

# COINAtlantic

## **Framework for Identifying and Developing Use Cases for Integrated Coastal and Ocean Management**

**Version 2.0**

*Background Paper for a  
Workshop on COINAtlantic User Needs*

*Organized by the*  *ACZISC*

*14 May 2008*

*St. John's, Newfoundland*

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## ***Introduction:***

The Atlantic Coastal Zone Information Steering Committee (ACZISC) was established in January 1992 to foster cooperation in Atlantic Canada with regards to Integrated Coastal and Ocean Management (ICOM), coastal mapping and geomatics. The **Coastal and Ocean Information Network for Atlantic Canada (COINAtlantic)** is an initiative of the ACZISC to develop, implement and sustain a network of data providers and users that will support secure access to data, information and applications, for decision-making by coastal and ocean managers and users of coastal and ocean space and resources.

This document summarizes the results of several previous ICOM-related user needs studies, workshops and reports (see Appendix 1), which are presented in the form of a framework that describes the linkages between a number of components of ICOM. See Appendix 2 for a glossary of terms.

A *use case* or *usage case* can be defined as “a description of a system's behaviour as it responds to a request that originates from outside of that system” ([http://en.wikipedia.org/wiki/Use\\_case](http://en.wikipedia.org/wiki/Use_case)). Two or three use cases will be developed for the COINAtlantic/GeoConnections project to design, implement and test a full sequence of interactions and actions that will functionally link the user(s) with data/information/applications to address a specific issue – as defined below. The use cases to be developed will be selected based on a number of factors including their potential environmental impact, the data available to COINAtlantic as well as the interest and desire of COINAtlantic collaborators to actively participate in the work.

Using the framework presented here to identify the use cases will facilitate the linkage between the information network and ongoing ICOM priorities in Atlantic Canada. The framework will provide a way to communicate and distinguish the various components of ICOM in a result-based manner to managers, and other non-geomatic users. It will provide a structure to organize input from users and to assist in both prioritizing tasks and identifying synergies that will be essential to the success of the COINAtlantic concept.

Ultimately this document will serve to guide all aspects of the development, implementation and sustainability of COINAtlantic.

## ***Framework Overview:***

Based on the many results from previous studies (Appendix 1), the framework identifies various sectors of human activity that can be distinguished by their objectives, their potential impacts and by the participants, including those that are involved in the management of the sectors and other groups that have shown a general interest.

It is important to note that the sectors identified are scale dependent. For the broad goals of COINAtlantic, this document is intended to be comprehensive for all four Atlantic Canadian provinces so that appropriate selections can be made from the total suite of sectors, activities etc. For other purposes, all of these general sectors can and should be subdivided and additional detail added to address the specific requirements of the various user client groups for geographic areas within the region. But this is not the purpose of this document.

Within each sector of human activity, examples are given to build a general overview of the sector within the context of ICOM and, in particular, the underlying information management requirements. No attempt is made to cross reference specific activities with specific impacts and potential applications as this will be done at a higher resolution for particular geographic areas and/or issues.

## ***Framework Details:***

In this Framework, we identify three general classes of descriptors for each sector of human activities, along with a number of sub-components:

- Issues
  - Activity
  - Environmental impact
  - Socio-economic impact
  
- Applications
  - Data
  - Analytical tool
  
- Users
  - Participants
  - Managers
  - Others

Thus, there are a number of characteristic activities related to a particular sector. For each activity there will be socio-economic impacts, potentially positive and negative. Each activity may also result in environmental impacts. These too may be positive such as in habitat protection, or negative in the more usual sense of environmental degradation. COINAtlantic will need to consider the particular issue to be addressed and its potential impacts in identifying and prioritizing the use cases to be developed.

Once issues can be adequately identified within the COINAtlantic network, the next step is to identify and ensure access to the appropriate applications to address the issue. An application is the result of bringing together the data with the analytical tool to address the management question, *i.e.* the issue.

