	Tasks
Describe the tasks associated with the purpose of the training.	The trainee OJTI shall carry out the following tasks: a) prepare for delivery of training; b) brief the trainee prior to the training session; c) delivery of the training session (including instructing and coaching); d) maintain safe and efficient operations (including maintaining situational awareness, monitoring and intervention); e) evaluate trainee's performance; f) debrief trainee; g) complete reports; and h) collaborate with other training personnel.
	Operational requirements
Which operational procedures will be applied?	Earhart Sector — Manual of Operations (EARS-2017/6D).
Describe the operational environment where the training will take place.	The environment is to include: a) traffic climbing/descending into and out of the sector (to create vertical conflicts); b) air routes that cross (to create horizontal conflicts); c) restricted zones that can be activated/deactivated; d) includes two adjacent sectors; and

	e) NAVAIDs that can be declared unserviceable (requiring ATC to provide positive navigational assistance).
Describe the nature of the traffic necessary to achieve the training.	For the simulations, the following should be included: a) mix of IFR and VFR traffic; b) arrivals, departures and overflights; c) heavy jets, medium jets, business jets, and medium and light turboprops; d) all levels of traffic up to a maximum of 20 aircraft per hour; a maximum of eight aircraft on frequency at any given time; and e) a maximum of three aircraft involved in a conflict and a maximum of two conflicts to be solved simultaneously.
Which non-routine situations are necessary for successful completion of the training?	Simulations to include when the OJTI trainee is managing: a) under-confident ATC trainees; b) over-confident ATC trainees; c) trainees who blames colleagues' actions for their performance deficiencies; d) trainees that do not follow OJTI instructions; e) trainees who are performing unsafely and inefficiently; and f) trainees who are lacking motivation.
Describe the working position configuration.	During simulation, the OJTI will supervise the ATCO trainee from a shared single working position.
Technical requirements	
List any specific operational (or simulated) systems and/or equipment that are necessary to achieve the purpose of the training.	Simulator to have the capability to record practical sessions. Communication link between the instructor and the pseudo-pilots/simulation supervisor that is not available to the ATCO trainee.
Regulatory requirements	
Are there any regulatory requirements that will affect the following aspects of the training design? a) duration;	Trainee OJTIs shall hold an ATCO licence for at least one year prior to commencing generic OJTI training. Practical training leading to qualification shall be completed within 18 months of the end of the generic training. a) trainee OJTIs shall achieve a minimum of 80 per cent pass mark in a theoretical examination;

b) content; c) assessment procedures; d) course approval; and e) any other (equipment, qualifications of instructors, trainee to instructor ratios, etc.).	b) practical training shall include at least 20 hours of scenario-based exercises in a simulated environment; and c) theoretical examinations and practical assessments shall be conducted in accordance with Regulation ATCL/20XX — ATC Licensing.
Organizational requirements	
Describe any organizational requirements that may impact the training.	Training philosophy as described in BlueSkies ANSP Strategic Vision for 2030 — Ed.1.0. Training shall include the organizational internal code of conduct as applied to the trainee/instructor relationship.
Other requirements	
Describe any other requirements that may impact the training.	None.
Simulator equipment	
List the simulation requirements, if any, that are necessary to achieve the training outcome.	X2030 — ATC Trainer (multi-functional simulator)

EXAMPLE 2. ADAPTED COMPETENCY MODEL

Earhart Sector OJTI Competency Model	
Performance	The OJTI trainee shall demonstrate an integrated performance of all the competencies described in this model.
Conditions	Conditions relating to the air traffic environment a) with all levels of traffic up to the maximum sector capacities as listed in Chapter 2 of Earhart Sector Operations Manual; b) with medium to high levels of traffic complexity; and c) in any weather conditions. Conditions relating to the system Under normal operating conditions including fully functional surveillance and voice communication systems. Conditions relating to the learning environment a) without assistance from the OJTI instructor; and b) with trainees that demonstrate various learning behaviours.
Standards	The performance shall comply with the procedures, rules and regulations described in the following documents: a) *Earhart Sector - Manual of Operations (EARS-2017/6D); and* b) *BlueSkies Manual of Air Traffic Services.*

1	*Situational awareness*	*Description: Comprehends current operational situation, anticipates future events and the impact of the trainee's performance on the operation*
OB No.	*Observable behaviour*	
OB1.1	Maintains own situational awareness while instructing.	
OB1.2	Monitors impact of trainee's actions on the traffic situation.	
OB1.3	Monitors the trainee's actions continuously.	

