

**58th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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**AGENDA ITEM 8: CAPACITY DEVELOPMENT AND
IMPLEMENTATION**

COMPETENCY BASED TRAINING – CHALLENGES

(Presented by Bangladesh)

SUMMARY

The paper presents the challenges and way forward for the civil aviation training organizations to introduce and implement competency-based training.

COMPETENCY BASED TRAINING – CHALLENGES

1. INTRODUCTION

1.1 Competence-based training is a training and assessment method based on data that develops and assesses the overall capability of a trainee across a range of core competencies rather than by measuring the performance in individual events. The aim of this training is to identify, develop and assess the competencies required by aviation professional in order to operate safely, effectively, and efficiently in a commercial air transport environment by managing the most relevant threats and errors based on evidence collected in operations and training. It is a concept of training standards based on knowledge, skills, and attitudes (KSA).

1.2 The traditional training focuses on qualification requirement, expressed in terms of quantitative terms that prescribe training program inputs such as required number of hours of study, hours of practice etc. This program design and content are also influenced by the CAA's testing criteria and methods.

1.3 In the Assembly Resolution A38-12, a consolidated statement of continuing ICAO policies and associated practices related to competency-based training specified in Appendix D – Qualification and Competent Aviation Personnel, where the satisfactory implementation of SARPs and PANS is contingent upon having qualified and competent personnel. The council have agreed to assist Member States to harmonize aviation professional's levels of competency. These efforts should be based on "a competency-based approach".

1.4 Aviation industry requires skilled personnel in every category of work. Under the framework of Trainairplus programme, ICAO is assisting Member States to enhance capability of aviation staffs. Pedagogy of traditional training mainly focuses on predefined contents and a test of the participants. Where contents are not updated on regular basis and designed according to the needs of the trainees. Moreover, contents of modules are not relevant for many trainees considering their real-life task. Some of the trainee needs particular section of the designed training module. This leads to huge loss of asset.

2. DISCUSSION

2.1 According to the International Civil Aviation Organization (ICAO), by 2036 the world aviation sector will need 620,000 new pilots, 125,000 new air traffic controllers, and 1.3 million aircraft maintenance personnel (ICAO, 2018). Keller, J, Mendonca, F, Cutter, J, Suckow, M, Dillman, B. Justification and development of competencies to transform a collegiate aviation flight program forecasts there is a need for 790,000 new pilots, 754,000 new technicians, and 890,000 new cabin crew members by 2037. It is estimated that the demand is about three times the supply. Most of the national and global conversations are focused on quantity rather than quality of the workforce. Educators and researchers in several industries have advocated competency-based education for decades and the International Air Transport Association (IATA) (IATA, 2013) has recognized the need to develop and evaluate the performance of flight crews according to a set of competencies. Both ICAO and IATA encourage operators to identify and develop their own competency system and related behavioral indicators, encompassing the nontechnical and technical knowledge, skills and attitudes to operate efficiently, effectively, and safely in the aviation industry.

2.2 Over the past 20 years, various civil aviation authorities have been looking for ways to implement this concept in different countries and cultures. Competency refers to a dimension of human performance used to reliably predict successful performance on the job, which is consisting of integrated pieces of knowledge, skills and attitudes and is assumed to be prerequisite for adequate functioning on the job. Competency-based training and assessment are characterized by a performance orientation,

emphasis on standards of performance and their measurement, and the development of training to the specified performance standards. Theories on competence development emphasize that learners must not only acquire but also integrate knowledge, skills and attitudes to achieve vocational competence. From a cognitive psychological perspective, different kinds of knowledge can be distinguished, and the distinction between declarative and procedural knowledge is the most widely used. Declarative knowledge is the factual information that a person knows and can report on. Procedural knowledge is the connection or use of pieces of declarative knowledge, and generally refers to knowledge that cannot be communicated. Often, a third form of knowledge is added, called strategic or meta-cognitive knowledge, which pertains to knowledge about the task, context, problem-solving processes and oneself. Knowledge focuses on the understanding of concepts. It is theoretical and not practical. An individual may have an understanding of a topic or tool or some textbook knowledge of it but have no experience applying it. The competency-based training and assessment workflows and Competency Framework are depicted in below figures:

