

OGC's column for August 2001 GeoWorld

Title: **Information Community Enablement**

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OGC's new Interoperability Initiative -- the Information Community Enablement Testbed (ICE/T) -- will take the consortium into a new and exciting area of activity.

In OGC's parlance, Geographic "Information Communities" are groups who agree how to describe the geographic features they care about (agreements captured in data dictionaries and application schemas), and who agree how to structure their metadata (agreements captured in metadata schemas). Metadata includes information about a data set -- region covered, accuracy, ownership, price, acquisition details, sources, etc. -- and it includes the data dictionary.

There are necessarily many Information Communities, because different professions, disciplines, industries, agencies, and enterprises must define geospatial features in special ways that serve the special objectives of those groups. FGDC, state GIS councils, local data coordination groups, professional societies and others have been working for years to create Information Communities. The goal is to get the most value from geodata that is produced and maintained at great expense by countless state, local, and federal agencies, private sector companies, not-for-profits, and academic researchers. We increase the value of the data by enabling many people using diverse systems to use the data for their purposes. This requires two kinds of interoperability: technical interoperability and semantic interoperability.

-- *Technical interoperability* is OGC's traditional domain. At OGC's bimonthly meetings the geoprocessing industry reaches consensus on OpenGIS specifications for open interfaces and protocols that enable diverse systems to "speak the same language" with respect to geoprocessing operations of all kinds. Major geoprocessing vendors, along with an expanding base of software and database technology vendors, now provide systems that implement these specifications (<http://www.opengis.org/techno/conformance.htm#products> provides a partial list of products that implement OpenGIS Specifications.) The level of technical interoperability available in the market increases from year to year.

-- *Semantic interoperability* is and will remain the domain of groups whose task is data coordination.

ICE/T addresses an area of overlap between these. Geoprocessing system users and developers plan to develop a technical standards platform for technologies that support data coordination efforts and technologies that exploit the products of those efforts. ICE/T will: 1) build a standards platform for commercial tools and online services that automate application schema creation, mapping, and migration and 2) develop a

comprehensive view of potential semantic interoperability applications of OGC's Open Web Services standards, including: Geographic Markup Language (GML), Web Feature Server, Web Map Server, Web Coverage Server, Service Registries, Basic Service Model, Gazetteer Interface, XML for Image Map Annotation, and others. GML will be at the heart of software and services that parse dictionaries and schemas to automatically make one Community's data "reasonably useful" to a member of another Community.

ICE/T will address opportunities to build standards infrastructure for tools such as:

- Metadata templates and data dictionary templates
- Semantic translators and related human-readable dictionary-to-dictionary thesauri
- Semantic filters that look for consistencies and inconsistencies between pairs of data dictionary entries or pairs of metadata schemas
- Web-based tools for gathering consensus among Information Community members
- Conflation tools. (Conflation adjusts the location of features in one map layer so they coincide spatially with corresponding features in another map layer.)
- Enhancements to the OpenGIS Catalog Specification, or usage guidelines, perhaps relating to hierarchical searches of particular sets of metadata fields.
- Methods to announce existence of an Information Community and its distributed data

The effort will result in new ways of fielding data models across communities and new tools for application schema creation, mapping, and migration. ICE/T's sponsors and participants will propose approaches and agree on scope and schedule.

Like other OGC Interoperability Initiatives, ICE/T will involve a representative user community that provides a set of requirements. Technology standards development will be the focus, but this will be closely tied to a data coordination effort. Candidate communities are represented in OGC's Special Interest Groups: Earth Observation, Natural Resources, Disaster Management & Public Safety, Telco, Location Based Mobile Services, and Defense and Intelligence. A follow-on objective will be to help other Information Communities understand and implement the resultant technologies, lessons learned, and best practices.

ICE/T aims to free people from some of the hard work of data coordination. Results of the ICE/T initiative will help a community, assisted by the best conceivable technology, to go through the drudgery once, creating a permanent framework on which the community can build – as opposed to the current situation, in which the drudgery falls heavily on many individuals and unconnected groups, with little technology to help them, usually starting from near zero, building dictionaries and schemas that don't have the durability of broad consensus. Another goal is to explore the commercial opportunities that arise as we develop a technology standards approach to facilitating data coordination.

Potential sponsors and technology provider participants are encouraged to inquire.

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