



Introducing CAE CORe:

Continuously Optimized Recurrent (CORe) training

A look at how CAE uses an enhanced training method that goes above and beyond the necessary compliance parameters.

2025

The current aviation training skyline

Over the past thirty years, the global commercial aviation sector has benefited from two generations of advanced training programs, which, alongside with advancements in aircraft design and the integration of other new technologies, has greatly enhanced aviation safety. Training programs have continued to evolve to optimize data generated by aircraft and flight operations to mitigate operational risks. To support training program developments in commercial aviation, an expert team analyzes the aggregated data, makes suggested changes to existing training programs and sends monitoring data to the relevant aviation authorities.

Business aviation pilots regularly operate into the same airports as commercial airlines, flying aircraft that, while equipped with equivalent technology, often outperform heavier commercial jets. Moreover, due to the nature of business aviation, pilots frequently operate into airports with complex conditions that may require special training - whether because of unusual terrain, limited infrastructure, or other operational challenges.

This raises the following question, should crew from large airlines and pilots in business aviation be trained in the same way?

Consider this: according to the Federal Aviation Administration (FAA), 90% of large airlines (employing over 1,000 pilots) and 100% of medium-sized airlines (employing between 501-999 pilots) utilize Advanced Qualification Programs (AQP). However, only 5% of small airlines (employing fewer than 500 pilots) use AQP, while the remaining 95% continue to follow traditional training regulations.¹

Airlines that typically manage their own AQP, Evidence-Based Training (EBT), Competency-Based Training and Assessment (CBTA), or advanced pilot training programs boast large fleets that generate extensive opportunities for data collection. This allows for an effective evolution of knowledge entirely from within their own organization. The latest generation of aircraft is also inherently safer, and the evolution of airline pilot education complements mechanical improvements. This has contributed to improved airline safety in recent years. The advanced aeronautical engineering of business aircraft has also done its part to enhance safety; however, with naturally smaller fleet sizes, business aviation operators have not had

the opportunity to gather meaningful amounts of data and incorporate the information into their own training programs.

Responding to trends and challenges identified in data from airline advanced pilot training better reflects realistic operations beyond the minimum regulatory training compliance requirements. However, the expectations of business aviation training from operators, flight departments and pilots are increasingly distinct from the needs of large airline fleets.



Advancing training for business aviation operations

Approximately 95% of business jet operators manage fleets of five aircraft or fewer, with more than 80% operating a single aircraft². Due to the limited number of aircraft and pilots, these operators often lack the volume of data required to generate sufficient feedback for driving meaningful improvements in advanced pilot training. As a result, business aviation pilots, much like those in small airlines, typically continue to follow traditional training regulations.

However, the operational parameters are known to be much more diverse, calling for more practical, real-world training in addition to minimum requirements fulfilled by task-based instruction in business aviation. In line with its commitment to delivering industry-leading pilot training, CAE is challenging the norm in business aviation by evolving data-driven training approaches. By aggregating and analyzing objective simulator data, CAE is identifying, defining, and ultimately delivering pilot training solutions that meet the current and emerging needs of business aviation.

CAE's Continuously Optimized Recurrent (COrE) training goes above and beyond the necessary compliance requirements by creating learning scenarios that enrich knowledge and equip pilots to better respond in situations where data has shown opportunities to improve safety, efficiency, or where specifications are desired and possible. COrE training modules are created from data gathered by CAE Rise™ (Real-time Insights and Standardized Evaluations), as well as other robust sources, specifically tailored to meet the evolving needs of business aviation pilots.



The data-based CORE training exercises aim to address operational risks and prepare pilots to respond effectively to scenarios that fall outside the scope of traditional compliance-based training. Powered by CAE Rise™, CAE analyzes millions of data points to detect patterns and indicators that can help predict, and even prevent, potential issues. As a result, pilots in training aren't just reacting to the task-based scenarios they see year after year in recurrent training. Instead, they're constantly being challenged with new, real-world scenarios that require a more nuanced skillset and set of judgements.

As emerging issues are identified, relevant findings are incorporated into new simulator scenarios. Since a simulator is a contained environment, it's a safe space to assess how well pilots respond to various issues; it exposes them to the risk while an instructor observes a pilot's behaviour and/or facilitates learning and the application of appropriate responses. This is where the role of instructors becomes more important than ever as they guide pilots through the complexity of both emerging and unseen systemic risks with true-to-life scenarios aimed at honing the critical skills necessary to make life-saving decisions under pressure.

With the introduction of CORE training, CAE continues to lead the industry by integrating these types of data-driven insights and instruction into business aviation pilot training.

The customer experience

As traditional regulation prescribes, pilots train regularly for emergency situations that, fortunately, most will never encounter outside of a simulator. However, there is a gap when it comes to emerging threats that are not typically covered during a standard task-based training session. This leaves pilots less well-equipped to deal with new risks. It's in these situations that a reliance on reactive action does not consistently deliver the best outcome. CAE is proactively working to close this gap by addressing risks that fall outside the scope of minimum regulatory standards. The goal is not to replace traditional training elements – the fundamental skills and knowledge learned from them are still vitally important. Rather, pilots are now being trained in environments that are far more nuanced than traditional task-based scenarios, better reflecting the operational risks they experience every day.

