

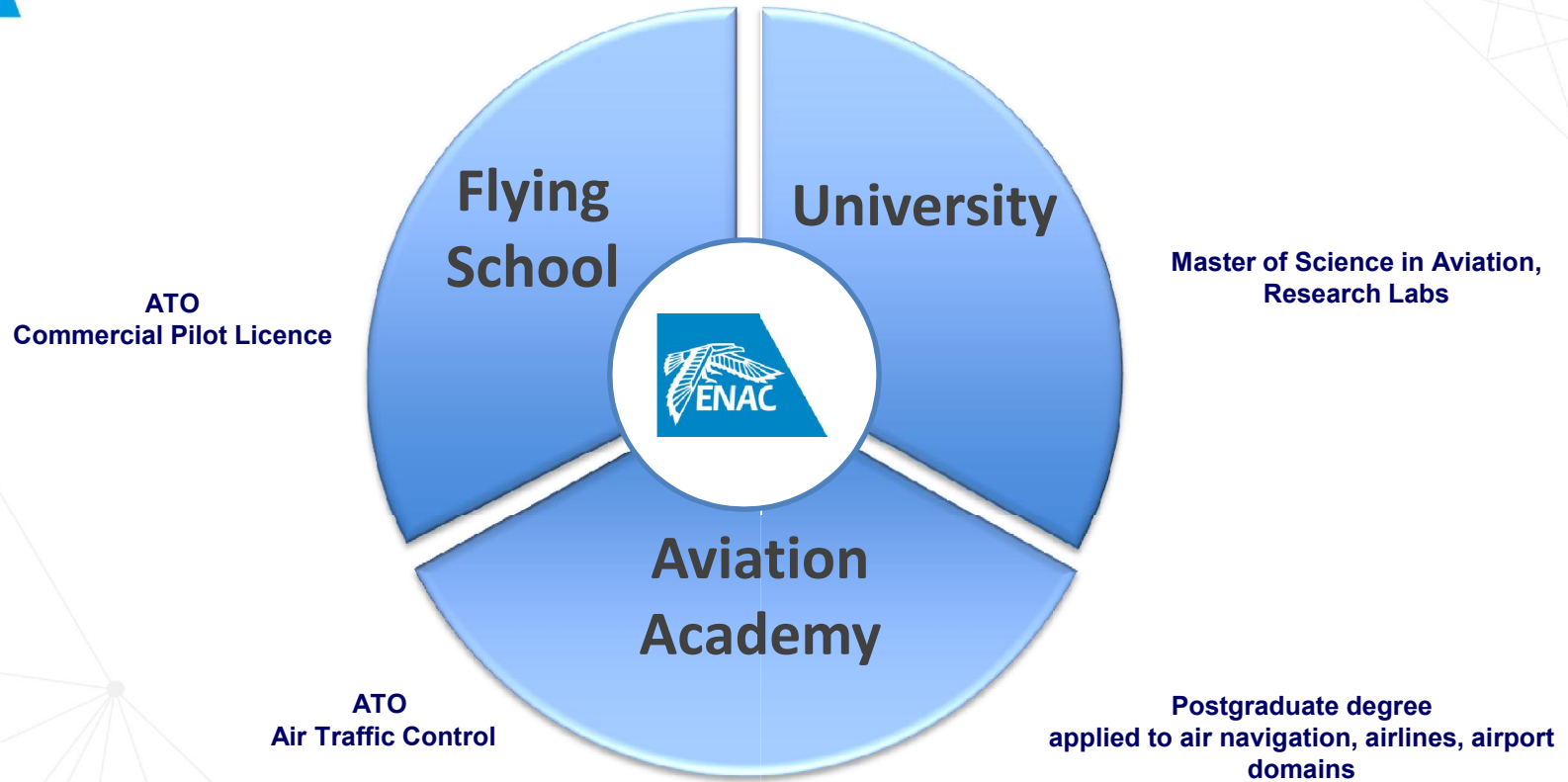


# AIR TRAFFIC MANAGEMENT

Contribution to the ICAO – ANC Talks  
Monday 04 / 05 / 2020



# ENAC, a unique model



DGAC  
(french CAA)

International organisations

Aviation industry



# ICAO – ANC Talks

## *Presentation Summary*

### Introduction

1. ATM Competency Based Training overview
2. Transition towards CBT in different environments
3. Competency Based Assessments
4. CBT implementation: work in progress & a few lessons learned
5. ATM Training in the current COVID context

