ICAO competency provisions for the RPL

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RPAS Symposium

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ICAO Policy for CBTA

ICAO has determined that a CBA is the way forward in today's aviation world - Assembly Resolution A38-12 Appendix D:

"Qualified and Competent Aviation Personnel

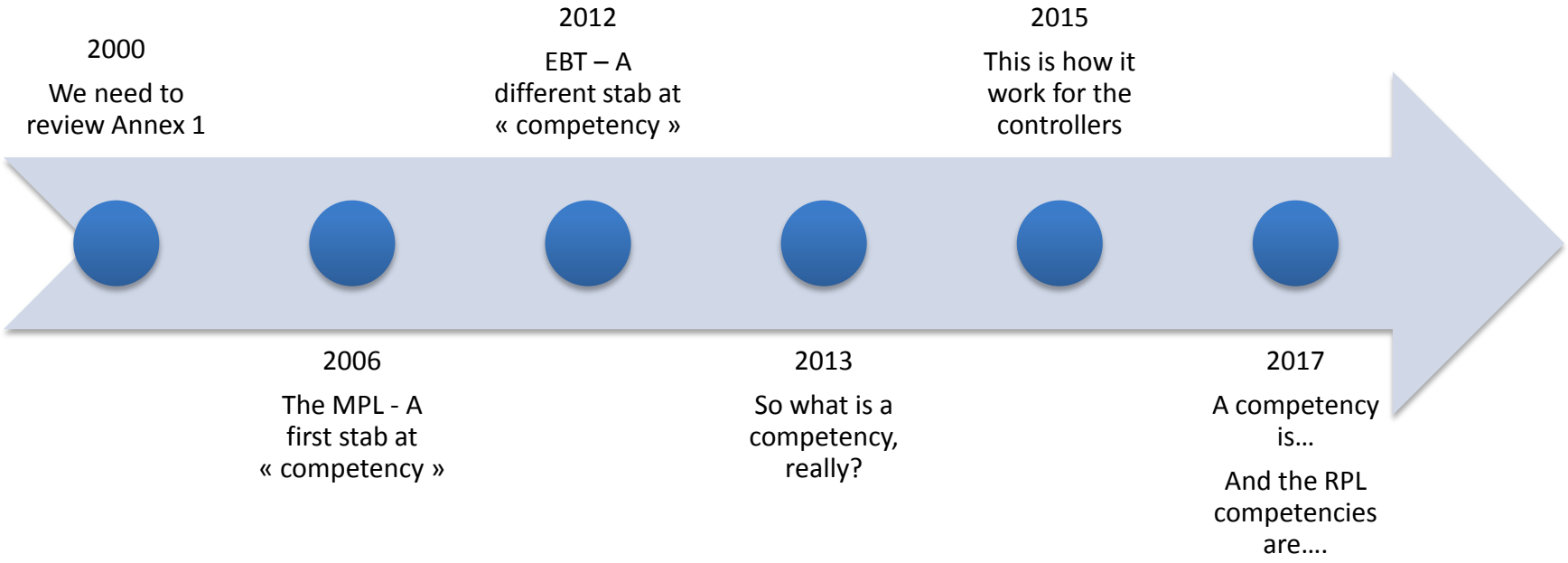
Associated practices

1. The Council should assist Member States to harmonize aviation professionals' levels of competency. These efforts should be based on:

(…)

c) a **competency-based approach**."

The Road to the ICAO RPL Competency Provisions



The latest in the PANS-TRG Provisions

aka Amendment 5

A definition

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.

A description

- Competency-based training is:
  - aimed at developing a set of competencies for a given function in a specific context
- Competency based assessment is:
  - Based on multiple observations that competencies are demonstrated while performing tasks in context

Benefits

- Goes beyond a minimum standard.
- Prepares for the unpredictable
- Is tied to the job and the context
- Is about learning, not passing a test
- Uses a variety of training tools
- Promotes continuous learning

