



Open Geospatial Consortium: Open Standards, Programs, Processes

OGC Nordic Forum Interoperability Day
Stockholm, 3rd September 2012

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Agenda

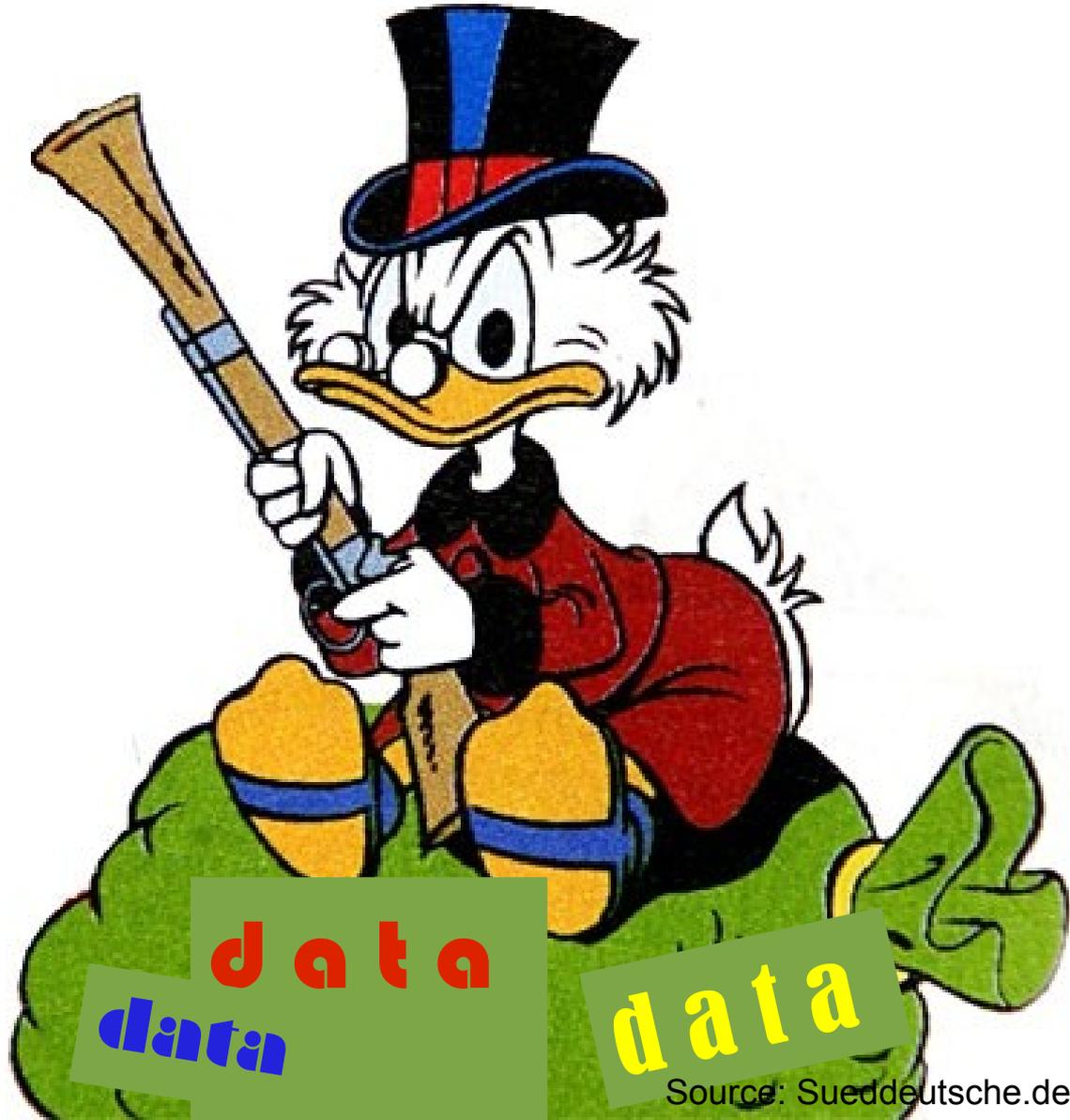


- **A few words and facts about the OGC**
- **Why interoperability & why open standards?**
- **How does the OGC work? Programs, Processes and Participation**



What is it all about?