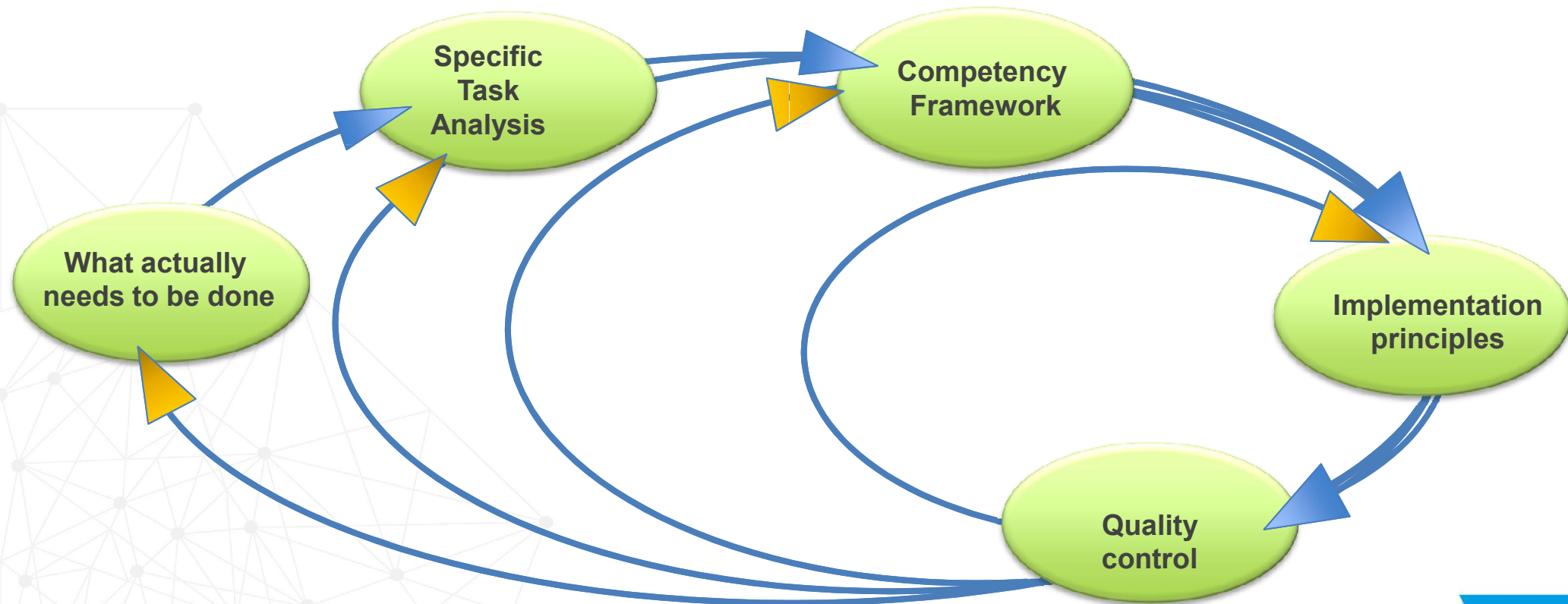
### Conclusion

# ICAO – ANC Talks

## *Focus on ATM Competency Based Training*



### Competency Based Training / General Principles



# ICAO – ANC Talks

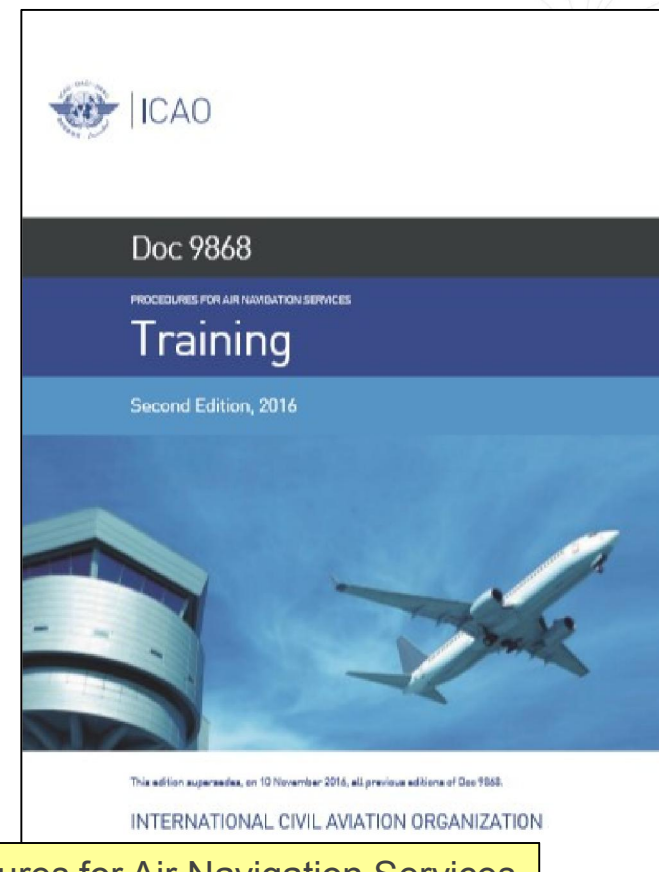
## *Focus on ATM Competency Based Training*