The term ‘applications’, as used in COINAtlantic, is the combination of the data available and the specific analytical tool that would form the functional link between the data inputs and the information outputs.

We provide the following description of the terms used in the framework table below.

- **Activity**

Within this column we identify a variety of activities for each sector. These activities and/or structures have been identified as most likely to result in environmental impacts.

Activities *per se* are not necessarily issues as they may not have any impacts that require a management decision or action.

- **Socio-Economic Impacts**

For context, with regard to the identification of issues, we include some indication of the socio-economic impacts of the sector/activity. Within ICOM, the socio-economic impacts, such as the displacement of existing activities, may be more relevant to the development of COINAtlantic applications than the environmental impacts.

- **Environmental Impacts**

Many human activities have no significant environmental impacts and will be a low priority within ICOM. For those activities that do have impacts of concern, it is important to clearly identify the impact, what management actions are possible and thus what outputs might be generated from an application that would support management decisions and actions.

- **Available Data/Tools circa 2008**

Although the COINAtlantic initiative is being developed for long term sustainability, it is critical that priority data sets and tools are identified for development and implementation within the 15-month COINAtlantic/GeoConnections project. Under this project, a number of collaborators have committed to provide access to a limited number of specific data sets as Web Mapping Services (WMS) and/or Web Feature Services (WFS). They are shown in the following table.

<b>Agency</b>	<b>Data Name</b>	<b>Example Data / Layers</b>
Fisheries and Oceans Canada	<a href="#">Maritimes Region Human Activities/Ocean Use Atlas</a>	Fishing locations, pipelines
Ocean Biogeographic Information System (OBISCanada) Regional Node	<a href="#">Biodiversity Data Sets</a>	Marine mammal sightings, marine invertebrates
Fisheries and Oceans Canada	<a href="#">Research Trawl Survey Results</a>	Groundfish species catch locations

<b>Agency</b>	<b>Data Name</b>	<b>Example Data / Layers</b>
Natural Resources Canada, Earth Sciences Sector	<a href="#">Geoscience for Oceans Management, Coastal Data</a>	Shoreline characteristics, marine surficial geology
Province of Nova Scotia	<a href="#">Coastal Series</a>	Roads, topography, infrastructure
Fisheries and Oceans Canada	<a href="#">Salmon Presence Assessment Atlas (SPAtlas)</a>	Blockages to fish passage, critical habitat
Fisheries and Oceans Canada	<a href="#">Oceanographic Modelling</a>	Sea surface temperature, currents, tides
Fisheries and Oceans Canada	<a href="#">Bathymetric Grid</a>	Water depth
University of New Brunswick	<a href="#">Marine Cadastre/Boundary</a>	Areas of responsibility, boundary lines

These data will form the core of the development and implementation of applications for COINAtlantic in 2008.

- **Potential Applications**

This column in the framework contains applications that can be implemented using available data to address identified issues, within the 15-month COINAtlantic/GeoConnections project.

- **Potential Applications / Data / Tools**

It is recognized that COINAtlantic circa 2008 will need to be focused on a small number of high priority applications. It is understood that there exist a large number of other relevant data and appropriate tools that could be accessed through COINAtlantic when resources allow. The Potential Applications/Data/Tools column will function as a “parking lot” for other applications and activities that could be considered for COINAtlantic as opportunities present themselves.

- **Users**

This column captures the users who are envisaged as needing the applications, *i.e.* people who are directly involved in the sector and who are carrying out activities. Managers include personnel from the federal, provincial and municipal agencies responsible for influencing the activities. This column is also intended to include groups that have an interest in the prosecution of the activity, the resultant impacts and benefits, and those who may be able to contribute to, or benefit from, the COINAtlantic application. Where possible, COINAtlantic will attempt to identify individuals with a particular interest and commitment to participate in the development of use cases. In some cases, this may be a determining factor that will override other considerations.