A process

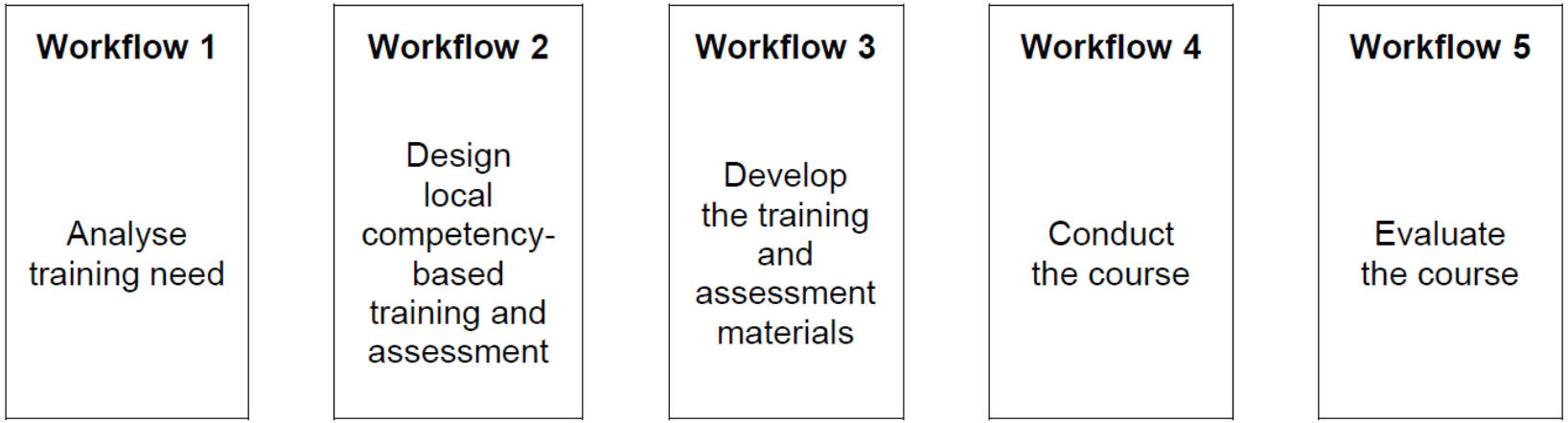


Figure I-2-C-1. Competency-based training and assessment workflows

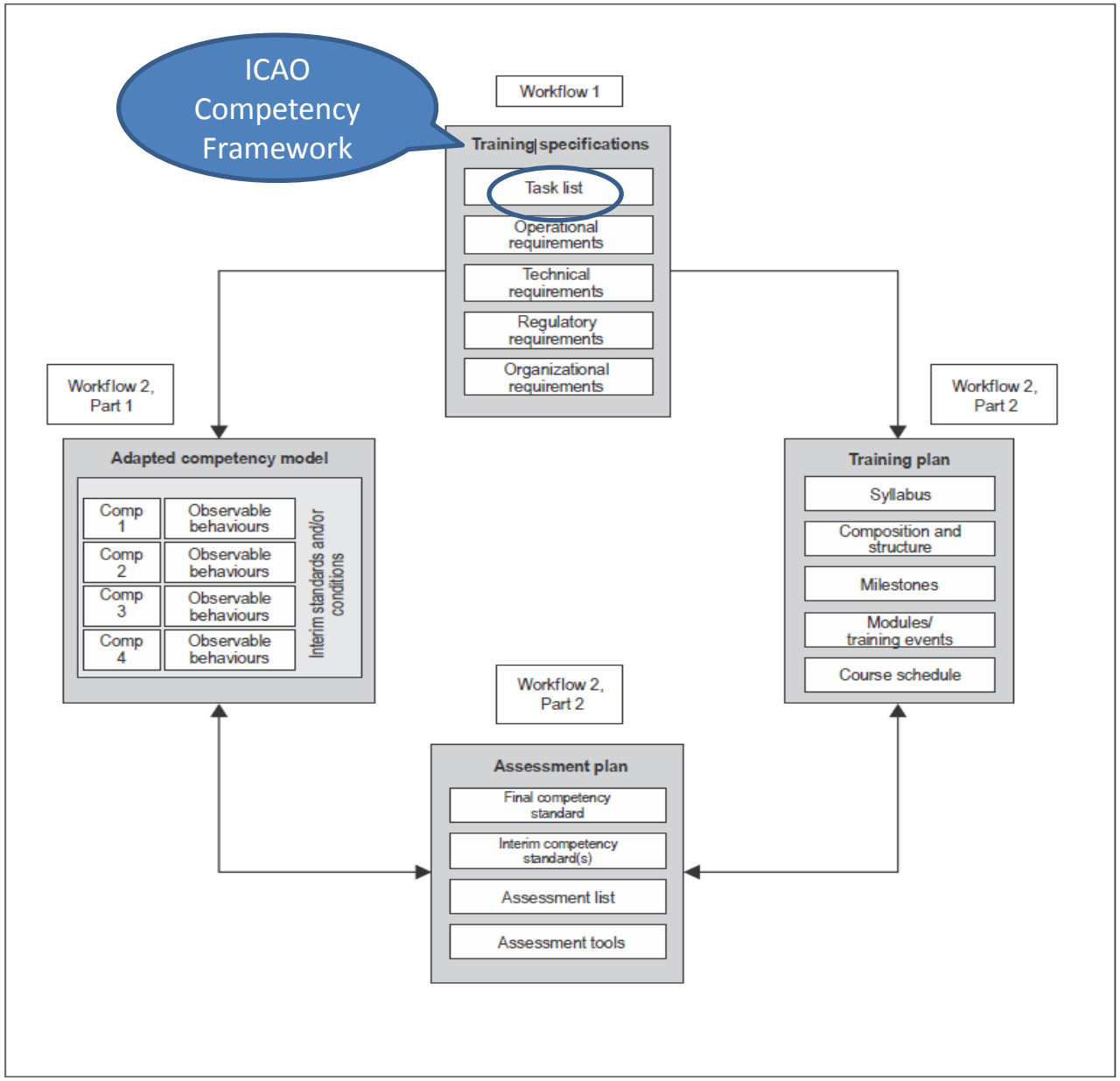


Figure I-2-C-6. Relationship between Workflows 1 and 2

Linking Competencies to Licensing

- A licence can be issued when the required competencies, with their associated performance criteria, underpinning skills and knowledge, have been demonstrated to the satisfaction of the licensing authority

ICAO Competency Framework for the RPL

Competency	Description	Observable Behaviours
Application of Procedures	Identifies and applies procedures in accordance with published operating instructions and applicable regulations, using the appropriate knowledge	• Identifies the source of operating instructions • Follows SOPs (Standard Operating Procedure) unless a higher degree of safety dictates an appropriate deviation • Identifies and follows all operating instructions in a timely manner • Correctly operates the RPAS and associated equipment • Complies with applicable regulations • Applies relevant procedural knowledge
Communication	Demonstrates effective oral, non-verbal and written communications, in normal and non-normal situations.	• Ensures the recipient is ready and able to receive the information • Selects appropriately what, when, how and with whom to communicate • Conveys messages clearly, accurately and concisely • Confirms that the recipient correctly understands important information • Listens actively and demonstrates understanding when receiving information • Asks relevant and effective questions • Adheres to standard radiotelephony phraseology and procedures • Accurately reads and interprets required documentation for the operation of RPAS • Accurately reads, interprets, constructs and responds to datalink messages • Completes accurate reports as required by operating procedures • Correctly interprets non-verbal communication • Where applicable, uses eye contact, body movement and gestures that are consistent with and support verbal messages
RPA flight path management , automation	Controls the RPA flight path through automation, including appropriate use of flight management system(s) and guidance.	• Controls the RPA through automation with accuracy and smoothness as appropriate to the situation • Contains the RPA within the normal flight envelope • Maintains the desired flight path during flight using automation • Takes appropriate action in case of deviations from the desired RPA trajectory • Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload • Effectively monitors automation, including engagement and automatic mode transitions • Controls the RPA safely in degraded automation using only the relationship between RPA attitude, speed and thrust if applicable