### ATCo Competency Framework

1. Situational Awareness
2. Traffic and Capacity Management
3. Separation and Conflict resolution
4. Communication
5. Coordination
6. Management of Non-Routine situations
7. Problem solving and decision making
8. Self management and continuous development
9. Workload management
10. Teamwork

### ATSEP Competency Framework

1. Engineering
2. Situational Awareness
3. Service Provision
4. Coordination
5. Management of Non-Routine situations
6. Problem solving and decision making
7. Self management and continuous learning
8. Workload management
9. Teamwork
10. Communication



**PANS / Procedures for Air Navigation Services**  
**Training – doc.9868**  
**Nov.2016+**

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## *Focus on ATM Competency Based Training*



ICAO doc 10056 - Manual on Air Traffic Controller Competency Based training and Assessment v-2017



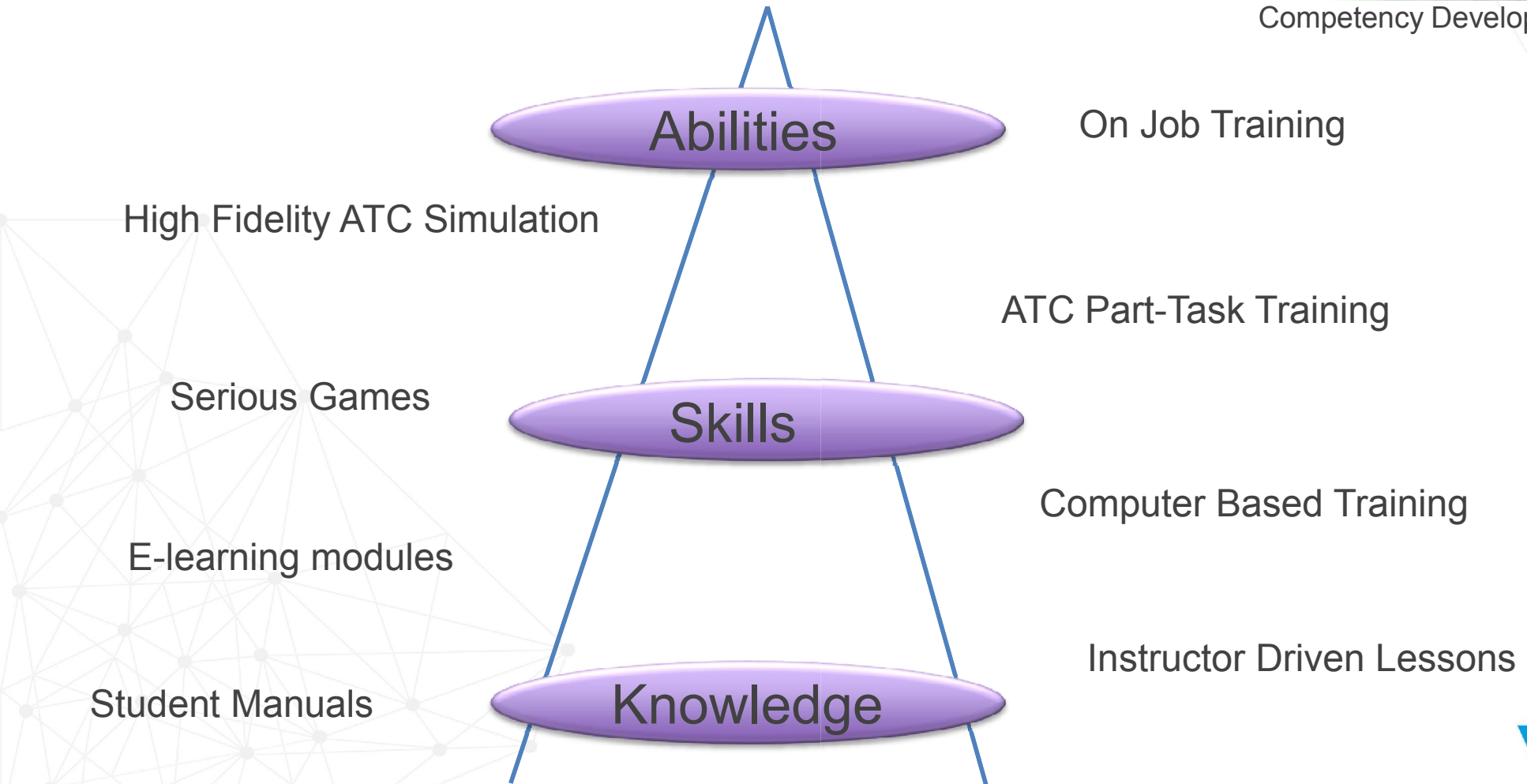
ICAO doc 10057 - Manual on Air Traffic Safety Electronics Personnel Competency Based training and Assessment v-2017