## COINAtlantic Framework

Sector	Activity	Potential Environmental Impact	Potential Socio-Economic Impact	Available Data Tools <i>circa 2008*</i>	Additional Data/Tools	Potential Applications*	Users*
<b>Habitat Management</b>	<ul style="list-style-type: none"> <li>➤ Protection</li> <li>➤ Conservation</li> <li>➤ Restoration</li> </ul>	<ul style="list-style-type: none"> <li>➤ Increase productivity</li> <li>➤ Displacement of other species</li> </ul>	<ul style="list-style-type: none"> <li>➤ Displacement or restriction of human activities</li> <li>➤ Support recreational and commercial fishing and harvesting activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Hydrology from 1:10,000 NS data</li> <li>➤ Bathymetric grid</li> <li>➤ Surficial geology</li> <li>➤ SPAtlas</li> </ul>	➤	<ul style="list-style-type: none"> <li>➤ Identify areas with habitat to support Species at Risk</li> <li>➤ Identify areas for improving Commercial and recreational fishing activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Fisheries and Oceans Canada</li> <li>➤ Provincial</li> <li>➤ NGOs</li> <li>➤ Fishers</li> <li>➤ Municipalities</li> </ul>
<b>Renewable Resources</b>	<ul style="list-style-type: none"> <li>➤ Extraction</li> <li>➤ Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on existing non-targeted resources</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> </ul>	➤	➤	<ul style="list-style-type: none"> <li>➤ Identify areas for sustainable activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> </ul>
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>➤ Protection</li> </ul>	<ul style="list-style-type: none"> <li>➤ Increase in ecosystem productivity and resilience</li> </ul>	<ul style="list-style-type: none"> <li>➤ Displacement or restriction of human activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ OBISCanada</li> </ul>	➤	<ul style="list-style-type: none"> <li>➤ Identify areas of high priority</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ NGOs</li> </ul>
<b>Aquaculture</b>	<ul style="list-style-type: none"> <li>➤ Production of food</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on ecosystem</li> <li>➤ Parasite impacts</li> <li>➤ Habitat impacts</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> <li>➤ Displaces other activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Marine cadastre</li> <li>➤ Bathymetric grid</li> </ul>	➤	<ul style="list-style-type: none"> <li>➤ Identify areas with minimal impacts and maximum benefits</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> <li>➤ NGOs/Communities</li> </ul>

\* Required for identification and prioritization of COINAtlantic use cases – need to be as specific and as detailed as possible.

<b>Sector</b>	<b>Activity</b>	<b>Potential Environmental Impact</b>	<b>Potential Socio-Economic Impact</b>	<b>Available Data Tools circa 2008*</b>	<b>Additional Data/Tools</b>	<b>Potential Applications*</b>	<b>Users*</b>
<b>Freshwater Resource Management</b>	<ul style="list-style-type: none"> <li>➤ Use of lands</li> <li>➤ Extraction of water</li> <li>➤ Discharge of materials</li> <li>➤ Dams</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on environment</li> <li>➤ Displacement of natural ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> <li>➤ Displacement of activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ NS provincial data</li> <li>➤ NL provincial data</li> <li>➤ SPAtlas</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify best use of environmental resources such as hydrology, soils, vegetation cover</li> <li>➤ Identify most appropriate support for human activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> </ul>
<b>Non-Renewable Resources</b>	<ul style="list-style-type: none"> <li>➤ Extraction <ul style="list-style-type: none"> <li>○ Oil and gas</li> <li>○ Coal</li> <li>○ Natural gas</li> </ul> </li> <li>➤ Maintenance of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on existing non-targeted resources</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify areas for sustainable activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> </ul>
<b>Marine Transportation</b>	<ul style="list-style-type: none"> <li>➤ Dredging</li> <li>➤ Ocean dumping</li> <li>➤ Movement of goods</li> <li>➤ Use of anti-fouling agents</li> </ul>	<ul style="list-style-type: none"> <li>➤ Chronic spills</li> <li>➤ Accidental spills</li> <li>➤ Chronic discharge <ul style="list-style-type: none"> <li>○ Sewage</li> </ul> </li> <li>➤ Negative impacts on large mammals</li> <li>➤ Introduction of Invasive species</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> <li>➤ Increases access by tourists</li> <li>➤ Decrease value of recreation sites</li> </ul>	<ul style="list-style-type: none"> <li>➤ Human Use Atlas</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Improve ship routing</li> <li>➤ Identify areas "sensitive" to Invasive species</li> <li>➤ Identify best location for infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>➤ Transport Canada</li> <li>➤ Fisheries and Oceans Canada</li> <li>➤ Provincial</li> <li>➤ Private sector</li> </ul>