Making your treasures accessible



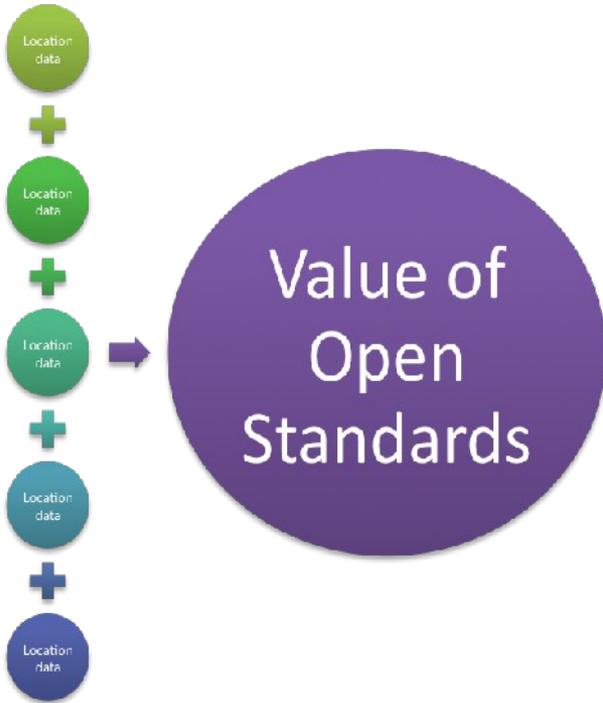
Standards and Interoperability

Availability of geo data is crucial for the administration, businesses and citizens alike.

But how to share data?

Key factor for accessibility is standardisation. It is the definition of common interfaces to enable interoperability.

Interoperability Issues



- „We **can't share** maps on the Web.“
- „We **can't deliver** data to different systems easily.“
- „We **don't have** a common language to speak about our geospatial data or our services.“
- „We **can't find** and pull together data from our automated sensors.“

So what does OGC do?



The Vision

Achieve the full societal, economic and scientific benefits of integrating location resources into commercial, institutional and organisational processes worldwide.

The Mission

To serve as a global forum for and lead the development, promotion and harmonization of open and freely available geospatial standards.

What is the OGC?



<http://www.youtube.com/ogcvideo>

→ more videos on OGC's Youtube Channel:

