

Emergency Management Planning & Analysis



Interoperate, collaborate, validate – The realities of emergency management today place multi-agency collaboration at the forefront of any response, highlighting the need for an interoperable approach for planning, testing, and validating response strategies. Through the CAE EM-Sim program, CAE applies a structured framework for defining multi-agency response strategies and creates a simulation environment for testing their effectiveness.

A structured approach to planning

CAE offers a structured approach to planning and analyzing strategies for multi-agency collaboration. Our all-agency methodology analyzes the relationships between response organizations from the frontline, municipal level responders, through provincial and state level agencies, to national and international level organizations. The EM-Sim environment is developed based on an organizational analysis using CAE's Capability Engineering and Design Approach (CEDA™). Through CEDA, our team identifies the agencies that must collaborate; their roles within the multi-agency response; their relationships with other agencies within the team; and their internal structure, business processes, and systems. From this data, the organizational behaviours of each agency are modelled and represented within the virtual environment. This feature allows agencies to test their response strategies, as well as train, at any time independent of multi-agency exercises. The virtual units of each organization respond according to the business processes and strategies identified.

Emergency management professionals use the CAE EM-Sim environment to plan and test their strategies for any variety of threats. They can conduct capability-level analysis of organizational processes, resource management, acquisition decisions, and system interoperability.





Building a common operating picture

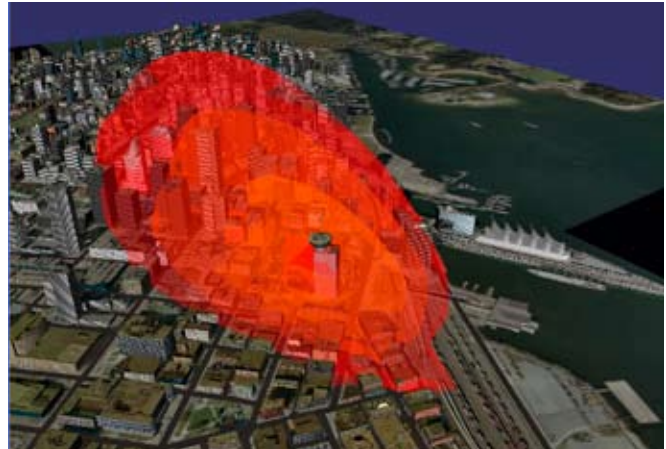
In order to explore interagency interoperability, the emergency management capability is brought to life in a simulation environment which is used to simulate scenarios for experimentation and analysis of response effectiveness. CAE EM-Sim provides a suite of simulation tools and services to provide emergency management commanders and frontline responders with an integrated simulation-based common operating picture environment (COPE). As commercial geographic information system (GIS) databases become more readily available through web-based services, emergency managers need an engine that consolidates the data into a single interface that allows them to plan and track responder activities, as well as train for a spectrum of plausible incidents and increase overall operational effectiveness.

From the emergency operations centre (EOC), commanders are able to maintain situational awareness and monitor the activities of first responders within a GIS-based city-level simulation environment. When multiple command centres are engaged, the web-based functionality of this application allows commanders and first responders throughout the city, province, state, and country to interact and share the common operating picture – they see the same data and can make decisions with the same information.

Bringing disasters to ‘life’

Using the latest computer generated forces (CGF) modelling tools and hazard modelling algorithms, our team develops realistic scenarios that emergency managers use to test their emergency management training. Scenarios include:

- Natural disasters (floods, forest fires, earthquakes);
- Man-made disasters (train derailments, chemical spills, wide-scale power outage); and
- Terrorist attacks (explosions, hostage takings, radiological events).



Program example – Municipal-provincial-federal interoperability framework

CAE was contracted to develop a planning and analysis framework for evaluating municipal-provincial-federal interoperability and collaboration as they responded to CBRN events in the Vancouver (Canada) region. CAE's team applied its Capability Engineering and Design Approach (CEDA) to develop an Operational and System-of-Systems architecture based on selected scenarios that represent the various organizations and their respective critical incident responses as a CBRN event unfolds. These architectures were used to develop a simulation environment to plan, test, and train for multi-agency response.

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