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<b>Sector</b>	<b>Activity</b>	<b>Potential Environmental Impact</b>	<b>Potential Socio-Economic Impact</b>	<b>Available Data Tools circa 2008*</b>	<b>Additional Data/Tools</b>	<b>Potential Applications*</b>	<b>Users*</b>
<b>Commercial and Recreational Fishing</b>	<ul style="list-style-type: none"> <li>➤ Removal of target and non-target species</li> <li>➤ Development of non-traditional fisheries</li> <li>➤ See also marine transportation above</li> </ul>	<ul style="list-style-type: none"> <li>➤ Mortality of target and non-target species</li> <li>➤ Habitat destruction</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> </ul>	<ul style="list-style-type: none"> <li>➤ Marine cadastre</li> <li>➤ DFO trawl data</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify most appropriate locations for freshwater and marine harvesting</li> <li>➤ Identify opportunities for improvements such as opening clam beds</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> <li>➤ NGOs/Communities</li> </ul>
<b>Sovereignty and Defence</b>	<ul style="list-style-type: none"> <li>➤ Training</li> <li>➤ Operations</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on environment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Loss of life or livelihood</li> </ul>	<ul style="list-style-type: none"> <li>➤ Marine cadastre</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Minimize impacts of activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> </ul>
<b>Marine and Coastal Engineering Works and Services</b>	<ul style="list-style-type: none"> <li>➤ Build</li> <li>➤ Maintain</li> <li>➤ Maximize benefits</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on environment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> </ul>	<ul style="list-style-type: none"> <li>➤ Oceanographic model</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify best/appropriate locations</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> </ul>
<b>Research</b>	<ul style="list-style-type: none"> <li>➤ Surveys</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on environment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Increase knowledge</li> <li>➤ Support job creation</li> </ul>	<ul style="list-style-type: none"> <li>➤ DFO trawl data</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify knowledge gaps</li> <li>➤ Provide knowledge for ICOM</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Universities</li> <li>➤ NGOs</li> </ul>

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<b>Recreation and Tourism</b>	<ul style="list-style-type: none"> <li>➤ Protection of culture and heritage</li> <li>➤ Sustainable use of natural areas</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on environment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> <li>➤ Increases awareness of nature</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify appropriate Infrastructure development and maintenance</li> <li>➤ Identify of economic opportunities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Municipal</li> </ul>
<b>Agriculture</b>	<ul style="list-style-type: none"> <li>➤ Production of food</li> </ul>	<ul style="list-style-type: none"> <li>➤ Runoff <ul style="list-style-type: none"> <li>○ Silt</li> <li>○ pesticides</li> </ul> </li> <li>➤ Soil erosion</li> <li>➤ Loss of wetlands</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> <li>➤ Displaces other activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provincial databases</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify areas with minimal impacts and maximum benefits</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> <li>➤ NGOs/Communities</li> </ul>
<b>Industrial</b>	<ul style="list-style-type: none"> <li>➤ Production of products <ul style="list-style-type: none"> <li>○ Pulp and paper</li> <li>○ Smelting</li> <li>○ Thermal electrical generation</li> <li>○ Chlor-alkali plants</li> <li>○ Fish processing plants</li> <li>○ Food</li> </ul> </li> <li>➤ Processing plants</li> </ul>	<ul style="list-style-type: none"> <li>➤ Discharges <ul style="list-style-type: none"> <li>○ Solids</li> <li>○ Chemicals</li> <li>○ Air</li> </ul> </li> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs</li> <li>➤ Displaces other activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provincial databases</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify areas with minimal impacts and maximum benefits</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Private sector</li> <li>➤ NGOs/Communities</li> </ul>