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## *Focus on ATM Competency Based Training*

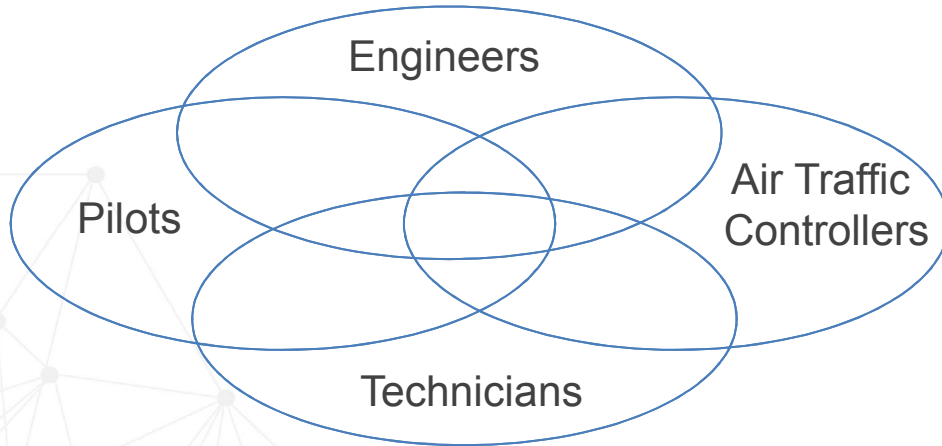


Competency Development

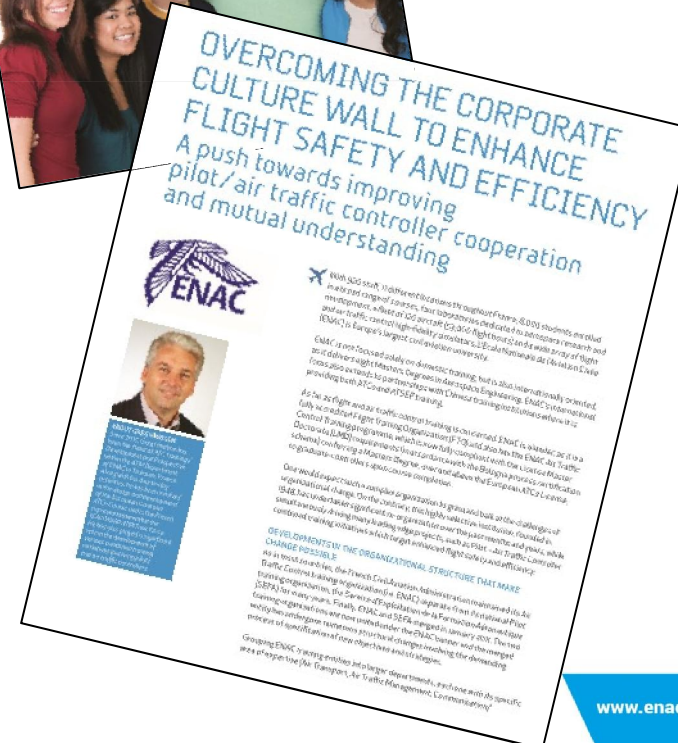
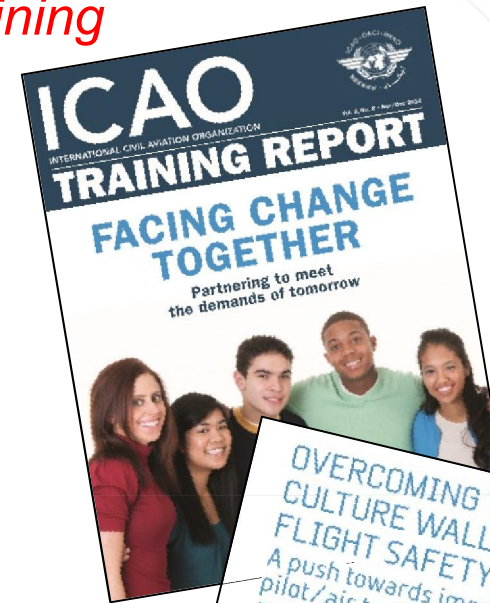