2	*Safety and efficiency management*	*Description: Ensures safety and efficiency of the operation during training*
OB No.	*Observable behaviour*	
OB2.1	Prioritizes safety above teaching the trainee.	
OB2.2	Takes action to ensure safety is never compromised (e.g. correct errors, take over control, pre-empt the trainee).	
OB2.3	Intervenes in a timely manner to maintain separation and an orderly flow of traffic, when appropriate, and to ensure that safety is not compromised.	
OB2.4	Ensures traffic efficiency is maintained.	
OB2.5	Manages own and trainee's workload to ensure safe and efficient operations (e.g. managing sector capacity, adapting instructional techniques, taking over control from trainee, if required).	

3	*Mentoring*	*Description: Supports trainee integration into the professional environment by mentoring, advising, guiding and creating a positive learning experience*
OB No.	*Observable behaviour*	
OB3.1	Develops a rapport with the trainee and provides encouragement and support.	
OB3.2	Promotes positive working relationships.	
OB3.3	Encourages a positive approach to learning.	
OB3.4	Demonstrates empathy and understanding, recognizing situations when extra support is required.	
OB3.5	Encourages trainee to self-reflect to identify strengths and weaknesses and areas for improvement.	
OB3.6	Encourages trainee to look for positive learning experiences from each training session, even those that did not go well.	
OB3.7	Encourages trainee to extract maximum training value from any feedback, including negative points.	
OB3.8	Encourages trainee to ask questions as part of the overall learning experience.	

4	*Teaching, instructing and coaching*	*Description: Provides instruction and facilitates learning in the operational environment*
OB No.	*Observable behaviour*	
OB4.1	Prepares to deliver tailored training for each training session, briefs the trainee prior to taking over the operational position and ensures the trainee understands what is required in accordance with procedures contained in *Earhart Sector - Manual of Operations* (EARS-2017/6D).	
OB4.2	Sets the goals for the session and explains clearly to the trainee the expected performance standards.	
OB4.3	Ensures the trainee understands the operational situation prior to assuming control.	
OB4.4	Maintains appropriate seating position and proximity to the trainee.	
OB4.5	Uses targeted training techniques to enable learning (e.g. verbal problem-solving techniques, demonstration, immediate bad habit correction, trainee involvement, questioning techniques).	
OB4.6	Adapts training techniques and style to meet the needs of the trainee.	
OB4.7	Ensures appropriate timing of teaching opportunities.	
OB4.8	Recognizes and responds appropriately to the trainee's behaviour (e.g. stress, under-confidence, over-confidence).	
OB4.9	Allows the trainees to make decisions appropriate to their level of competence and experience.	
OB4.10	Confirms understanding of the trainees' intended actions and plans (e.g. using questioning techniques) and, when appropriate, trusts the trainees to try their own plans.	
OB4.11	Remains calm when taking control from the trainee in circumstances dictating this type of intervention.	
OB4.12	Provides constructive and balanced feedback in a timely and appropriate manner.	
OB4.13	Debriefs the trainee after the operational session to review the performance, emphasizing positive actions, areas to work on and strategies for improvement, in accordance with procedures contained in the *Earhart Sector - Manual of Operations* (EARS-2017/6D).	

5	*Communication*	*Description: Communicates effectively with the trainee in verbal, non-verbal and written form*
OB No.	*Observable behaviour*	
OB5.1	Listens actively.	
OB5.2	Encourages constructive discussion about the trainee's performance.	

OB5.3	Speaks clearly, accurately and in a calm and measured manner.
OB5.4	Adjusts speech techniques to suit the operational and/or instructional situation (e.g. conveys a sense of urgency, speaks calmly).
OB5.5	Adapts content of communication to the needs of the trainee (e.g. does not overload the trainee with too much information).
OB5.6	Explains complex situations clearly (e.g. traffic situations – in particular those pertaining to the procedural environment and/or involving a mix of surveillance and non-surveillance separation standards, application of procedures, and management of emergencies).
OB5.7	Explains cognitive strategies clearly (e.g. how to analyse situations, prioritize, select a course of action, distribute attention, scan electronic flight progress strips (EFPS)).
OB5.8	Does not allow explanations or questions to cause a distraction.
OB5.9	Delivers difficult messages with tact and sensitivity.

