



Training Systems Integration (TSI)

Your worldwide
training partner
of choice



**Who is the world's
most experienced
training systems
integrator?**

We are.



CAE is an experienced and world-class training systems integrator (TSI) offering a comprehensive portfolio of training solutions and services across the air, naval, land and public safety markets. Our TSI approach addresses the full-spectrum of the training continuum, from academic and simulation-based training to an integrated live-virtual-constructive (iLVC) environment for training and mission rehearsal.

Training Is Our Specialty

CAE is uniquely positioned to help military organizations reduce the demand on uniformed personnel by providing well-trained, ex-military training experts to deliver training, which allows active-duty personnel to focus on operations. Our TSI approach is based on exhaustive training needs analysis, conducted in cooperation with our customer, to ensure greater efficiency and lower costs while meeting training and readiness requirements.

With our worldwide network of industry partners, CAE delivers turnkey training solutions that include courseware and curriculum, computer-based and classroom training, simulators and training devices, training centres, facility management and operation, in-service support, and an integrated learning management system with brief and debrief features.

As a TSI, CAE has all the requisite skills and experience to provide basic, intermediate, and advanced mission and operational training, including training systems that can be networked for distributed mission operations and training.

Benefits of an Independent Training Partner

- ➔ Platform agnostic
- ➔ Lower costs and increased operational efficiencies
- ➔ Free up military personnel
- ➔ Mitigate risks
- ➔ Financing flexibility



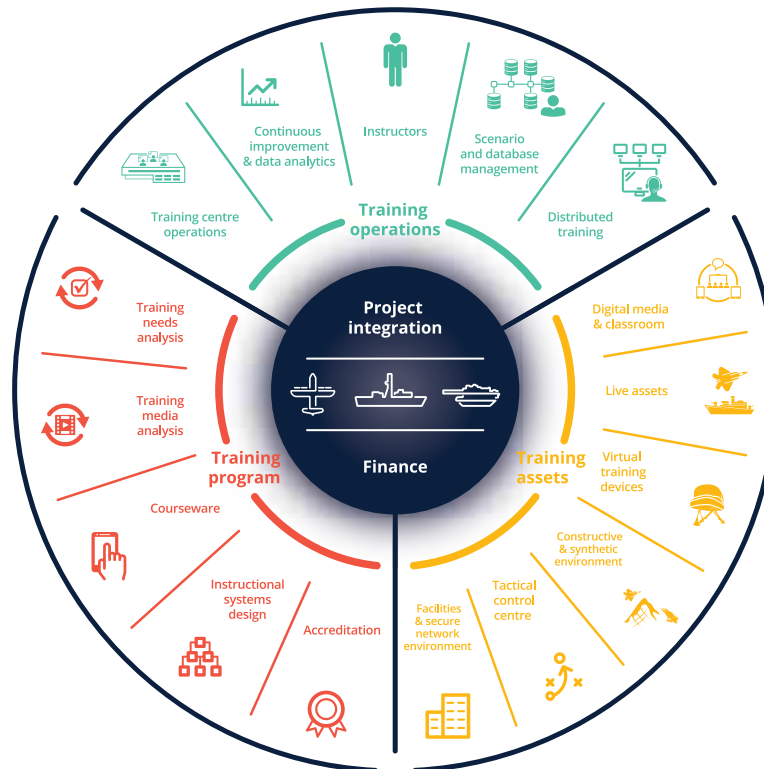
**Who designs
and delivers
comprehensive
training solutions
based on your needs?**

We do.

Understanding our customer's training requirements, missions and doctrines constitutes the foundation to the overall training solution that includes the right combination of curriculum, courseware and training assets. As your training partner, we will work with you to ensure the overall training systems design is optimal and will best fit your needs and budget.

Integrated + Interoperable + Immersive

Leveraging a Common Environment and Infrastructure



Training Program

The elements of the training program are defined by a rigorous process of training needs analysis, training media analysis and training tasks analysis that provide the foundation of an optimal training system.

Our instructional systems design methodology is based on the ADDIE (analysis, design, development, implementation and evaluation) model. This is a systematic and iterative method for creating learning experiences that make the acquisition of skills and knowledge more efficient, effective and relevant to the learner.

CAE also follows regulatory government standards to ensure the training assets meet all in-country specific requirements.

Training Assets

CAE's detailed definition of the training program provides the right mix of the training assets required to deliver cost-effective, efficient and relevant training for the learners.

Our methodology and process will identify the most effective use of each training media, from self-paced and academic training through to targeted fidelity simulators, full-mission simulators and training on live platforms.