# ICAO – ANC Talks

## Focus on ATM Competency Based Training



Need for a holistic approach to Competency Based Training





# ICAO – ANC Talks

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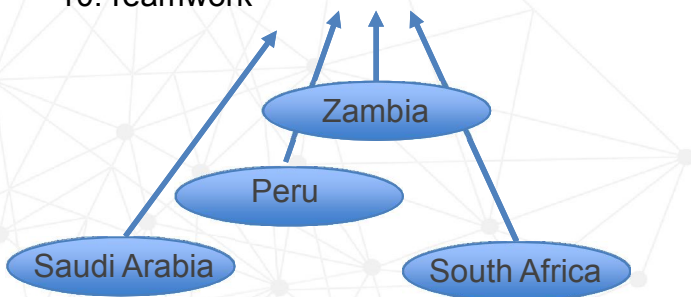
## *Focus on ATM Competency Based Training*

Variety in terms of ...

✓ **ATCO Competency Frameworks**

### ICAO version

1. Situational Awareness
2. Traffic and Capacity Management
3. Separation and Conflict resolution
4. Communication
5. Coordination
6. Management of Non-Routine situations
7. Problem solving and decision making
8. Self management and continuous development
9. Workload management
10. Teamwork



Holland

### LVNL version

1. Safety
2. Efficiency
3. Situation Assessment
4. Attention Management
5. Planning
6. Decision Making
7. Communication
8. Coordination
9. Strip and label management
10. Equipment operation
11. Workload management
12. Teamwork
13. Attitude

### ACC Maastricht version

1. Safety
2. Effective traffic handling
3. Workload management
4. Situational awareness
5. Planning
6. Decision making
7. Communication
8. Coordination
9. Emotional control
10. Attention management
11. Procedures
12. HMI
13. Attitude
14. Teamwork