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<b>Sector</b>	<b>Activity</b>	<b>Potential Environmental Impact</b>	<b>Potential Socio-Economic Impact</b>	<b>Available Data Tools circa 2008*</b>	<b>Additional Data/Tools</b>	<b>Potential Applications*</b>	<b>Users*</b>
<b>Urbanization and Development</b>	<ul style="list-style-type: none"> <li>➤ Support for human activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Negative impacts on environment</li> <li>➤ Displacement of ecology</li> <li>➤ Increased nutrient levels</li> <li>➤ Reduced oxygen levels</li> <li>➤ Increased sediment discharge</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supports jobs and people</li> <li>➤ Displaces other human activities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provincial Database</li> </ul>	<ul style="list-style-type: none"> <li>➤ Municipal Databases</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify areas with minimal impacts and maximum benefits</li> </ul>	<ul style="list-style-type: none"> <li>➤ Municipalities</li> <li>➤ Provincial</li> <li>➤ Private sector</li> <li>➤ NGOs/Communities</li> <li>➤ Federal</li> </ul>
<b>Disaster Management/ Emergency Response</b>	<ul style="list-style-type: none"> <li>➤ Appropriate response</li> <li>➤ Training</li> </ul>	<ul style="list-style-type: none"> <li>➤ Slow recovery of environment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Loss of life or livelihood</li> </ul>	<ul style="list-style-type: none"> <li>➤ NS provincial data</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤ Distinguishing areas by priority</li> <li>➤ Locating response equipment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Federal</li> <li>➤ Provincial</li> <li>➤ Municipal</li> </ul>
	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>
	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>	<ul style="list-style-type: none"> <li>➤</li> </ul>
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# Appendix 1

## *References and Bibliography*

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## Appendix 2

### *Glossary of Terms*

ACZISC	Atlantic Coastal Zone Information Steering Committee
Application	A program that performs a specific function directly for a user. ( <a href="http://cgdi.gc.ca/en/resourcetool/glossary">http://cgdi.gc.ca/en/resourcetool/glossary</a> )
COINAtlantic	Coastal and Ocean Information Network for Atlantic Canada
ICOM	Integrated Coastal and Ocean Management
Use case or Usage case	A description of a system's behaviour as it responds to a request that originates from outside of that system ( <a href="http://en.wikipedia.org/wiki/Use_case">http://en.wikipedia.org/wiki/Use_case</a> )  A use case expresses the behavioural portion of a contract between stakeholders of a system. It describes the system's behaviour and interactions under various conditions as it responds to a request on behalf of one of the stakeholders - the primary actor, showing how the primary actor's goal gets delivered or fails. The use case gathers the scenarios related to the primary actor's goal ( <a href="http://dublincore.org/educationwiki/Use_20Cases">http://dublincore.org/educationwiki/Use_20Cases</a> )
WFS	Web Feature Service - A specification that defines data manipulation operations on geographic features, allowing for querying, retrieval and transactional ( <i>i.e.</i> add, update or delete) operations. ( <a href="http://cgdi.gc.ca/en/resourcetool/glossary">http://cgdi.gc.ca/en/resourcetool/glossary</a> )
WMS	Web Map Service - An Internet-based service that allows clients to display maps and/or images with a geographic component and whose raw spatial data files reside on one or more remote WMS servers. The WMS conforms to the OpenGIS Web Map Server Interface specification. ( <a href="http://cgdi.gc.ca/en/resourcetool/glossary">http://cgdi.gc.ca/en/resourcetool/glossary</a> )