CAE offers ab-initio training, type-rating, recurrent and refresher training, as well as mission rehearsal training, for which specific tasks to be learned are identified during the training needs analysis, training media analysis and training tasks analysis.

Training Operations

CAE has all the requisite skills and experience to provide the tools, processes and personnel needed to operate a training centre. We operate more than 65 civil and military training centres globally where more than 120,000 crew members train annually.

As a training systems integrator, CAE can design and operate training centres and provide all the different services needed to ensure the various components of the training system work together flawlessly, including scheduling, instruction delivery, maintenance, and in-service support.

Leveraging a common environment and infrastructure, our training solutions fully support team/joint/coalition training from various physical locations around the world. CAE's training solutions are designed within a closed-loop process that provides high quality data on training performance, thus ensuring continuous improvement and training optimization.

How We Design a Comprehensive Training Solution

CAE's approach to designing a training solution starts with analyzing the core missions and operational tasks of our customer. With a thorough understanding of the training requirement and mission, we partner with the customer to determine how to best develop and deliver the comprehensive training solution. The rigorous initial evaluation considers our customer's training objectives and doctrine; student skillsets and prior experience; economic, environmental, social, and political considerations; organizational and resource constraints; and many other factors.

Tasks Analysis

Working with our customers, our team will observe how tasks are currently performed to achieve the desired goals. Current tasks are then compared with those required to be performed with future systems to determine the gap between current and future desired performance. The training program will be designed based on future operational needs.

Training Needs Analysis

During the training needs analysis phase, we identify behaviours, skills, and knowledge linked to the desired outcome when working with new operational capabilities. This information will be crucial to designing a relevant training program.

Training Media Analysis

This phase helps determine all training aids to be used to implement the training solution and facilitate students' achievement of learning objectives. The various training media will then be selected according to the level of fidelity and immersive training required throughout a students' learning path. CAE and its partners offer a complete portfolio of training media, from eLearning and classroom training to part task trainers and full-mission simulators. Our expertise in delivering the optimal mix and balance of training media to accomplish the desired learning objectives is a key strength of CAE.

Instructional Design

CAE has a proven record of developing effective and highly engaging training solutions for defence and security customers. Our approach maximizes acquisition of knowledge and skills so students can learn using the appropriate level of media throughout their learning path prior to operating the actual systems. Through the analysis of the data collected from the training needs analysis, CAE has developed a systematic approach to designing training material that meets the training needs of the most sophisticated systems.

Courseware

CAE collaborates with customers and industry partners to design the syllabus, curriculum and courseware that are relevant and engaging for the students to meet their training objectives. Once the syllabus and curriculum are developed, our courseware design process uses best practices, adult learning principles and leading-edge technologies to provide instruction that is packaged according to selected training media to meet the training objectives. Maximizing commonality across courseware helps make our training solution more scalable for the ever-evolving needs of our customers.

Holistic training approach relevant and focused on your operations and missions.

How We Deliver Training Systems Integration

The next steps of the training system design and delivery consists of bringing together all the building blocks that make up the complete, integrated training solution, starting with designing the courseware and training assets such as computer-based training, simulators, tactical control centre, and potentially a complete training centre. Our solutions can be fully integrated and networked to allow for distributed mission training. After program delivery, CAE can provide facility management and operation as well as in-service support, including support for live training.



Training Assets

CAE can design the full range of training assets from computer-based and part-task training, through to full-mission simulators. Based on customer's requirements, the training solution can include a tactical control centre (TCC) to be used for managing networked mission training exercises. The simulators are designed using the Open Geospatial Consortium's Common Database (OGC CDB) architecture, which provides a correlated synthetic environment to further enhance networked, interoperable mission training.

Bolstered by qualified ex-military instructors and a cadre of training experts who understand your operational and mission needs, we combine this expertise with the right tools and processes to ensure CAE is truly the ideal training partner of choice.

Scenario and Database Management

CAE is responsible for designing and delivering some of the most sophisticated databases in the world, capable of supporting mission rehearsal and training. Our training system provides the capability to train in a realistic battlefield environment, improving their tactical skills against enemy forces. It also provides the means to test strategies in a safe and secure environment.

Tactical Control Centre (TCC)

The TCC facilitates the set-up, control, and monitoring of complex exercises, and enables the orchestration of large team or joint exercises while simulating the real operational space of an actual tactical control centre.