Eurocontrol



Competency Framework

Observable behaviours

Assessment criteria

# ICAO – ANC Talks

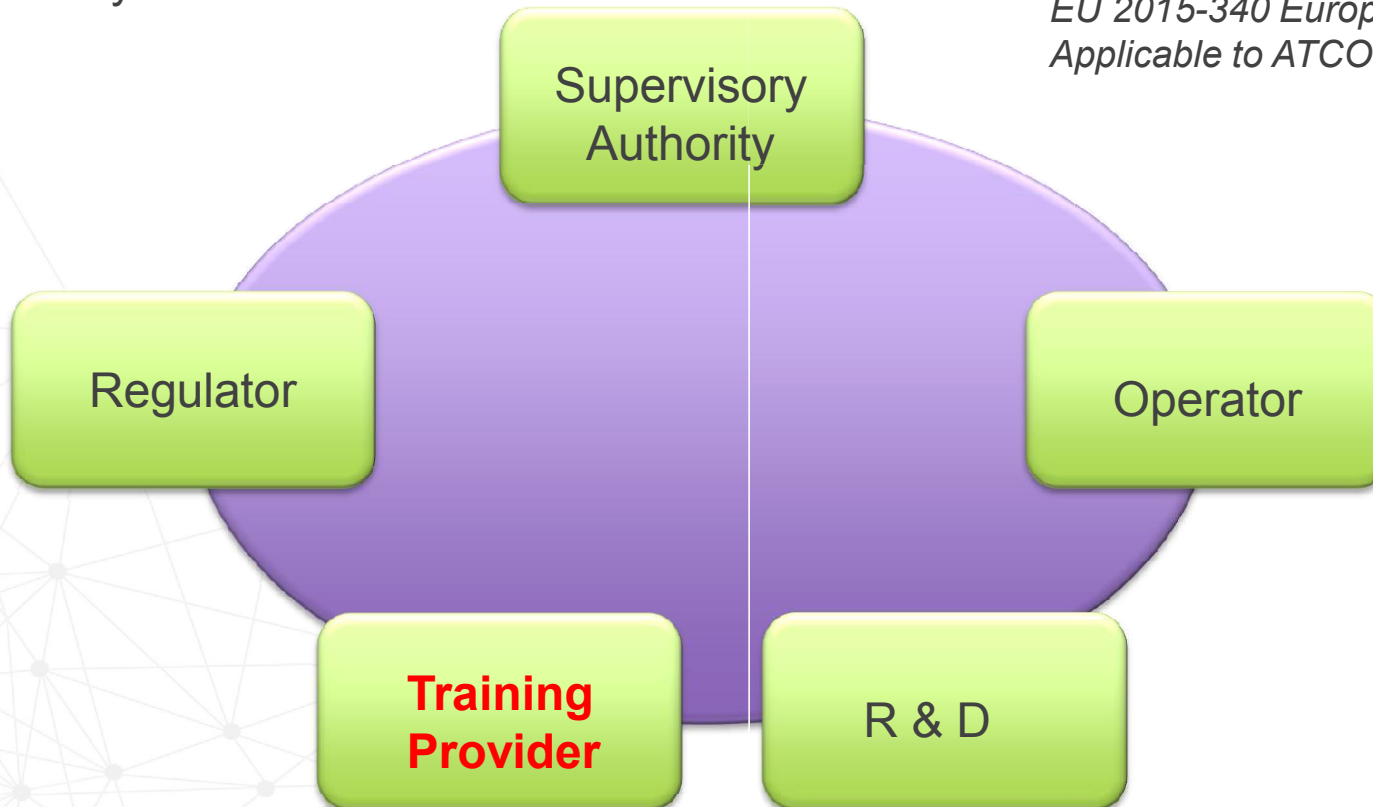
## *Focus on ATM Competency Based Training*

Variety in terms of ...

- ✓ Competency Frameworks
- ✓ Regulatory contexts

### **Example**

*EU 2015-340 European Regulation  
Applicable to ATCO training requirements*



# ICAO – ANC Talks

## *Focus on ATM Competency Based Training*

Variety in terms of ...

- ✓ Competency Frameworks
- ✓ Regulatory contexts
- ✓ Selection criteria



# ICAO – ANC Talks

## *Focus on ATM Competency Based Training*

Variety in terms of ...

- ✓ Competency Frameworks
- ✓ Regulatory contexts
- ✓ Selection criteria
- ✓ Training objectives & ambition



Single Rating?

Multi-Rating?

Potential ATM  
Manager?

ATC Operator ?

Training  
Duration ?

Training  
Cost ?

Aerodrome Control ?

Approach Control ?

En-Route Control ?

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# ICAO – ANC Talks

## *Focus on ATM Competency Based Assessment*

Context: ENAC ATCO training for ACC Maastricht

Set of required  
Competency Units

Associated  
« Observable behaviours »

6-level  
« Rating scale »

# ICAO – ANC Talks

## *Focus on ATM Competency Based Assessment*

Examples

Context: ENAC ATCO training for ACC Maastricht

COMPETENCY UNITS	PERFORMANCE CRITERIA	OBSERVABLE BEHAVIOURS
Problem Solving and Decision Making	Makes well timed decisions	The student decides an appropriate course of action, in time.
	Prioritizing	The student determines a proper list of priorities.
	Initiative	The student takes initiative and acts accordingly.

COMPETENCY UNITS	PERFORMANCE CRITERIA	OBSERVABLE BEHAVIOURS
Situational Awareness	Obtains all necessary information from radar, OSDR, data displays, and any other means available	The student gathers all necessary information to form an overall picture.
	Monitoring	The student uses an effective and regular scanning routine in his airspace as well as in nearby airspaces interfering with own traffic.
	Anticipates future traffic situations	The student analyses and projects the actual and expected traffic situations.
	Assesses accurately responsibility for separation	The student recognizes situations where a delegation of separation is needed.



# ICAO – ANC Talks

## *Focus on ATM Competency Based Assessment*

Context: ENAC ATCO training for ACC Maastricht

The Assessment tool as part of an overall assessment process

- ✓ Coaching and Assessment reports
- ✓ Scoring shall be factual
- ✓ Comments can provide more «nuance»
- ✓ Complete and correct (honest)
- ✓ Against the module exit level
- ✓ Increasing volume and complexity
- ✓ Decreasing support



# ICAO – ANC Talks

## *Focus on ATM Competency Based Assessment*

Context: ENAC ATCO training for ACC Maastricht

### 6 level rating scale Performance indicators

PI 1:

The student has failed to reach the required standard of this criterion. No progress was shown. There is severe doubt that the student is able to rectify the performance within the time limits of this level/module.

