

Competency-based aviation training solutions

– a potential standard for a non-standardized world



Great strides have been made within the industry to improve airline safety standards over the past 20 years. Today's airplanes are well designed, reliable and have ample redundancy. These advancements have increased the flight crew's situational awareness and reduced their workload, leading to 20 percent fewer crew-related incidents.

However, the aviation training community has seen other challenges emerge. Pilot training technology has significantly outpaced training regulations. Training providers recognize that prescriptive hourly requirements, pilot training methods and evaluation criteria have not kept pace with the huge improvements made in training technology and simulation fidelity.

One potential solution that simulation and training forums around the world are discussing is competency-based training, a method that places emphasis on benchmarked standards of performance focused on what a pilot will do in the workplace after completion of training.

Is competency-based training realistically achievable throughout today's global aviation community? And, ultimately, is standardization possible in a non-standardized world? At CAE, we believe globally standardized competency-based training is achievable.

Although most modern military training is "mission-oriented," competency-based application to civil flight training is still fairly new and its true potential is still being investigated. Competency-based programs mandate the continuous assessment of knowledge, skill, and attitudinal (KSA) competencies against benchmarked standards, using state-of-the-art tools such as learning management systems (LMS) to ensure the trainee continuously matures

as he or she progresses through a given program of instruction.

Existing prescriptive training programs actually do very little to confirm that the trainee has mastered the required KSAs associated with a specific task. Seasoned instructors and examiners acknowledge it is difficult to fully evaluate a pilot in a narrow window of four hours with a limited set of maneuvers. Current tests and checkrides are basically "spot checks" along the training path. By contrast, competency-based training is a powerful methodology that provides the training organization with significant tools to customize, adapt and steer the training to achieve optimal results for any given individual.

CAE's in-depth involvement with the development of an MPL (Multi-crew Pilot Licensing) program has provided an opportunity to investigate alternative means of training using competency-based training and assessment as a foundation. CAE has focused on features that form the core of competency-based training, such as:

- comprehensive aircrew selection process;
- aviation English language training;
- application of instructional systems design processes;
- benchmarked standards of performance, focusing on the end goal;
- scenario-based training;
- standardized testing and a satisfactory completion of training based on the achievement of all specified components.

To help address the dramatic rise in the need for qualified pilots in the coming years, CAE is readying deployment of its MPL program using competency-based training solutions to address essential training methods and

supporting evaluation criteria so that pilots are fully prepared for their job at an airline.

CAE's proposed MPL and existing airline transport pilot license (ATPL) programs will incorporate the CAE Aircrew Selection System (CASS). The programs will also feature a robust global quality system that supports managers with a set of tools and priorities in day-to-day operations. This system is specifically designed to augment safety initiatives, reveal latent threats to the organization, confirm program execution and instructor proficiency and provide guidance for long-term actions. All of CAE's MPL and ATPL programs will include a comprehensive and fully integrated planning and data collection system as well as a flight operations manual with common practices and procedures to be used throughout CAE's global network of flight training organizations.

Another essential for competency-based training is program oversight. National Aviation Authorities (NAAs) must keep a continuous look at a training program's processes, quality system, courseware, training tools and instruction. Testing of students must consist of a comprehensive evaluation of developing knowledge and skills. CAE places a tremendous emphasis on coordinating with regional and local aviation authorities, since many International Civil Aviation Organization (ICAO)-recommended training standards are actually taskings to the NAAs.

The overarching objective of competency-based training is to provide the airlines with pilots qualified to operate a multi-engine, turbine-powered, multi-crew aircraft in all expected operational environments. CAE's training programs will deliver a competency-based solution that ensures the highest global standard.

– Adapted from a presentation at the 2009 Asia Pacific Aviation Training Symposium by Kris Van den Bergh, Vice President, Pilot Provisioning, CAE.