6	*Assessment*	*Description: Evaluates the performance of the trainee for the purposes of enabling learning, monitoring progress and/or determining if competence has been achieved*
OB No.	*Observable behaviour*	
OB6.1	Gathers factual evidence of the trainee's performance against the objectives.	
OB6.2	Gathers factual evidence for competencies that can be demonstrated in the Earhart Sector simulated environment.	
OB6.3	Evaluates the trainee's performance in relation to the competencies and previously set goals and performance standards.	
OB6.4	Analyses poor performance to determine root causes, when appropriate.	
OB6.5	Determines remedial actions required to address deficiencies in performance, when appropriate.	

7	*Collaboration*	*Description: Collaborates with relevant parties to facilitate a robust training experience for the trainee*
OB No.	*Observable behaviour*	
OB7.1	Engages with the trainee, other instructors and the training manager(s) for the purpose of tailoring the training approach.	
OB7.2	Contributes information on the trainee's progress to the training team.	

8	*Self-assessment*	*Description: Improves teaching, instructional and coaching capabilities through self-assessment*
OB No.	*Observable behaviour*	
OB8.1	Remains open to feedback.	
OB8.2	Improves performance based on accurate and balanced feedback.	
OB8.3	Improves performance through self-evaluation of the effectiveness of actions.	
OB8.4	Maintains self-control in challenging training situations.	
OB8.5	Responds as needed to deal with the demands of challenging training situations.	

9	*Ethics and integrity*	*Description: Demonstrates openness, respect and fairness towards the trainee and considers the consequences when making a decision or taking action*
OB No.	*Observable behaviour*	
OB9.1	Treats the trainee respectfully, fairly and objectively regardless of differences, in accordance with BlueSkies ANSP Code of Conduct.	
OB9.2	Answers questions truthfully without embellishment or attempt to cover up a lack of knowledge.	

EXAMPLE 3. EVIDENCE GUIDE

Note that this is only a partial example, taking only a limited number of observable behaviours to highlight how a complete evidence guide would be developed. A complete evidence guide would contain all the competencies and observable behaviours contained in the adapted competency model.

ICS — Interim competency standard FCS — Final competency standard

1.	*Situational awareness*	*ICS 1*	*ICS 2*	*FCS*
1.1	Maintains own situational awareness while instructing.	Maintains own situational awareness of the operational situation most of the time, with occasional need to regain the full picture. Is able to provide instruction to the trainee at the same time, but only in light traffic and/or low complexity.	Consistently maintains own situational awareness of the operational situation, but needs to interrupt instruction occasionally to regain the full picture, especially in higher level and/or complexity of traffic.	Consistently maintains own situational awareness of the operational situation while providing instruction to the trainee, regardless of the level and complexity of traffic.
1.2	Monitors the impact of the trainee's actions on the traffic situation.	Monitors the impact of the trainee's actions most of the time, but is occasionally destabilized by unexpected reactions from the trainee to certain situations. This results in minimal time for planning and some decisions have an impact on the traffic flow.	Consistently monitors the impact of the trainee's actions on the traffic situation, but is occasionally destabilized by unexpected reactions from the trainee to certain situations. Does not cater for a variety of solutions that the trainee may apply.	Consistently monitors the impact of the trainee's actions on the traffic situation and anticipates a variety of scenarios and possible solutions that the trainee may apply.
1.3	Monitors the trainee's actions continuously.	Monitors the trainee's actions most of the time, but misses subtle details occasionally. Does not react rapidly enough or appropriately to undesired actions.	Always monitors the trainee's actions, but is sometimes slow in reacting and/or does not react appropriately to undesired actions.	Always monitors trainee's actions and reacts promptly and adequately to undesired actions.