CAE has decades of experience training pilots for the safe operation of aircraft manufactured by Beechcraft, Bombardier, Cessna, Dassault, Embraer, Gulfstream, Hawker, Nextant and other OEMs. World-class instructors deliver type-specific pilot training that meets or exceeds the latest FAA, EASA and other international standards. While delivering world-class training remains CAE's core responsibility, customer feedback has made one thing clear: training must continue to evolve.



Data sources

CAE's CORE training is already being refined in collaboration with several business aviation operators that understand the importance of aviation safety through the continuous improvement of training methodologies. These types of partnerships demonstrate the benefits that can be realized when individual operators in a highly competitive sector work collaboratively to help enrich an extensive, anonymized database of operational and training information.

CAE Rise™ gathers and aggregates anonymized pilot performance data from thousands of business aviation pilots during training sessions performed within CAE's worldwide network of full-flight simulators, which currently represents approximately one-third of the required data. Additional data from OEMs, operators and other trusted sources—including EASA's

DATA4SAFETY database—underpin the evolution of CORE training. Analysis and training implementation are delivered through human and machine interaction, with possible artificial intelligence applications being added in the future.

At this time, the complete set of anonymized data reveals trends on an industrywide level. As CAE continues to collect and analyze more data, it will gain deeper insights into the operational nuances of individual aircraft types. In the meantime, CORE training remains aircraft, device and authority agnostic, addressing recurring risks in regular maneuvers and suboptimal pilot reactions to emerging threats to support overall industry improvement.

Once CORE training modules are created, they add another dimension to operational training by addressing the most common pilot errors identified through previous analyses. Because CORE utilizes multiple and varied data sources, CAE can also focus on widely recognized industry concerns, such as issues that are already widely recognized, including concerns over runway excursions, the burgeoning challenge of GPS jamming and spoofing, or the need for airport diversions resulting from sudden social or geopolitical unrest. The ability to spread focus across both training and operational data results in more efficient, standardized piloting and strengthens safety beyond the minimum requirements of regulatory authorities.

Data integrity, transparency and trust are all vital to keeping the confidence of both instructors and pilots. CAE ensures the data gathered is secure, high-quality and used only to drive training enhancements. To support this commitment, data is stored on Amazon Web Services (AWS) servers, and access is granted to operators strictly in accordance with the requirements for maintaining regular training records.



Raising standards

Through its extensive experience training airline pilots, CAE understands that meeting minimum regulatory requirements through task-based instruction is not the only path to enhancing safety. By integrating data collected across the global business aviation fleet, CAE prioritizes CORE training delivery based on real-world experience and the likelihood of pilots encountering specific challenges in flight. Therefore, it is a constant driver of new business aviation training topics, where advanced pilot training has been static for some time. CAE is committed to a future of more data-derived training by embedding CORE training as an option for all its business aviation training programs around the world, while always complying with underlying regulations.

Revised every six months, CORE training will adapt as the data reveals new risks or operational procedures that might be optimized, so that pilots returning for recurrent training will always add new knowledge and refresh skills that exceed regulatory requirements. In addition, CORE training maximizes a pilot's training time without the need for additional regulatory approvals prior to training, allowing crews to glean more skills within the same timeframe as a standard recurrent training event.

Introducing and supporting the CORE training philosophy globally to CAE's 1,000+ business aviation instructors has been a significant undertaking. As they are being equipped to weave additional, data-derived, CORE training scenarios into standard recurrent training sessions, instructors are delighted to deliver the change customers have been hungry for, and providing practical, pertinent training that goes above and beyond the minimum regulatory requirements. CAE continues to lead the way with modern, relevant training topics that raise standards across the industry and bring our customers added value to their training experience.

To find out more about CORE training, please contact your CAE Business Aviation Training advisor.



References:

1. https://www.faa.gov/training_testing/training/agp
2. [CAE Analysis](#)



At CAE, we exist to make the world safer. We deliver cutting-edge training, simulation, and critical operations solutions to prepare aviation professionals and defence forces for the moments that matter. Every day, we empower pilots, cabin crew, maintenance technicians, airlines, business aviation operators, and defence and security personnel to perform at their best and when the stakes are the highest. Around the globe, we're everywhere customers need us to be with approximately 13,000 employees at around 240 sites and training locations in over 40 countries. For nearly 80 years, CAE has been at the forefront of innovation, consistently seeking to set the standard by delivering excellence in high-fidelity flight simulators and training solutions, while embedding sustainability at the heart of everything we do. By harnessing technology and enhancing human performance, we strive to be the trusted partner in advancing safety and mission readiness—today and tomorrow.