

CIFFC IM/IT Strategy

January 2015

Mission statement

The Canadian Council of Forest Ministers' Wildland Fire Management Working Group (CCFM WFMWG) and the Executive Leadership of the Canadian Interagency Forest Fire Centre (CIFFC), charged the Wildland Fire Directors to establish an Information and technology management strategy (CIFFC IM/IT Strategy) to improve resource exchange and to: enable benchmarking of activities, compare performance, identify best practices, recognize trends, evaluate new ideas, and to improve decision support tools for the CIFFC community.

Vision

The CIFFC IM/IT Strategy will lead to an enhanced and fully modernized information management system and IT models and applications, providing an important part of the foundation for an economically efficient and world-class wildland fire preparedness and response capability.

Guiding principles:

The following principles will guide the development of the IM/IT Strategy and resulting integrated information management systems (IM Systems):

1. National information on wildland fire is a valuable resource which is on par with physical and human fire management assets.
2. IM systems will be flexible, adaptable and not reliant on specific existing technologies (as needs and technologies will evolve over time).
3. Integrated national IM Systems will not interfere substantively with existing or future jurisdictional systems.
4. IM systems will be stable and secure to provide continuity of business functions and where necessary provide the means to control access to sensitive information.
5. The IM/IT strategy will ultimately address IT models/applications, and system management, though the focus will first be on the development of a data framework
6. National fire information and IT models and applications will be accessible to the CIFFC community for multiple uses.
7. IM systems, and IT models and applications will be built using accepted standards and best practices.

Benefits:

The CIFFC IM/IT Strategy will provide the following benefits:

1. Improved security and accessibility of data.
2. Increased collaboration and sharing of knowledge.
3. Improved seasonal planning (forecasting).
4. Increased speed of critical information flow.

5. More effective use of resources.
6. Improved data quality.
7. Increased availability of information.
8. Increased interoperability through the use of common standards.
9. Improved decision support tools.
10. Reduced redundancy and duplication of effort.
11. Increased usability of IM Systems and tools.
12. Improved adaptability of agencies to respond to a changing climate (increasing fire season length and intensity).

Strategic objectives:

1. Strengthening agency service delivery capacity: better information to ensure availability of resources, and more control of operating costs by optimizing interagency resource exchange.
 - Provide access to a dynamic inventory of fire suppression resources.
 - Enhance agency ability to access and analyze resource availability information.
 - Improve risk mitigation by improving inter-agency resource sharing practices.
 - Increase efficiency and cost-effectiveness in managing resource exchanges.
2. Strengthening agency management capability: better information for management planning and decision-making.
 - Develop and evaluate a Canadian Fire Response Plan based on a more complete information context (using data and evidence-driven modeling and analysis).
 - Produce better research based on comprehensive information, leading to improved evaluation of technologies, applications, policies and practices.
 - Increase opportunities for science and innovation based on comprehensive information.

Key directions:

- **Engagement and collaboration** with all CIFFC member agencies. The CIFFC IM/IT Strategy will be done by leveraging the strong knowledge base and expertise available in the fire management agencies. Task Teams will be created to develop technical solutions to key problems.
- **Integration of wildland fire data** that is needed to deliver shared business services. Through a coordinated and standards-driven approach, multi-agency information will be managed in a more streamlined and timely way. A set of common standards will enable agencies to translate their data in to a national data management framework.
- A **modern web-based content management system** is under development to deliver CIFFC services. This system will serve as the primary information portal for the CIFFC community. Integrated information including data, applications, reports, and other products will be shared through this portal. Integrated project management tools will be built into the portal to improve multi-agency collaboration.

- A **Contemporary Service Oriented Architecture (CSOA)**¹ design process ensures that future trends in both business logic and information technology can be incorporated over time. The ‘business architecture’ identifies the common services to be provided to the wildland fire management agencies, individually and collectively. The business architecture then informs the architectures for information, applications and technology.
- An **application management framework** will be developed to create a National Toolbox of decision support tools. Protocols will be created to determine which applications belong in the toolbox, how the applications are updated and maintained overtime, and how users receive technical support and training. Guidelines to ensure that CSOA approaches are incorporated during application development will be created.

Action items/plans:

Project Management:

- The IM Strategy will be managed under the IM/IT Working Group according to the updated CIFFC governance model, as of April 2015.
- A project leadership position is in the process of being staffed. Responsibilities include leading the IM/IT Working Group, coordination of the IM/IT Strategy’s implementation and ensuring that the multiple IM/IT related activities underway are in line with the IM Strategy’s objectives.

IM Systems Management Framework:

- Business needs: detailed analysis of business needs will ensure that the architecture is designed to support the appropriate services. This includes both the shared services of the CIFFC community and the services delivered by CIFFC Inc. A review of current products and services will ensure that business needs are being met appropriately and efficiently.
- Management: discussions on how this system will be managed are needed. Decisions on how the system will be funded, technically maintained, and who and how will it be managed are required. Planning for system maintenance will ensure that the system remains current, both in the services that it is supporting and the technologies that it is using.

Data Management Framework:

- Data Integration: The Data Integration (DI) Project has completed and tested a distributed data system. The second phase of the project is focused on engaging with all CIFFC members to automate the CIFFC Situation Report by April 2015.
- CIFFC Portal: Development of a user interface is underway with basic elements to be prepared by April 2015. This will be the interface for data provision and acquisition, input forms (i.e. operations), user products (i.e. situation reports, maps), project management tools, and etc.
- Architecture: Work to develop a CSOA for the IM/IT Strategy is underway. The architecture will expand and evolve as further services are identified (business needs analysis).

¹ The underlying principle of CSOA is that a solution to a large problem can be better constructed and managed by decomposing the problem into smaller related components. These components are solved by distinct units (or services) which can function independently or assembled for more capability.

- Common Standards for system interoperability:
 - International syntactic standards are being incorporated to enable multiple systems to communicate and share data through a distributed data system (e.g. data formats).
 - A common set of semantic standards (language and terminology) enable multiple systems to automatically interpret information being exchanged. A CIFFC standard for active fire information has been developed to allow agency information to be interpreted by other systems. Further standards are needed for other data types.

Application Management Framework:

- Currently CIFFC is supporting a project aimed at developing a national fire management tool box. A survey has been conducted to determine which and how the CIFFC community, academia, and others use the current suite of decision support tools.
- The national fire management toolbox will be accessible through the CIFFC portal that is under development, and be managed according to the IM Systems Management Framework.