2.	*Safety and efficiency management*	*ICS 1*	*ICS 2*	*FCS*
2.4	Ensures traffic efficiency is maintained, including any impact on adjacent sectors.	Ensures that normal traffic efficiency and flow is maintained with occasional situations where there is an impact on traffic flow and/or adjacent sectors. Actions are not taken proactively but rather in reaction to events.	Ensures that normal traffic efficiency and flow is maintained in most situations, and takes appropriate actions to mitigate any impact on adjacent sectors but sometimes with delays.	Consistently ensures that normal traffic efficiency and flow is always maintained, proactively. Takes appropriate actions to mitigate any impact on adjacent sectors.
2.5	Manages own and trainee's workload to ensure safe and efficient operations (e.g. sector splitting, increased spacing, adapting instructional techniques).	Uses a number of techniques to ensure that the workload remains within the appropriate limits, but sometimes actions are taken too late or another technique would have been more appropriate. Anticipates most of the traffic level and complexity changes, but reacts occasionally with delays to maintain safety and efficiency.	Uses a number of techniques to ensure that the workload remains within the appropriate limits, but sometimes actions are taken too late or another technique would have been more appropriate. Anticipates most of the traffic level and complexity changes, but reacts occasionally with delays to maintain safety and efficiency.	Uses all techniques available to ensure that the workload always remains within the appropriate limits. Anticipates traffic level and complexity changes and proactively takes actions to maintain safety and efficiency.
3.	*Mentoring*	*ICS 1*	*ICS 2*	*FCS*
3.4	Demonstrates empathy and understanding, recognizing situations when extra support is required.	Occasionally identifies difficult situations where the trainees may require help and support, but the trainees need to express their concerns and request help themselves most of the time. When support is provided, it may arrive too late or is inappropriate for the trainees' problem(s).	Identifies most of the situations where the trainees may require help and support, but sometimes the trainees need to express their concerns and request help themselves. Reacts by supporting the trainees' problem(s), but the support offered is sometimes too late or is inappropriate for the trainees' problem(s).	Identifies proactively situations where the trainees may require help and support, most of the time before the trainees realize the need for it. Reacts timely and appropriately by providing adequate support for the trainees' problem(s).

4.	*Teaching, instructing and coaching*	*ICS 1*	*ICS 2*	*FCS*
4.14	Helps the trainee to develop strategies to overcome any gaps in competencies.	Assists the trainee in finding simple strategies to overcome the identified gaps, but has difficulty with complex analysis of gaps. Some gaps are not identified in a timely manner or not identified at all. Proposes a plan to implement the strategies, but it lacks efficiency and/or is not accompanied by an appropriate follow up.	Assists the trainee in finding strategies to overcome the identified gaps, but the chosen course of action is not always the most appropriate. Proposes a plan to implement the strategies, but sometimes neglects to ensure a follow up or designs a plan that lacks efficiency.	Assists the trainee in finding strategies appropriate to overcome the identified gaps and proposes an efficient action plan. Ensures the plan yields the expected results and adjusts accordingly when required.

EXAMPLE 4. ATC OJTI COURSE SYLLABUS

Subject 1: TRAINING ORGANIZATION

The general objective is:

Participants shall appreciate the impact of regulation in the training of air traffic controllers.

TOPIC		
Subtopic		
OBJECTIVES Trainee shall …	**L**	CONTENT (This is a fundamental part of the objective.)
		CONTENT (This is optional content that helps the designer to determine what content may be used to elaborate the objective.)

1. COMPETENCY-BASED TRAINING AND ASSESSMENT		
1.1 Competence		
1.1.1 Define competence.	1	Doc 9868
1.1.2 List the ICAO competencies.	1	Doc 9868
1.1.3 Describe the content of an adapted competency model.	2	Competency, description, performance criteria (i.e. observable behaviour, condition, standard)
1.2 Principles		
1.2.1 Explain the principles of competency-based training.	2	Doc 9868
2. LEARNING ENVIRONMENT		
2.1 Learning philosophy		
2.1.1 Consider the philosophy and beliefs of your training organization.	2	Doc 10056, Volume II
2.1.2 Consider the learner population in your organization.	2	Doc 10056, Volume II
2.1.3 Describe the learner context.	2	

2.2 On-the-Job Instructors (OJTIs)		
2.2.1 Describe the roles of the OJTI.	2	*e.g. teacher/instructor, coach, mentor, assessor*
2.2.2 Describe the competencies of an OJTI.	2	Doc 9868 and Doc 10056, Volume II
2.2.3 Describe the code of conduct expected of OJTIs in your organization.	2	
3. STRUCTURE OF ATCO TRAINING		
3.1 Unit training		
3.1.1 Explain the structure of unit training.	2	Pre-OJT, OJT
3.1.2 Describe the content of the training plan.	2	
3.1.3 Describe the content of the assessment plan.	2	
4. REGULATORY ENVIRONMENT		
4.1 ATCO regulations		
4.1.1 Describe the regulations that apply to the training and assessment of ATCOs during unit training.	2	*e.g. Annex 1, Doc 9868, Regional and National regulations*
4.2 OJTI regulations		
4.2.1 Describe the regulations that apply to the training and assessment of OJTIs.	2	*e.g. Annex 1, Doc 9868, Regional and National regulations*

