

Calian training solutions for large-scale exercises: delivering for the Canadian Army

Calian designs, develops and delivers synthetic environments to provide cost-effective collective high-readiness military training.



Canadian Army Simulation Centre and Calian

200,000
personnel trained

15+
exercises per year

28
years delivering for Canadian customers

The Customer

The Canadian Army Simulation Centre (CASC) is the centre of excellence for all simulation-based training for the Canadian Army. With headquarters in Kingston, CASC supports distributed training at Gagetown, Valcartier, Petawawa and Edmonton.

CASC is a recognized leader for training development and delivery across the Canadian Armed Forces (CAF), including the Royal Canadian Air Force (RCAF) and civilian Government of Canada partners for domestic operations. CASC also leads training for joint and multinational exercises with participation from NATO member countries. CASC provides constructive simulation activity at every level of collective training.

Calian has delivered training for CASC for 28 years, adapting our approach to meet customer needs. The CASC model has been highly successful, delivering hundreds of large-scale complex exercises since the 1990s. This model has been adapted for delivering training for the NATO Joint Warfare Centre (JWC) in Stavanger, Norway. Working side-by-side with military customers, we develop and deliver the immersive, simulation-based training experience for high-readiness units.

The Challenge

The biggest challenge for large-scale military training is managing complexity. Large-scale exercises require significant planning and are resource intensive for things like fuel, ammunition, rations and other consumables.

While live collective training is essential for developing and maintaining high readiness, it is also expensive. Using constructive simulation in preparation of live training is a cost-effective way of building readiness.

Market research data shows that militaries around the world are increasingly relying on simulation-based training to deliver the high-fidelity, multi-domain training experience, while reducing the costs and resources associated with live training. Simulation-based training allows for new, innovative ways to deliver distributed training to support the pathway toward live training.

In the late 1990s and early 2000s, CASC faced two major challenges:

- Increasing the use of digital technology to replace manual and paper-based processes to improve training while containing costs
- Preserving the value of collective training by integrating manoeuvre, combat support, and combat service support units into large exercises

Addressing the first challenge required transitioning from a system based on paper charts and maps—using pins and flags on map tables and manual synchronization—to the use of digital tools.



Canadian Army training, using paper and manual tools—circa mid 1990s

Addressing the second challenge required integration of multiple units and functions at different levels into a new digital environment. In a joint, combined context, delivering complex training entails connecting multiple simulation and operational toolsets to create a single synthetic training environment, and designing and developing training exercises that meet training objectives. This means integrating constructive simulation with virtual and live simulation, while maintaining the overall realism and fidelity to prepare units for what they will face on operations.

What Calian delivers for CASC

The exercise content: from the scenario to events and multi-domain operations, Calian develops all the exercise content

Turn-key delivery: Calian develops the synthetic training environment—including exercise content, simulated effects and simulation-to-C2 interoperability

Legacy of strong delivery: Calian is a trusted training partner to the Canadian Army for simulation-based training

The Solution

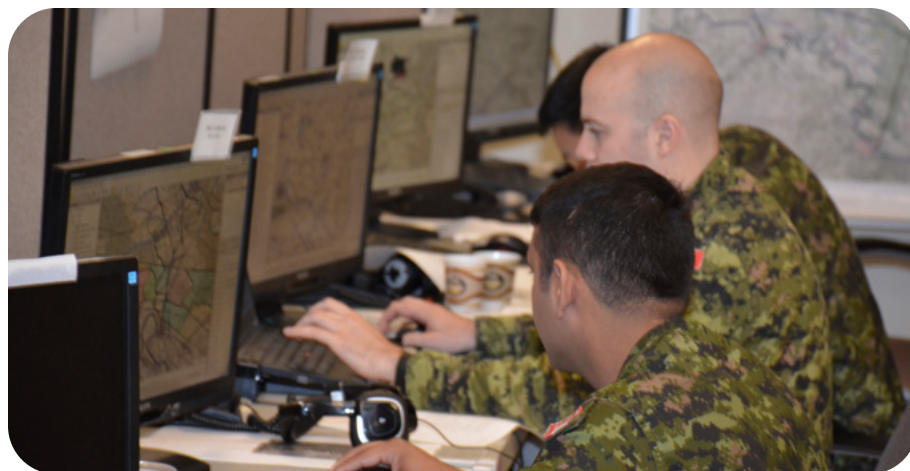
Using a blend of constructive, virtual and live simulation, Calian provides an immersive synthetic training experience from large multinational headquarters down to companies manoeuvring in the field. Using a system-agnostic approach, Calian connects the most appropriate simulation tools into a synthetic training environment to meet training objectives.

Making the transition from paper and manual tools and processes was a major undertaking. Working with the CASC leadership, Calian developed the simulation-based training toolset to meet the Canadian Army's requirements. In direct collaboration, Calian developed the right tools to design, develop and deliver constructive simulation training for high-readiness units. The solution Calian developed resulted in training designers and developers building training events, injects and content in a single digital environment. It also allowed training to be developed and delivered in a distributed fashion. Training is regularly developed and delivered across Canada in a common digital environment.

The Calian synthetic environment is highly versatile, empowering training designers to combine simulation tools and operational tools wherever possible for a train-as-you-fight experience. Whatever the training objectives, domains being fought in and whoever the participants, the interoperable approach delivers a common synthetic environment for large exercises.

For exercise controllers, the Calian solution delivers a single, shared environment for development, design and delivery of all events and injects that drive large exercises forward. Events and injects are synchronized across the synthetic environment, creating a realistic and immersive training experience that enhances transfer of training.

Calian digital training tools collect training results and data, and push those metrics to analysis tools while the exercise is happening. This exercise data provides the necessary inputs for a rich after-action review (AAR) to examine what happened, what drove decisions and what led to exercise outcomes. Using data from the exercise, the AAR process solidifies lessons learned from the exercise, improving performance and sustaining readiness. The AAR process provides the opportunity for additional learning when the exercise is finished, to evaluate performance and identify areas for improvement.



Full Spectrum of Operations

Calian has delivered exercises across the spectrum of military operations since 1996.

Army

Air/space power

Joint and multinational

Domestic and continental defence and security operations

Disaster response (fire, flood, industrial accident, nuclear incident)

Civil society international NGO exercises

Training is regularly developed and delivered across Canada in a common digital environment.

The Results

The Calian synthetic training solution delivered on its objectives: reducing the cost of collective training while providing a high-fidelity training experience for collective training. By relying on Calian for collective training, the Canadian Army has realized significant cost savings. Developing and delivering training in synthetic environments reduces the need for some live training exercises. This approach is less costly and less resource intensive than the in-house alternatives—allowing training budgets go further.

By partnering with Calian, CASC and other military customers receive a turn-key solution for training development and delivery. Calian works directly with military customers to understand their training needs, and then design and develop challenging, realistic exercises to deliver on their objectives. By using the Calian team, military personnel can stay with their units, support other training exercises, or attend their own training. With fewer military personnel required to develop and deliver training, they can be used to pursue other tasks.



Military customers also get the benefit of digital traceability for all activity in an exercise. Using a common synthetic environment allows for visibility of all training activities and training outcomes through the AAR process. From start to finish, Calian synthetic training environments provide full traceability of inputs, activities and outputs.



About Calian

We keep the world moving forward. Calian® helps people communicate, innovate, learn and lead safe and healthy lives. Every day, our employees live our values of customer commitment, integrity, innovation and teamwork to engineer reliable solutions that solve complex problems. That's Confidence. Engineered. A stable and growing 40-year company, we are headquartered in Ottawa with offices and projects spanning North American, European and international markets.

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