ICAO Competency Framework for the RPL

Competency	Description	Observable Behaviours
Leadership, teamwork and self-management	Demonstrates effective leadership, team working and self-management.	• Understands and agrees with the crew's roles and objectives. • Creates an atmosphere of open communication and encourages team participation • Uses initiative and gives directions when required • Admits mistakes and takes responsibility for own performance, detecting and resolving own errors • Anticipates and responds appropriately to other crew members' needs • Carries out instructions when directed • Communicates relevant concerns and intentions • Gives and receives feedback constructively • Confidently intervenes when important for safety • Demonstrates empathy and shows respect and tolerance for other people • Engages others in planning and allocates activities fairly and appropriately according to abilities • Addresses and resolves conflicts and disagreements in a constructive manner • Demonstrates self-control in all situations • Self-evaluates the effectiveness of actions
Problem solving and decision-making	Accurately identifies risks and resolves problems. Uses the appropriate decision-making processes.	• Seeks accurate and adequate information from appropriate sources • Identifies and verifies what and why things have gone wrong • Employ(s) proper problem-solving strategies • Perseveres in working through problems without reducing safety • Uses appropriate and timely decision-making processes • Identifies and considers options effectively • Monitors, reviews, and adapts decisions as required • Identifies and manages risks and threats to the safety of the RPAS and people effectively • Changes behaviour and responds as needed to deal with the demands of the changing situation
Situational awareness	Perceives and comprehends all of the relevant information available and anticipates what could happen that may affect the operation.	• Identifies and assesses accurately the state of the RPAS • Identifies and assesses accurately the RPA's vertical and lateral position, and its anticipated flight path. • Identifies and assesses accurately the general environment as it may affect the flight • Keeps track of time and energy • Maintains awareness of the people involved in or affected by the operation and their capacity to perform as expected • Anticipates accurately what could happen, plans and stays ahead of the situation • Develops effective contingency plans based upon potential threats • Recognizes and effectively responds to indications of reduced situational awareness