Subject 2: HUMAN FACTORS

The general objective is:

Participants shall describe the human factors issues concerning the impact teaching and learning, teams, communications and stress has on the training.

TOPIC		
Subtopic		
OBJECTIVES	**L**	CONTENT (This is a fundamental part of the objective.)
Trainee shall …		*CONTENT (This is optional content that helps the designer to determine what content may be used to elaborate the objective.)*

1. LEARNING & MOTIVATION		
1.1 Learning theory		
1.1.1 Define learning.	1	
1.1.2 Describe the different learning styles.	2	*e.g. holistic and serialistic, visual, auditory, reading/writing, kinaesthetic*
1.1.3 Explain the progression of the learner from incompetence to competence.	2	*e.g. unconscious incompetence, conscious incompetence, conscious competence, unconscious competence*
1.1.4 Explain the barriers to effective learning.	2	
1.2 Motivation		
1.2.1 Define motivation.	1	
1.2.2 Describe actions an OJTI may take to help a trainee remain motivated.	2	
1.2.3 Describe how ATC OJTIs' and/or trainees' motivation will affect the training outcome.	2	
1.3 Attitude		
1.3.1 Define attitude.	1	

1.3.2 Describe actions an OJTI may take to manage counter-productive attitudes during training.	2	
2. TEAMS AND INTERACTIONS WITHIN TEAMS		
2.1 Teams		
2.1.1 Explain the term "team" in the ATC training environment.	2	*e.g. team on shift, team in sector group, OJTI and trainee team, training team*
2.2 Situational awareness		
2.2.1 Explain situational awareness in teams.	2	*e.g. OJTI awareness of the impact of trainee behaviours on other team members*
2.2.2 Take account of how situational awareness can help avoid human related problems during training.	2	*e.g. stress-related conflict with other team members*
2.3 Team behaviours		
2.3.1 Explain how team behaviour affects learning outcomes.	2	*e.g. negative effects of rumours and history, credibility, trainee's insecurity*
3. COMMUNICATION		
3.1 Verbal communication		
3.1.1 Describe the verbal communication process.	2	*e.g. sender/receiver/channel*
3.2 Non-verbal communication		
3.2.1 Explain non-verbal communication.	2	Body language, gestures
3.3 Listening		
3.3.1 Describe the requirements for active listening.	2	Active listening, effective listening
3.4 Communication		
3.4.1 Explain what an OJTI should take into account when communicating with a trainee.	2	*e.g. Context (i.e. during briefing/debriefing or during monitoring), complexity of a situation, difficulty of a message, need for clarity, need for empathy*

3.5 Barriers to communication		
3.5.1 Describe the barriers to effective communication.	2	*e.g. distortion, semantics, emotions, stress, training environment*
3.6 Communication styles		
3.6.1 Recognize how communication styles influence communication.	1	*e.g. aggressive, passive, assertive*
3.7 Conflict resolution		
3.7.1 Consider strategies for resolving conflict.	2	
4. STRESS		
4.1 Stress		
4.1.1 Explain the meaning of stress.	2	Common stressors
4.1.2 Describe how stressors work in the stress process.	2	Stress reaction
4.1.3 Explain the effect of stress on a trainee's ability to learn.	2	
4.1.4 Describe the main symptoms of stress in a trainee.	2	
4.1.5 Explain ways of preventing and/or managing stress during training.	2	

Subject 4: THE STRUCTURED OJT SESSION

The general objective is:

Participants shall learn how to structure an OJT session including briefing, monitoring, intervention and debriefing.