Workflow 1	Workflow 2	Workflow 3	Workflow 4	Workflow 1
Analysis training need	Design local competency-based training and assessment	Develop the training and assessment materials	Conduct the course	Evaluate the course

Competency Framework

COMMUNICATION	
Description	Observable behaviors (OB)
Communicates through appropriate means in the operational environment, in both normal and unusual situations.	OB 2.1 Determines that the recipient is ready and able to receive information. OB 2.2 Selects appropriately what, when, how and with whom to communicate. OB 2.3 Conveys messages clearly, accurately and concisely. OB 2.4 Confirms that the recipient demonstrates understanding of important information. OB 2.5 Listens actively and demonstrates understanding when receiving information. OB 2.6 Asks relevant and effective questions. OB 2.7 Uses appropriate escalation in communication to resolve identified deviations. OB 2.8 Uses and interprets non-verbal communication in a manner appropriate to the organizational and social culture. OB 2.9 Adheres to standard radiotelephone phraseology and procedures. OB 2.10 Accurately reads, interprets, constructs and responds to data link message in English.

2.3 Primary challenges of competency-based training Implementation: (i) Implementing competency-based training can be a complex and time-consuming process, requiring significant resources and commitment from both the training provider and the organization. (ii) Assessment: Assessing competence can be a subjective process, and it may be challenging to ensure consistency in assessment across different assessors. (iii) Cost: Competency-based training may be more expensive than traditional training approaches, as it requires ongoing assessment and feedback to maintain competence. (iv) Resistance to change: Some individuals or organizations may be resistant to change and may prefer traditional training approaches.

2.4 This discussion paper is intended to provide a number of challenges in the way of implementing competency-based training over conventional training. Along with the challenges this paper will present some recommendations to overcome the challenges.

2.5 The far and foremost challenge is the scarcity of resources. Most of training organization don't have adequate infrastructure to install all the required technological equipment. Besides, most of modern equipment is too expensive to be afforded by most of the training organization including the countries of third world. In order to uplift the aviation sector, all the countries along with their academies are bound to face this challenge efficiently.

2.6 After installing the latest technologies of aviation in training academies, concerned countries must require experts to maintain them properly. Most of states don't have adequate number of experts which is another major challenge in the way of implementing competency-based training over conventional training.

2.7 In conventional training system, the trainees are trained following fixed predefined module which is not adopted according to the needs of the participants. Consequently, after receiving training, the participants cannot manifest desired performance in their workplace. In order to get expected performance from the participants, we need to be prepared to overcome this challenge prudently.

2.8 Instructors will play more vital role in materializing competency-based training. Most of instructors are not skilled enough to adopt competency-based training in the class room. They used to train the participants following the conventional method. Maximum of STP and ITP are still prepared for the conventional method.

2.9 Since the number of aviation personnel is increasing, the number of trained instructors should rise systematically. Organizational re-structure should have been prioritized to hire new instructors and provide them appropriate training.

RECOMMENDATIONS

2.10 ICAO may assist Member States in drafting its regulation and guidance to create new Competency-based training and assessment approach.

2.11 Training programs on delivering competency-based training can be developed and delivered to national instructors.

2.12 Steps should be taken to prepare efficient staffs for each state to perform need analysis and diversify the module of the training on the basis of the requirements.

2.13 ICAO may plan for raising funds to assist installation of latest training equipment and latest technologies for the training organization of Member States.

2.14 Adequate fund needs to be provided to build the capacity of the aviation personnel of Member States. Instructors may be prioritized while planning training opportunities and fellowships.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to

a) Take note of the information contained in the paper.

b) Request ICAO TRAINAIR PLUS to take appropriate action on this paper.

c) Encourage states to allocate adequate fund for training of it's own instructors/expertise.