PI 2:

The student has failed to reach the required standard of this criterion. However, some progress was shown. A strong improvement is required to reach an acceptable level within the time limits of this level/module.

PI 3:

The student has not yet reached the required standard of this criterion. Progress was shown and there is an indication that the required acceptable level could be reached within the time limits of this level/module.

PI 4:

The student has fully achieved the standard of the criterion as described in the behaviour descriptions.

PI 5:

The student shows the ability to perform now and then above the standard of the criterion as described in the behaviour descriptions.

PI 6:

The student consistently shows the ability to perform above the standard of the criterion as described in the behaviour descriptions.



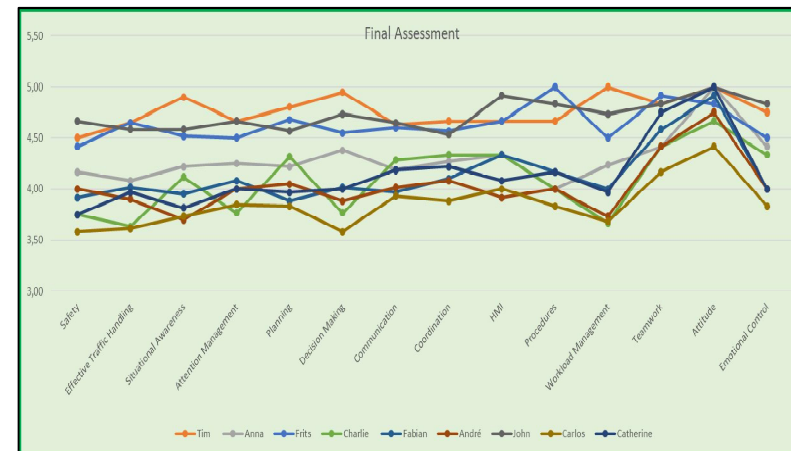
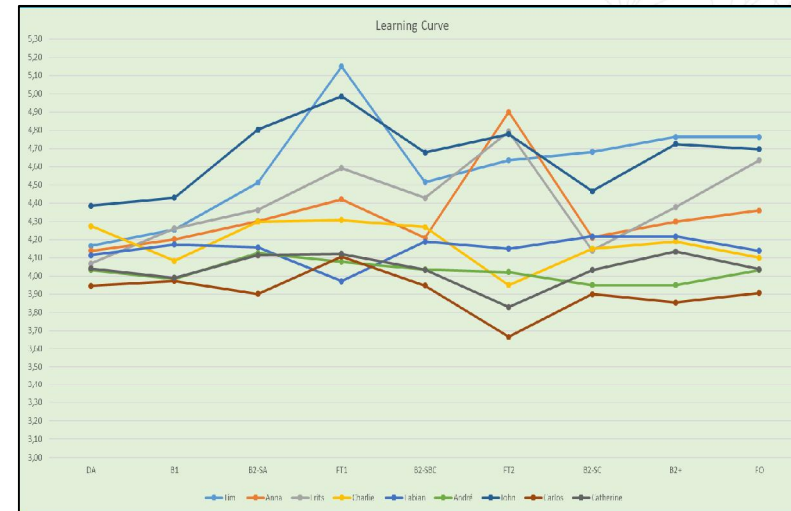
# ICAO – ANC Talks

## Focus on ATM Competency Based Assessment

### Context: ENAC ATCO training for ACC Maastricht

- ✓ Shard training supervision
- ✓ Clear and usable performance criteria
- ✓ Better feedback and adaptive training
- ✓ Attention for assessor / coach role
- ✓ More objectivity
- ✓ More profound pass/fail decisions
- ✓ Continuous evaluation