TOPIC		
Subtopic		
OBJECTIVES	**L**	CONTENT (This is a fundamental part of the objective.)
Trainee shall …		*CONTENT (This is optional content that helps the designer to determine what content may be used to elaborate the objective.)*

1. PREPARING TO DELIVER AN OJT SESSION		
1.1 Preparation		
1.1.1 Consider the current level of competence and experience of the trainee controller.	2	*e.g. previous training reports, talking to previous instructor(s) and training managers*
1.1.2 Recognize the need for selecting objectives and time restrictions from the relevant training plan.	1	
2. BRIEFING		
2.1. Need for a briefing		
2.1.1 Explain why a briefing is necessary when carrying out an OJT session.	2	
2.1.2 Describe how to prepare a structured briefing.	2	
3. DEMONSTRATION		
3.1 Demonstration		
3.1.1 Define demonstration.	1	
3.1.2 Describe the two essential elements of demonstration.	2	Demonstrate and explain
3.1.3 Appreciate when to use a demonstration.	3	

4. TRAINEE'S INVOLVEMENT		
4.1 Involvement		
4.1.1 Describe a trainee's involvement.	2	
4.1.2 Explain the need for involvement.	2	
4.1.3 Appreciate different techniques available for a trainee's involvement.	3	*e.g. questioning, talk through, delegation of tasks to trainee (transfers, coordination, strip-marking, etc.)*
5. WORKING POSITION HANDOVER/TAKEOVER		
5.1 Working position handover/takeover		
5.1.1 Appreciate the need for a complete working position handover and takeover in an OJT situation.	3	*e.g. OJTI and trainee both need to be involved*
6. MONITORING		
6.1 OJTI situational awareness		
6.1.1 Describe the monitoring tasks of the OJTI.	2	
6.1.2 Appreciate the need to ensure that training activities do not compromise safety.	3	
6.1.3 Appreciate the need to ensure that training activities do not unduly compromise the quality of service.	3	
6.1.4 Appreciate the difficulties of monitoring at various stages of a trainee's competence development.	3	*e.g. under/over reliance on trainee's ability and capability, loss of concentration, distraction*
6.1.5 Discuss OJTI body language during a training session.	5	
6.2 Evaluation and note taking		
6.2.1 Appreciate the need to evaluate the trainee's performance against the agreed objectives and competencies.	3	Strengths and weaknesses
6.2.2 Appreciate the value and importance of note taking during monitoring.	3	

6.2.3 Appreciate the need for balanced, factual and complete notes.	3	
7. TRAINING TECHNIQUES		
7.1. Adding training value		
7.1.1 Describe the challenges associated with instructing in a live operational environment.	2	
7.1.2 Describe techniques that may be used to enable learning.	2	*e.g. verbal problem-solving, demonstration, talk through, immediate bad habit correction, trainee involvement, questioning, feedback*
7.1.3 Explain the difference between teaching/instructing and coaching.	2	Doc 10056, Volume II
7.2 Support		
7.2.1 Appreciate the need for adequate and appropriate support.	3	
7.3 Questioning		
7.3.1 Explain the purpose of questioning in training.	2	
7.3.2 Differentiate between different types of questions.	2	*e.g. closed-ended questions, open-ended questions, specific questions, motivation questions, unconventional questions*
7.3.3 Describe situations where appropriate questioning will enable learning.	2	
8. INTERVENTION		
8.3 Reasons and methods		
8.3.1 Appreciate the reasons for intervention.	3	
8.3.2 State the different methods of intervention.	1	Questions, instructions, error corrections, take over control
8.3.3 Appreciate the need for timely intervention.	3	
8.2 Instructions		
8.2.1 Describe the situations where the OJTI may intervene with instructions.	2	

8.3 Error correction		
8.3.1 Describe the kinds of errors, mistakes and misjudgments trainees may make during a training session.	2	
8.3.2 Describe the four categories of error.	2	Preventable, immediate correction, delayed correction, no correction
8.3.3 Explain how and when to correct errors.	2	
8.4 Taking over control		
8.4.1 Appreciate when to take over control.	3	
8.4.2 Appreciate when to return control.	3	
8.4.3 Appreciate the need to ensure that a trainee knows who has control.	3	
9. DEBRIEFING		
9.1 Debriefing		
9.1.1 Recognize the need for debriefing.	1	
9.1.2 Explain when and where to debrief.	2	
9.2 Preparation		
9.2.1 Consider the trainee's performance in relation to the briefed training objectives and associated competencies.	2	
9.2.2 Describe how to prepare a structured debriefing.	2	
9.3 Feedback		
9.3.1 Explain feedback.	2	*e.g. constructive and destructive feedback*
9.3.2 Describe situations where feedback enables learning.	2	*e.g. during the operational session, during debriefing*

9.3.3 Explain how verbal feedback should be given.	2	
9.3.4 Explain the difference between direct coping and defensive coping.	2	

Subject 5: ASSESSMENT METHODS AND REPORT WRITING

The general objective is:

Participants shall appreciate the purpose of assessment in training and explain how training reports should be written.