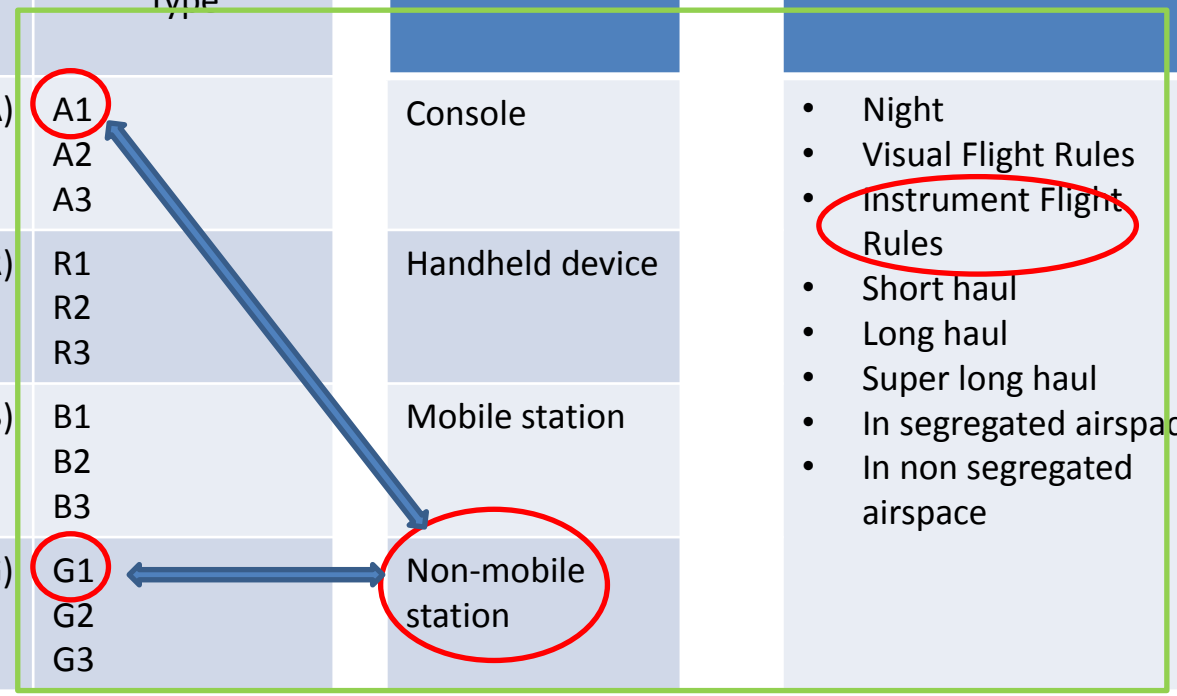
ICAO Competency Framework for the RPL

Competency	Description	Observable Behaviours
Workload management	Manages available resources efficiently to prioritize and perform tasks in a timely manner under all circumstances.	• Plans, prioritizes and schedules tasks effectively • Manages time efficiently when carrying out tasks • Offers and accepts assistance, delegates when necessary and asks for help early • Reviews, monitors and cross-checks actions conscientiously • Verifies that tasks are completed to the expected outcome • Manages and recovers from interruptions, distractions, variations and failures effectively
Coordination and handover	Manages coordination and handover between personnel in operational positions and with other affected personnel	• Coordinates with personnel in other stakeholders, in a timely manner • Selects coordination/handover method based on circumstances, including urgency of coordination, status of facilities and prescribed procedures • Coordinates the handover using the prescribed coordination procedures • Coordinates changes of status of operational facilities such as equipment, systems and functions • Coordinates changes of status of airspace and aerodrome resources, as applicable • Uses clear and concise terminology for verbal coordination • Uses standard message formats and protocols for non-verbal coordination • Uses clear and concise non-standard coordination methods when required • Conducts effective briefings during position handover

The RPAS Challenge

Joe's RPL

Remotely Piloted Aircraft		Remote Pilot Station	Types of Operation
Category	Type		
Airplane (A)	A1 A2 A3	Console	• Night • Visual Flight Rules • Instrument Flight Rules • Short haul • Long haul • Super long haul • In segregated airspace • In non segregated airspace
Rotor (R)	R1 R2 R3	Handheld device	
Balloon (B)	B1 B2 B3	Mobile station	
Glider (G)	G1 G2 G3	Non-mobile station	



Pat's RPL

Remotely Piloted Aircraft		Remote Pilot Station	Types of Operation
Category	Type		
Airplane (A)	A1 A2 A3	Console	• Night • Visual Flight Rules • Instrument Flight Rules • Short haul • Long haul • Super long haul • In segregated airspace • In non segregated airspace
Rotor (R)	R1 R2 R3	Handheld device	
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The Case for a competency-based RPL

- Competency-based approach to licensing is better adapted to the diversity and rapid evolution of RPAS operations
- RPAS Operators and Approved Training Organizations determine the performance they want to see from RPLs, then develop training.
- Based on the outcome of this training, they continuously improve the training programme.

THANK YOU!