Intermediate	Safety	Effective Traffic Handling	Situational Awareness	Attention Management	Planning	Decision Making	Communication	Coordination	HMI	Procedures	Workload Management	Teamwork	Attitude	Emotional Control
Tim	4,50	4,65	4,90	4,67	4,80	4,95	4,63	4,67	4,67	4,67	5,00	4,83	5,00	4,75
Anna	4,17	4,08	4,22	4,25	4,22	4,38	4,18	4,27	4,33	4,00	4,23	4,42	5,00	4,42
Frits	4,42	4,65	4,52	4,50	4,68	4,55	4,60	4,57	4,67	5,00	4,50	4,92	4,83	4,50
Charlie	3,75	3,63	4,12	3,77	4,32	3,77	4,28	4,33	4,33	4,00	3,67	4,42	4,67	4,33
Fabian	3,92	4,02	3,95	4,08	3,88	4,02	3,97	4,10	4,33	4,17	4,00	4,58	4,92	4,00
André	4,00	3,90	3,70	4,00	4,05	3,88	4,02	4,08	3,92	4,00	3,73	4,42	4,75	4,00
John	4,67	4,58	4,58	4,67	4,57	4,73	4,65	4,53	4,92	4,83	4,73	4,83	5,00	4,83
Carlos	3,58	3,62	3,73	3,85	3,83	3,58	3,93	3,88	4,00	3,83	3,68	4,17	4,42	3,83
Catherine	3,75	3,97	3,82	4,00	3,97	4,00	4,18	4,22	4,08	4,17	3,97	4,75	5,00	4,00



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## *Focus on ATM Competency Based Training*



### Example 1: a way to focus on the essential...

#### Context:

- ✓ ATCO initial training programme maintenance
- ✓ Highly qualified subject matter experts involved

#### Identified issue:

- ✓ More content than needed

#### Methodology:

- ✓ Extend the « *training event* » vs « *competency framework* » mapping

#### Outcome:

- ✓ A better distinction between ...
  - ✓ the « *need to know* » vs the « *good to know* »
  - ✓ « *What we are able to deliver* » vs « *what the student needs to know at that stage* »
- ✓ Optimized training time
- ✓ Enhanced training effectiveness

# ICAO – ANC Talks

## *Focus on ATM Competency Based Training*



Common FABEC ATCO BASIC course

### Example 2: A hurdle on the way towards CBT...

#### Context:

- ✓ ATCO initial training / European harmonisation of the BASIC module within FABEC (\*)

#### Objective:

- ✓ Move towards Competency Based Training

#### Identified issue:

- ✓ The ICAO Competency Framework provides guidance for the entire initial training process

#### The next step:

- ✓ Define the intermediate observable behaviours applicable to the BASIC module (alone)

[More info about this common programme ? → https://youtu.be/W0krvDzypJk](https://youtu.be/W0krvDzypJk)

(\*): Holland (LVNL), Switzerland (Skyguide), Germany(DFS), France (ENAC), Belgium (Belgocontrol), Luxembourg (ANA) and Eurocontrol (MUAC)

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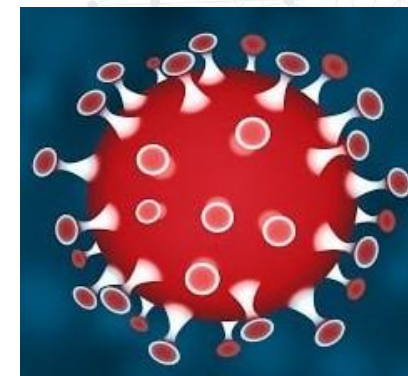
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## *ATM Training in a COVID context*



Lock-down since 16/03.

### Initial Training

- ✓ Theoretical components → managed remotely (limited impact)
- ✓ ATCo Practical training → on standby (progressive re-start end of May ?)

### Continuation Training

- ✓ Face to face training expected to restart in September
- ✓ Strategic shift towards « distance learning » for selected activities
  - ✓ Short term Priority given to
    - ✓ Statutory & Qualifying training
    - ✓ French ANSP & Externals Client's explicit training needs
  - ✓ Medium / long term
    - ✓ all eligible training (as an additional component to the future ENAC catalogue)

### Expanding Towards Distance training ?

- ✓ An on-going cultural development:
  - ✓ Specific pedagogical methodology focussed on training efficiency & quality
  - ✓ Appropriate technology
- ✓ Significant internal resources allocated to guide teachers & instructors
  - ✓ ENAC Learning hub
  - ✓ ENAC “e-campus”



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# ICAO – ANC Talks

## *Presentation Conclusion*

- ✓ In the world of ATM, Competency Based Training appears to be a significant change in training philosophy, for the better.
- ✓ COVID context: yet another opportunity to learn from each other in challenging times



## AIR TRAFFIC MANAGEMENT

Thank you for your attention  
and for the opportunity to share experiences with all of you