TOPIC		
Subtopic		
OBJECTIVES	**L**	CONTENT (This is a fundamental part of the objective)
Trainee shall …		*CONTENT (This is optional content that helps the designer to determine what content may be used to elaborate the objective)*

1. ASSESSMENT		
1.1 Assessment		
1.1.1 Explain the need for assessment.	2	Formative, Summative
1.2 Responsibilities of the OJTI in assessment		
1.2.1 Describe the responsibilities of the ATC OJTI in assessment.	2	
1.3 Assessment process		
1.3.1 Explain the assessment process.	2	
1.4 Factors affecting assessment		
1.4.1 Consider the factors affecting assessment.	2	

2. REPORT WRITING		
2.1 Need for reports		
2.1.1 Explain the importance of the training report.	2	
2.2 Quality of reports		
2.2.1 Describe the guidelines for better report writing.	2	*e.g. evidence-based, states precise nature of the performance, clear, concise*
2.2.2 Consider the pitfalls of subjectivity in report writing.	2	
2.3 Use of reports		
2.3.1 Describe the use of reports.	2	

Subject 6: PRACTICAL APPLICATION OF THE ON-THE-JOB TRAINING TECHNIQUES

The general objective is:

Participants shall prepare for a training session and apply the appropriate OJT techniques during briefing, demonstration, monitoring, intervention and debriefing, facilitating the trainee's involvement.

Note: *Objectives highlighted in blue font can only be observed at the unit training level because of the local adaptation specifics.*

TOPIC		
Subtopic		
OBJECTIVES	**L**	CONTENT (Required)
Trainee shall …		*CONTENT (Optional - e.g.)*

1. Prepare for an OJT SESSION		
1.1 Determine the trainee's current level of competence		
1.1.1 Verify the trainee's background and experience.	3	Training records
1.1.2 Check the trainee's current level of competence.	3	Training reports

		e.g. training team briefing, discussions with other OJTIs
1.2 Plan training		
1.2.1 Identify specific training needs and relevant training objectives.	3	
1.2.2 Check for any time limitations in the training programme.	3	Unit-specific target, maximum and minimum acceptable training time
2. BRIEFING		
2.1 Briefing		
2.1.1 Ensure that a structured briefing is carried out prior to carrying out the session.	4	
3. CONDUCT THE TRAINING SESSION		
3.1 Handover and takeover		
3.1.1 Ensure a safe and complete working position handover and takeover is carried out.	4	
3.2 Demonstrate and explain the job		
3.2.1 Conduct a demonstration.	3	
3.3 Trainee involvement		
3.3.1 Use techniques to involve the trainee in a session.	4	
3.3.2 Manage the trainee's involvement in the session.	4	*e.g. questioning, delegation of tasks to trainee (transfers, coordination, strip-marking, etc.)*
3.4 Monitor		
3.4.1 Ensure that safety is maintained throughout the training session.	4	
3.4.2 Demonstrate OJT situational awareness.	2	Doc 9868 and Doc 10056, Volume II
3.4.3 Monitor the trainee's performance for the purpose of evaluation.	3	
3.4.4 Ensure that adequate notes are taken.	4	

3.5 Adding training value		
3.5.1 Appreciate the need to allow the trainees to make decisions appropriate to their level of competence and experience.	3	*e.g. instructing versus coaching*
3.5.2 Ensure appropriate timing of teaching interventions.	4	
3.5.3 Ensure that misconceptions and/or misunderstandings are corrected.	4	
3.6 Correct errors		
3.6.1 Ensure that potentially dangerous errors are corrected before safety is compromised.	4	
3.6.2 Ensure that bad habits are corrected immediately.	4	
3.6.3 Appreciate the need to allow the trainee to witness the effects of errors that do not degrade safety.	3	
3.7 Take control		
3.7.1 Assess correctly the occasions when it is necessary to take control from the trainee.	5	
3.7.2 Execute the process of taking over control.	3	
3.7.3 Execute the process of returning control to the trainee safely.	3	
4. Evaluate and Debrief the Trainee		
4.1 Assess the trainee's performance		
4.1.1 Assess the trainee's performance against the objectives of the session and the required competencies.	5	
4.1.2 Appreciate the need for making allowances for lack of experience.	3	
4.1.3 Use questioning in an effective manner.	3	

