THE GOOD, THE BAD AND THE UGLY

What does it mean to be competent? The answer is: it depends.
This makes it impossible to have a fixed syllabus, and so ICAO have developed a set of competencies that may be applied to all air traffic controllers, irrespective of their rating and phase of training. **Ashley Lauryssen** outlines some of the implications and applications of competency-based training.

KEY POINTS

1. **To decide if someone is competent, you first need to define what competent performance is.**

2. **Fixed syllabi for air traffic controllers create problems for training organisations if the syllabi cannot be updated regularly.**

3. **ICAO ATCO Competency Frameworks are suitable for all ratings and phases of training, and are transferable across tasks and in all contexts.**

4. **A controller who consistently demonstrates the behaviours defined in the local competency model may be considered competent.**

5. **ICAO is also developing an ATCO on-the-job training instructor competency framework.**

If I were to make a Spaghetti Western about air traffic control, then Clint Eastwood (the younger version) would play the good controller and Lee Van Cleef (also the younger version) would play the bad controller. Since there are no ugly controllers, I would have a dilemma coming up with a punchy title for my film. Maybe this is why I have never made it! But is there really such a thing as a good controller or a bad controller? This article considers what it means to be a good or bad controller.

Jon is a trainee air traffic controller who is undertaking his on-the-job training ▸▸

at an approach surveillance unit. How does the training manager know when Jon is able to do the job on his own? Is it because Jon has completed 50 hours of simulation and 200 hours of on-the-job training, and has passed all the required theory exams? Is it because, in the collective opinion of the instructors, Jon is now able to do the job?

"To decide if someone is competent, you first need to define what competent performance is."

This question about how to determine whether Jon is able to do the job on his own, leads us to a fundamental aspect of competency-based training and assessment. To decide if someone is competent, you first need to define what competent performance is. This begs the question, how do you define competent performance?

And this is where ICAO and their Air Traffic Controller Competency Framework come into the picture. ICAO has developed a set of competencies that may be applied to all air traffic controllers, irrespective of their rating and may be used during any phase of training. These competencies have been published in the ICAO PANS – Training document and became applicable in November 2016. This framework has been developed in such a way that it is adaptable to any air traffic controller environment taking into account the local regulatory, technical, operational and organisational requirements.

For any air traffic control instructor who's been around for the last 10 to 30 years, you are likely to remember the old ICAO 05 series of ATC training syllabi. I still have a few on my shelves. Every once in a while, I take them down and flick through them – they're relics from the past, complete with a musty smell, yellowed pages and typewriter text. The Area (Airways) Control – Radar Syllabus (Series 056) was last published in May 1979 when cathode ray tubes were modern technology and Automatic Dependent Surveillance was unheard of in ATC centres. Even though these syllabi were withdrawn from publication by ICAO many years ago

(and not replaced), they live on in many parts of the world. Training academies still offer 05 series training courses and one can only hope that the content has been updated and made relevant for today's air traffic controllers.

ICAO was right to withdraw these syllabi from circulation. Fixed syllabi for air traffic controllers create problems for training organisations if they cannot be updated regularly. In Europe we have been fortunate to have the EUROCONTROL ATCO Common Core Content (CCC) training syllabi to work with. These started as guidelines 25 years ago and were the result of collaboration between many European ANSPs and training organisations who sought to harmonise ATC training in Europe. The CCC syllabi have been regularly updated. Today, these syllabi live on in EU regulations and continue to be updated and relevant.

However, even if ICAO had been able to keep the 05 Series syllabi up-to-date, it would have been nearly impossible to develop comprehensive training objectives that would be relevant for all air traffic controllers irrespective of where they worked. One size does not fit all. And this is where the notion of competencies comes to the rescue!

To illustrate this point, let's go back to Jon again. When he eventually qualifies, he will provide an approach surveillance service to an extremely busy aerodrome that operates a parallel runway system and is located in a semi-desert region where the terrain is flat and the visibility is CAVOK for most of the year. His best friend Natalie is also a trainee approach surveillance controller, but when she qualifies she will be providing approach surveillance services to a quiet aerodrome that is located in a remote mountainous region that provides an entry point for mountaineers who wish to scale some of the peaks. The airfield is often covered in snow and reduced visibility is a weekly occurrence. The airfield is also the base for the local helicopter rescue unit.

Do both Jon and Natalie need the same competencies to do their respective jobs? Well, they both need to be able to manage their traffic situation, communicate and coordinate

effectively, maintain situational awareness, manage their workloads and so on. For Jon to perform competently, he will carry out a fairly limited number of sequencing and separation tasks, but in a highly complex environment where the standards for efficiency will be extremely demanding. Natalie is pretty much out there on her on, so for her to perform competently she will need to carry out a much wider range of tasks, but the standards for efficiency may be less demanding. And for sure, some of Natalie tasks are going to be significantly different to Jon's because Natalie is working in a climatically challenging environment.

"An ICAO competency consists of the competency unit itself, a description, and observable behaviours that are associated with that competency."