Instructional Delivery and Staffing

CAE can provide classroom, simulator and live instructional services, thus freeing military personnel for operational assignments. To deliver training instruction, we hire top-of-their-class ex-military instructors with the required subject matter expertise and military ethos to deliver the training. CAE has over 70 years of proven experience delivering classroom, simulation-based and more recently, live training. We draw on our worldwide network of experienced military instructors to guarantee the highest quality of training and availability for our customers.

Integrated Learning Environment and Brief/Debrief Capabilities

CAE's Integrated Learning Environment (ILE) is a collection of SCORM 2004 compliant enterprise-class applications to create and manage content. Our ILE allows us to schedule, deliver, track and report classroom, e-Learning, and simulation-based training. Our training environments can also be equipped with brief/debrief capabilities for an optimized learning experience. Our solution can be customized to meet any customer's unique training requirements and gives us the ability to deliver top quality training in a timely manner while reducing training development cost and effort.

Cost-effectively conduct distributed mission training through a secure network to maintain secrecy.

Training Solution Optimization

The last step in the training system design is to ensure it is optimal. As a qualified training systems integrator, CAE's training solutions are designed using a systemic approach within a closed-loop process that provides high quality data on training performance, thus ensuring continuous improvement and training optimization. CAE uses technology to detect and record student deficiencies, thus providing critical, data-driven key indicators for instructors and training managers to assess student and crew performance objectively and apply remedial actions. The metrics used within our training devices are compared with operational systems' performance in order to ensure the highest level of fidelity and immersive training. Once a gap has been identified between training performance and desired outcome, all relevant training material and systems can be incrementally updated to ensure the desired goals are achieved.

Facilities

CAE has developed numerous training centres and facilities worldwide, in locations ranging from the middle of the desert to busy urban international airports. We have extensive experience designing Leadership in Energy and Environmental Design (LEED)-certified and environmentally responsible facilities. We aim to deliver training facilities that reflect individual forces and support future training plans.

Distributed Mission Operations and Training

CAE offers all the required capabilities for defence and security customers to cost-effectively conduct distributed mission operations and training. Our training devices can be connected to other systems, whether live or simulated, within a common battlespace. This provides the advantage to train individually, as teams, or as joint operations with other services or nations, regardless of where they are physically located in the world. We collaborate with our customers to integrate and test existing or new training devices onto their secure, internal networks, and we have extensive cybersecurity and information assurance experience to provide the infrastructure needed for networked distributed mission training.



Training Centre Operations

We can build and operate training facilities on behalf of our customers, providing all site support functions such as scheduling, facility management, staffing, and maintenance support services. CAE operates a broad network of over 65 military and civil aviation training centres worldwide so we understand how to efficiently operate training facilities.



