FLIGHT SAFETY FOUNDATION

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Position Paper: Pilot training and competency

The commercial aviation industry is at a crossroads, and the practices it adopts now relative to how the pilots of the future are selected, trained and mentored will have critical safety ramifications during a period of projected rapid global growth. With the perspective of more than 70 years spent focused on aviation safety–related research, education and advocacy, Flight Safety Foundation believes that a pragmatic, data-driven approach to pilot training is essential to the continued improvement of the industry's safety performance. The industry needs to embrace, and national civil aviation authorities need to have the flexibility to adopt, competency- or evidence-based training methods that target real-world risk and ensure a progressive and satisfactory performance standard. It cannot be assumed that critical skills and knowledge will be obtained only through hours in the air.

Background

Today's outstanding safety record in commercial aviation is largely the result of a wide variety of diligent efforts by thousands of aviation professionals around the world who design increasingly reliable aircraft, engines, and parts; maintain, repair and overhaul aircraft; regulate and enforce performance-based safety rules; investigate accidents and incidents; manage air traffic; develop sophisticated avionics and navigational aids; operate airports; and fly sophisticated aircraft in increasingly complex environments. It is not the result of any one factor, including any particular change in the hours requirement for pilot experience.

Equally important, our improvement in aviation safety has come at a time when we are able to use the power of a growing pool of data and information, through safety management systems and state safety programs, to analyze, predict and mitigate risks before they lead to accidents. These efforts have led to demonstrable improvements in aviation safety.

Pilot experience has historically been associated with the number of flight hours accumulated over a pilot's career. Accumulation of a specific minimum number of flight hours usually is required for every license (private, commercial, air transport pilot, etc.) and any endorsement. Although for many years, the number of accumulated flight hours has been the baseline for determining experience, what is often overlooked in the pilot experience equation is the *quality* of flight time. Quality can encompass a number of factors, including training received, operational experiences, single-engine or multi-engine flight time, multi-crew operations and weather-related flight experience. Relying solely on a number does not effectively capture a pilot's true experience. The *type* of experience and the flight environment must be considered to provide meaning to the number.

Many different career paths can lead to a job as an airline pilot, including paths through the military, corporate operations, academic and instructor flying. Once a private pilot's license has been attained, the next step is to accumulate sufficient hours for a commercial pilot's license. From

there, further hours are accumulated through a variety of means that may entail working for many different organizations with different organizational cultures; some of these cultures may be positive and professional, and others may be deficient in this area.

The experiences, attitudes and behaviors of a given selection of pilots with the same number of hours may vary considerably. For example, hours may have been accumulated predominantly in day visual flight rules conditions through such activities as parachute operations and banner towing. While a multi-engine endorsement and instrument rating may be attained along with these hours, that experience is quite different from the experience of someone who may have obtained hours as part of an *ab initio* program in an airline environment.

The industry has reached a crossroads in determining how pilots need to be selected, hired, trained and professionally mentored for career growth, and a number of questions need to be asked as we contemplate the training requirements for our future first officers and captains:

- Will we achieve the levels of safety required to meet the growth demand based on today's criteria?
- Are we utilizing technology, data and experience to maximize the efficiency?
- Will we maintain a sustainable quantity and quality of pilots from our current approach?

Flight Safety Foundation believes the answer to these questions is *no,* and now is the time to take action.

In addition to formal military and aviation university flight training programs, a number of successful *ab initio* programs and multi-crew pilot license regimes exist in several regions of the world; some of these programs have been in place for many years. These programs have been tailored to the needs of individual carriers; some are managed through universities or accredited organizations. These programs, which often are attractive to air carriers that do not have their own similar programs, graduate pilots who have undergone high quality training with multi-engine and instrument flying experience, and an emphasis on decision making and threat and error management. They also provide an environment where instructor standardization helps build positive habit patterns, and standardization of procedures forms a foundation for the overall training program.

These programs rely heavily on competency- or evidence-based training methods that ensure a progressive and satisfactory standard has been reached throughout training. Although graduates will have attained less flight time than is required for an air transport pilot certificate or its equivalent, the quality of their training and experience as they advance through a course can clearly be measured.

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Recommendations

Flight Safety Foundation believes the pilot career path we have today will not take us where we need to go tomorrow. It is time to take a data-driven, pragmatic approach and, therefore, to support the following:

- An improved screening process and training for basic non-technical competencies that are usually obtained through experience, such as communication, analysis, problem solving, leadership and decision making;
- A renewed focus on the competency and quality of training providers to ensure training programs are developed and delivered to meet the safety standards of the industry, and so they can produce qualified, competent pilots;
- Training programs that are competency- or evidence-based and not solely hours-based;
- Training programs that maximize the use of simulation and are customizable to air carrier operations;
- Data-driven training programs that are continually updated, based on pilot task-level performance;
- *Ab initio* programs with operator sponsorship/support;
- Development and sponsorship of a worldwide quality/performance criteria that is universally recognized;
- A partnership with the International Civil Aviation Organization and industry to define rules, recommendations, guidelines and expected quality and performance required of flight academies;
- Proficiency/qualification standards that cannot be compromised; and,
- Programs that place a high value on the knowledge and experience of instructors.

The industry needs to be courageous and bold to make these changes and not simply rely on the ways of the past. Through these changes, the industry can continue to serve the needs of the airlines while enhancing safety standards on behalf of the traveling public.