So clearly, Jon's and Natalie's unit training won't be the same because the conditions that they are operating under and the tasks they are performing are not the same, and the standards they need to achieve are different. But to be declared competent, they will both have to demonstrate the achievement of the same competencies.

An ICAO competency consists of the competency unit itself (e.g., communication, workload management), a description, and observable behaviours that are associated with that competency (see Table 1). For each competency the training organisation determines:

- which of the behaviours are applicable in their environment
- if any of the behaviours should be modified, deleted or added
- the likely conditions and standards under which those behaviours should be demonstrated.

Competency-based training contains some elements of task-based training because the performance of a task is one of the building blocks of competency. However, acquisition of the basic knowledge and skills required to perform a task in a sterile environment is not enough. Tasks

Competency	Definition	OB no.	Observable behaviour
Separation and conflict resolution	Manage potential traffic conflicts and maintain separation	OB 3.1	- Detects potential traffic conflicts
		OB 3.2	- Selects appropriate separation method
		OB 3.3	- Applies appropriate separation and spacing
		OB 3.4	- Issues clearances and instructions that ensure separation is mantained
		OB 3.5	- Issues clearances and instructions that resolve conflicts
		OB 3.6	- Resolves conflicts through coordination with adjacent sectors or units
		OB 3.7	- Monitors the execution of separation actions
		OB 3.8	- Adjusts control actions, when necessary, to maintain separation
		OB 3.9	- Takes corrective action to restore appropriate separation as soon as possible below minima

Table 1: Example of one competency with description and observable behaviours

need to be performed in dynamic and changing conditions, and there is no training programme in existence today that could expose an ATC trainee to all the possible conditions and combinations of conditions that they may encounter as an operational ATCO. Consequently, when an assessor or instructor is working with a trainee, they observe the trainee performing their tasks, but at the same time they are looking for evidence that demonstrates that the appropriate competencies have been acquired. If they are able to see evidence of these competencies being performed during repeated sessions, then there is reasonable certainty that the trainee will be able to call on these competencies to manage their tasks, no matter which conditions or context they are working in.

And so returning to Jon one last time. One of his main tasks is to establish and manage the arrival sequence. To do this, he may use established arrival procedures and a combination of vectors and speed control. However, this task is not performed in isolation. He carries out a number of other tasks, such as managing the departing aircraft until they are transferred to area. To determine if Jon is competent, the instructor will observe Jon managing his arrival sequence and other tasks, but will be looking for evidence of behaviours that demonstrate that he is maintaining situational awareness, managing his workload, performing as a team member, solving traffic problems, communicating effectively and on. If Jon consistently shows evidence of these required behaviours, he may be considered competent.

THE COMPETENT
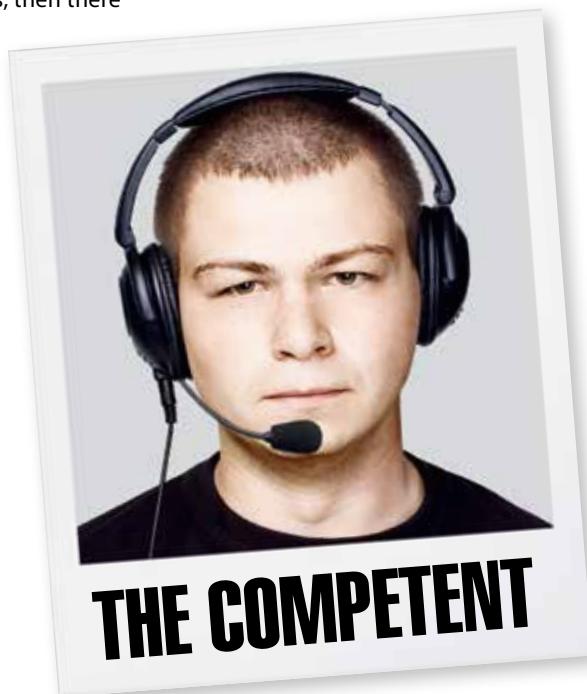
Since the publication of the ATC Competency Framework and the associated Manual, the role of instructors has often been discussed. ICAO has recognised that no matter how well defined your training programme might be (competency-based or otherwise), it can only be effective if the instructors who carry out the teaching and implement the programme are capable and effective. As a result, ICAO is developing an ATCO on-the-job training instructor competency framework that recognises that for an instructor to be competent, there is a need to demonstrate competencies that take into account:

- teaching and instructing
- mentoring and coaching
- maintaining safety and efficiency
- collaborating and demonstrating ethics and integrity.

This framework should be published in the ICAO PANS-Training during 2019.

So, when I get around to making my air traffic control movie, Clint can still be cast as the good guy and Lee can still be the bad guy, but they can't be controllers because controllers are neither good nor bad, they are just 'competent'. The movie will have to be called 'The Good, the Bad and the Competent' (cue Ennio Morricone). ⑤

Ashley Lauryssen is a Senior Training Expert at EUROCONTORL IANS. Since 2013 she has been involved in various ICAO working arrangements for the development of competency-based training and assessment concepts and frameworks.