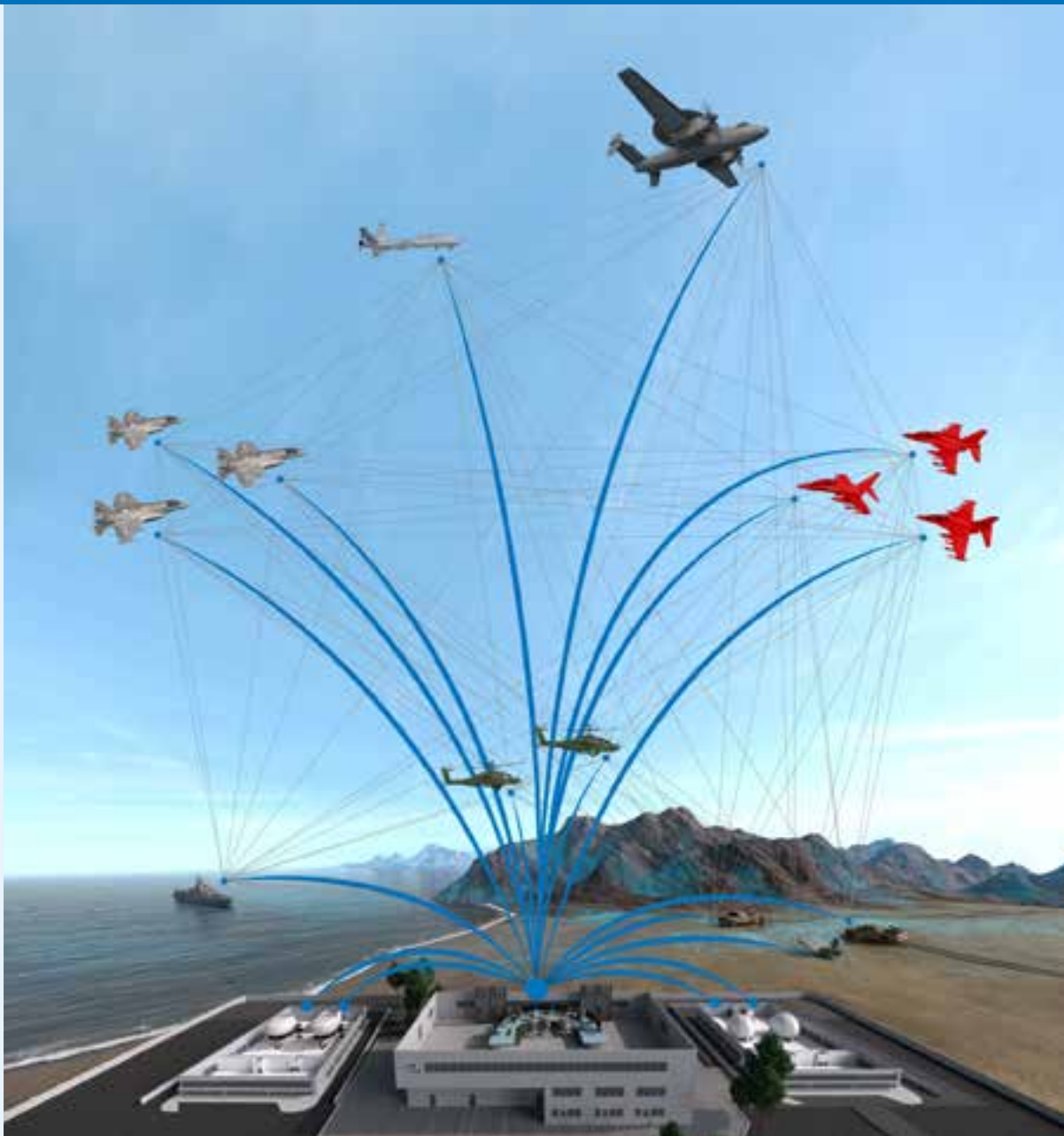
Flexible Contracting Models

CAE offers flexible financial models for customers adopting outsourced training services, including government-owned/contractor-operated (GO/CO), contractor-owned/contractor-operated (CO/CO), and public-private partnership (PPP) models.



Integrated Live-Virtual- Constructive (iLVC) Training

As many defence forces around the world explore the implementation of integrated live-virtual-constructive (*iLVC*) training environments, CAE leverages its training systems integration capabilities to help its customers achieve this vision.



CAE has been a leading provider of simulation-based training for decades, therefore we have unmatched experience developing and delivering virtual training, which is often supplemented by constructive simulation technologies.

Today, CAE supports the delivery of live training on programs such as the NATO Flying Training in Canada (NFTC) and U.S. Army fixed-wing flight training at our Dothan Training Center. We can help bring the live virtual and constructive pieces together to implement a fully

integrated training system. With our simulation-based systems, live training capabilities, building blocks such as the Open Geospatial Consortium Common Database (OGC CDB), and our computer-generated forces (CGF) constructive simulations, we can design and deliver fully integrated, interoperable, secure and immersive training enterprises to help maintain operational readiness.

There are savings and capability to be achieved from training in simulation-based environments, though we understand that live training plays

an essential part to creating an integrated and balanced military training program.

Training in an integrated live-virtual-constructive environment pushes the limits of traditional training methods as it offers a more realistic, immersive experience and it allows for the performance of tasks or maneuvers that would be too dangerous if performed in a live weapon system. A truly integrated LVC training environment also provides infinite space to conduct advanced mission training.

**Who has the
experience and
expertise to deliver
turnkey training
systems integration
solutions?**

We do.

TSI Program Highlights — We have the experience and expertise to serve as your training systems integrator in the development of world-class training and mission rehearsal solutions.

CAE USA

Dothan Training Center

CAE's Dothan Training Center in Dothan, Alabama was opened in 2017 to meet the fixed-wing flight training needs of the U.S. Army and U.S. Air Force. We constructed a state-of-the-art training facility in less than 12 months from contract award and created a fully operational 79,000 square foot training facility that includes modern academic classrooms, high-fidelity training devices, a fleet of aircraft and all supporting infrastructure. We purchased Grob G120TP aircraft to deliver live flight training in addition to operating Army-owned C-12U aircraft. The Dothan Training Center is a prime example of CAE delivering a turnkey, integrated, and comprehensive training service as a training systems integrator.