4.2 Debrief the trainee		
4.2.1 Appreciate the need to allow the trainee to recover from the session before the debrief.	3	
4.2.2 Ensure that a structured debriefing is carried out prior to carrying out the session.	4	
4.3 Provide written reports		
4.3.1 Provide clear, concise and easily understandable reports.	4	.
4.3.2 Provide reports completed with all essential information.	4	
4.3.3 Provide correct and verifiable reports.	4	
4.3.4 Transfer reports to the appropriate person promptly.	3	
4.4 Take appropriate follow-up action		
4.4.1 Recognize the need to take appropriate action where the instructor is unable to resolve specific problems.	1	Chain of responsibility
4.4.2 Transfer unresolved problems to the appropriate person promptly.	3	Unit specific processes for escalating training issues

EXAMPLE 5. COMPETENCY CHECKLIST

A competency checklist is a comprehensive document that typically is lengthy. The example below shows the competency checklist for two competency units only: situational awareness, and safety and efficiency management. A complete list would include all the competencies and observable behaviours listed in the Earhart Sector competency model.

Competency checklist — Earhart Sector

Trainee name: *P. Georgiev*
Sector(s): *Earhart Sector*
Date: *02.08.21*
ICS or FCS: *ICS 2*
Instructor/assessor name: *J. Lepage*

The evidence guide describes the level of performance required for each competency standard. An overall assessment of "competent" at the competency standard being assessed can only be made when all observable behaviours have been achieved to the required standard.

For formative assessment, grading supports the learning progress and is intended to be used for diagnostic purposes only.

Situational awareness: *Comprehends current operational situation, anticipates future events and the impact of the trainee's performance on the operation*		*1 (NC)*	*2 (NC)*	*3 (C)*	*4 (C)*
OB1.1	Maintains own situational awareness while instructing.				
OB1.2	Monitors impact of the trainee's actions on the traffic situation.				
OB1.3	Monitors the trainee's actions continuously.				

Comments:……
……
……

Safety and Efficiency Management: *Ensures safety and efficiency of the operation during training*		*1 (NC)*	*2 (NC)*	*3 (C)*	*4 (C)*
OB2.1	Prioritizes safety above teaching the trainee.				
OB2.2	Takes action to ensure safety is never compromised (e.g. correct errors, take over control).				
OB2.3	Intervenes in a timely manner to maintain an orderly flow of traffic, when appropriate, and to ensure that safety is not compromised.				
OB2.4	Ensures traffic efficiency is maintained.				

OB2.5	Manages own and trainee's workload to ensure safe and efficient operations (e.g. sector splitting, increased spacing, adapting instructional techniques).	

Comments:……
……
……

Overall assessed performance is:

(1) Not competent
(2) Competent in most situations
(3) Competent
(4) Above the required competence

Signature: OJT Instructor: _____ Date: _____

EXAMPLE 6. COMPETENCY ASSESSMENT FORM

Competency Assessment Form

Trainee name: *P. Georgiev*
Sector(s): *Earhart Sector*
Start of training: *02.01.21*
ICS or FCS: *FCS*

Formative assessments

Number of assessments:	Date of recommendation for summative assessment:

Summative assessments

Number	Date undertaken	Assessor(s)	Result

Summary of results:

		1 (NC)	*2 (NC)*	*3 (C)*	*4 (C)*
1.	Situational awareness				
2.	Safety and efficiency management				
3.	Mentoring				
4.	Teaching, instructing and coaching				
5.	Communication				
6.	Assessment				
7.	Self-assessment				
8.	Ethics and integrity				

Comments:……
……
……

Conclusion (competent/not competent): ……

Written Examinations:

Examination	Date undertaken	Result	Pass mark required
OJTI Theory			80%

Recommendation: (Competent/Not competent) ……..

Name: ……..

Signature: ……

Date: ……

— END —

ISBN 978-92-9265-720-8