More than 600 U.S. Army and U.S. Air Force aviators train in Dothan annually, and the facility also has the capacity to train other U.S. and international customers since it is a company-owned and company-operated training center.



CAE Canada

NATO Flying Training in Canada (NFTC)

CAE is the prime contractor for the NATO Flying Training in Canada (NFTC) program that produces qualified military pilots for the Royal Canadian Air Force (RCAF) and other military customers. The NFTC program located at 15 Wing Moose Jaw and 4 Wing Cold Lake is operated in cooperation between the RCAF and CAE.

The program combines basic, advanced, and lead-in fighter training as part of the comprehensive pilot training program. CAE operates the NFTC base facilities, delivers the ground-school classroom, computer-based and simulator training, and provides support services for the live flying training that comprises this world-class, turnkey training program.



CAE Europe/Africa

CAE's Medium Support Helicopter Aircrew Training Facility (MSHATF)

This is a model of success for private finance initiative (PFI) military training delivery. The centre is situated at the Royal Air Force Base Benson in Oxfordshire, England where comprehensive pilot, navigator and crew member training for the Leonardo AW101 Merlin, Boeing CH-47 Chinook, and Airbus Helicopters Puma is provided.

CAE first started delivering helicopter training at this facility in 1999 and the MSHATF is still considered an industry benchmark for helicopter synthetic training.



CAE Middle East

United Arab Emirates Naval Training Centre (NTC)

CAE is designing and developing a comprehensive Naval Training Centre (NTC) for the United Arab Emirates (UAE) Navy. Once the training centre is commissioned in 2019, CAE will support the UAE Navy with training centre operations.

The UAE NTC is located in Taweelah with future plans to be networked throughout distributed sites in the UAE, including naval vessels at sea and ashore.

CAE was contracted as the training systems integrator to create the purpose-built NTC facility that will feature a range of integrated ship simulation-based training suites, as well as maritime aircraft sensor stations enabling individual, team, whole-ship and collective/ joint mission training.



CAE Asia-Pacific (APAC)

Royal Australian Air Force (RAAF)

C-130J Aircrew Training

CAE provides comprehensive training to Royal Australian Air Force (RAAF) C-130J aircrews at RAAF Base Richmond. The training includes classroom and simulator instruction, as well as live (airborne) training. By taking over responsibility for some of the live training, CAE helped the Australian Defence Force achieve an objective to enable uniformed personnel to support the ever-increasing operational tempo being faced by all coalition forces.



Other Program Examples

There are numerous examples where CAE plays a lead or key role in developing and delivering turnkey training solutions and services for defence and security customers around the world.

U.S. Air Force KC-135 Aircrew Training System

We deliver initial qualification, requalification, and continuation and upgrade training for approximately 3,700 USAF KC-135 pilots, navigators, and boom operators annually at 13 sites around the world. We also maintain simulator concurrency and perform hardware, software, and courseware upgrades and modifications.

Canada's Operational Training Systems Provider (OTSP)

CAE supports operational aircrew training solutions for the RCAF's CC-130J tactical airlift aircraft and CH-147 medium-to-heavy lift helicopters.

Swedish Naval Warfare Training System

CAE designed and delivered this comprehensive, simulation-based training system for the Swedish Navy that includes simulation software, hardware, wargaming consoles, and instructor operator stations that are used to train and educate Swedish Navy sailors and officers in naval tactics, procedures and doctrine.

CAE Sale Military Training Centre in Australia

The training was constructed by CAE following a contract award from Australia's Capability Acquisition and Sustainment Group to deliver King Air 350 Pro Line II simulator services. The centre is located in Sale, Victoria, where it began its operations in February 2014. CAE is providing training through a company-owned/company-operated (COCO) simulator services contract and is responsible for all operational aspects, facility maintenance and support.

CAE Brunei Multi-Purpose Training Centre (MPTC)

The training centre is a joint venture between the Government of Brunei and CAE to provide turnkey training solutions for the Sikorsky S-92 and S-70i Black Hawk helicopters, emergency and crisis management training, and lifesaving American Heart Association courses in countries that are currently underserved.

About CAE Defence & Security

CAE's Defence & Security business unit focuses on helping prepare our customers to develop and maintain the highest levels of mission readiness. We are a world-class training systems integrator offering a comprehensive portfolio of training centres, training services and simulation products across the air, land, naval and public safety market segments. We serve our global defence and security customers through regional operations in Canada; the United States/Latin America; Europe/Africa; and Asia-Pacific/Middle East, all of which leverage the full breadth of CAE's capabilities, technologies and solutions.

For more information visit our website
cae.com

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