<http://www.youtube.com/user/ogcvideo/videos>



Some facts about the OGC

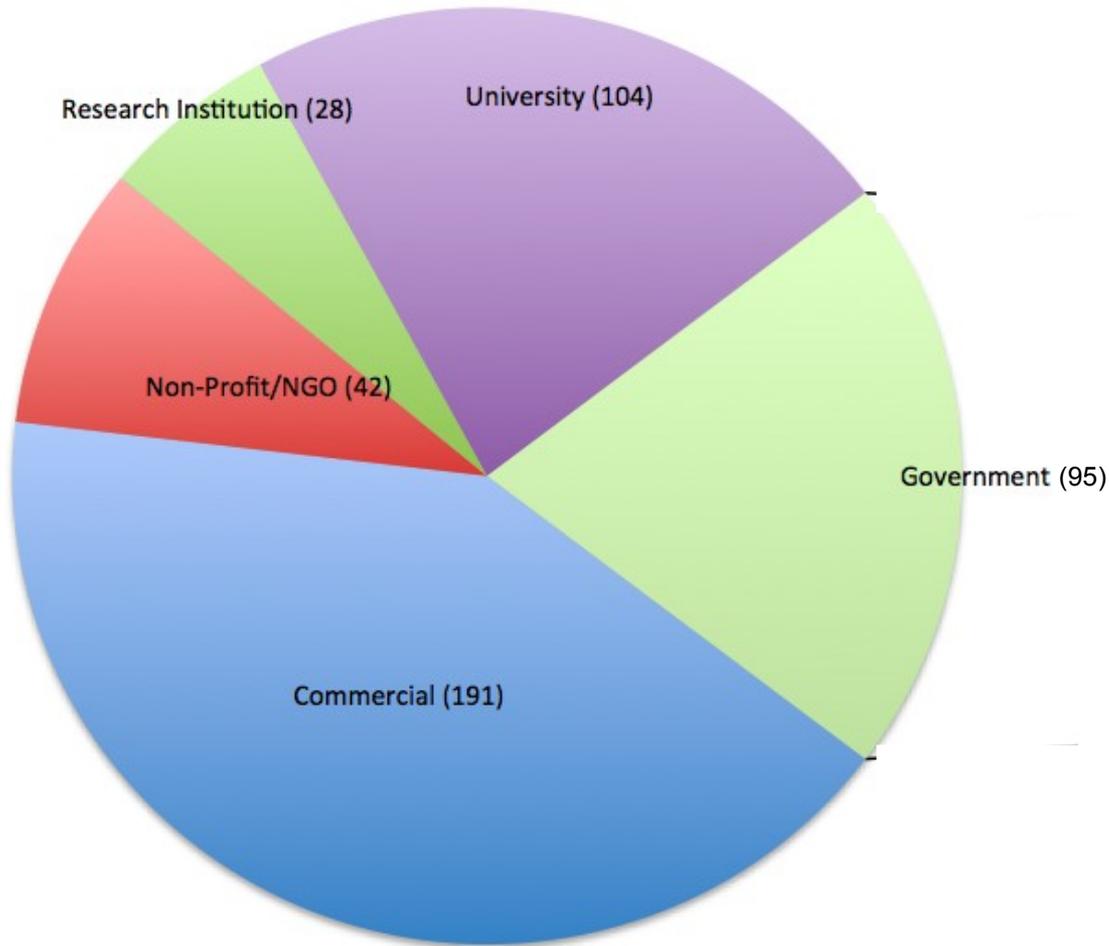
OGC at a glance



- Founded in 1994, not for profit, consensus based and voluntary
- 465+ member organisations (industry, government, academia) (Sept. 2012) <http://www.opengeospatial.org/ogc/members>
- 23 staff members
- 25+ adopted OGC Standards (some are ISO Standards) <http://www.opengeospatial.org/standards>
- Several hundred software products, implementing OGC Standards <http://www.opengeospatial.org/resource/products>
- Broad user community worldwide, many policy positions for NSDI based on OGC standards
- Cooperation with other standards organisations and foundations, ISO/TC 211, OSGeo, W3C, OASIS and others <http://www.opengeospatial.org/ogc/alliancepartners>



OGC membership



Africa (5)
Asia Pacific (68)
Europe (209)
Middle East (8)
North America (174)
South America (3)

OGC Members in Nordic Countries European

<http://www.opengeospatial.org/ogc/members/report/?sortBy=%27country%27>



Denmark (4)

- Aalborg University, Dept. Development & Planning
- Danish National Survey and Cadastre
- European Environment Agency (EEA)
- Informi GIS A/S

Norway (6)

- Geodata AS
- Norkart
- Norwegian Building Authority
- SINTEF
- Statens kartverk
- UMB – Norwegian University of Life Science

Finland (4)

- Finnish Geodetic Institute
- Finnish Meteorological Institute
- National Land Survey of Finland
- Vaisala

Sweden (7)

- Carmenta AB
- Lantmäteriet
- Metria AB
- Saab AB
- Spacemetric AB
- University of Gävle
- Michael Östling



Why

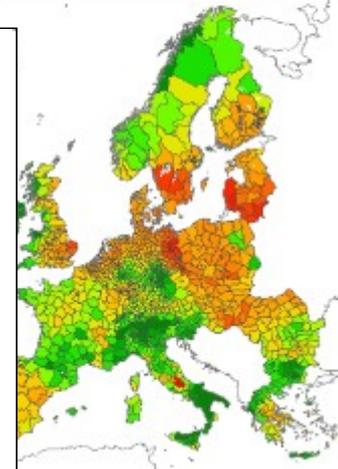
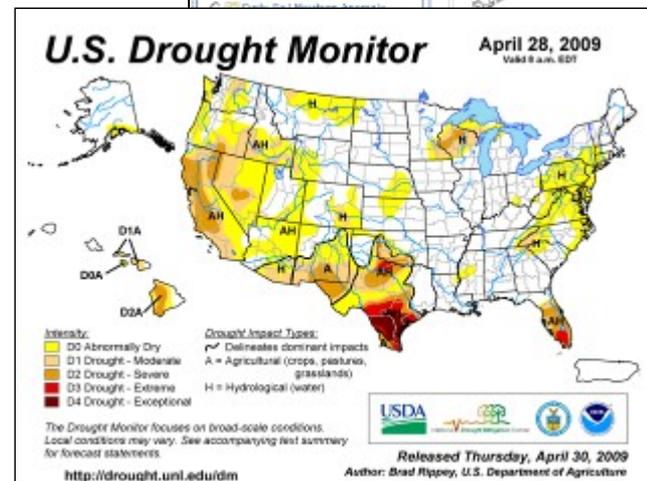
- **interoperability?**
- **open standards?**

Improving Knowledge Sharing and Transfer



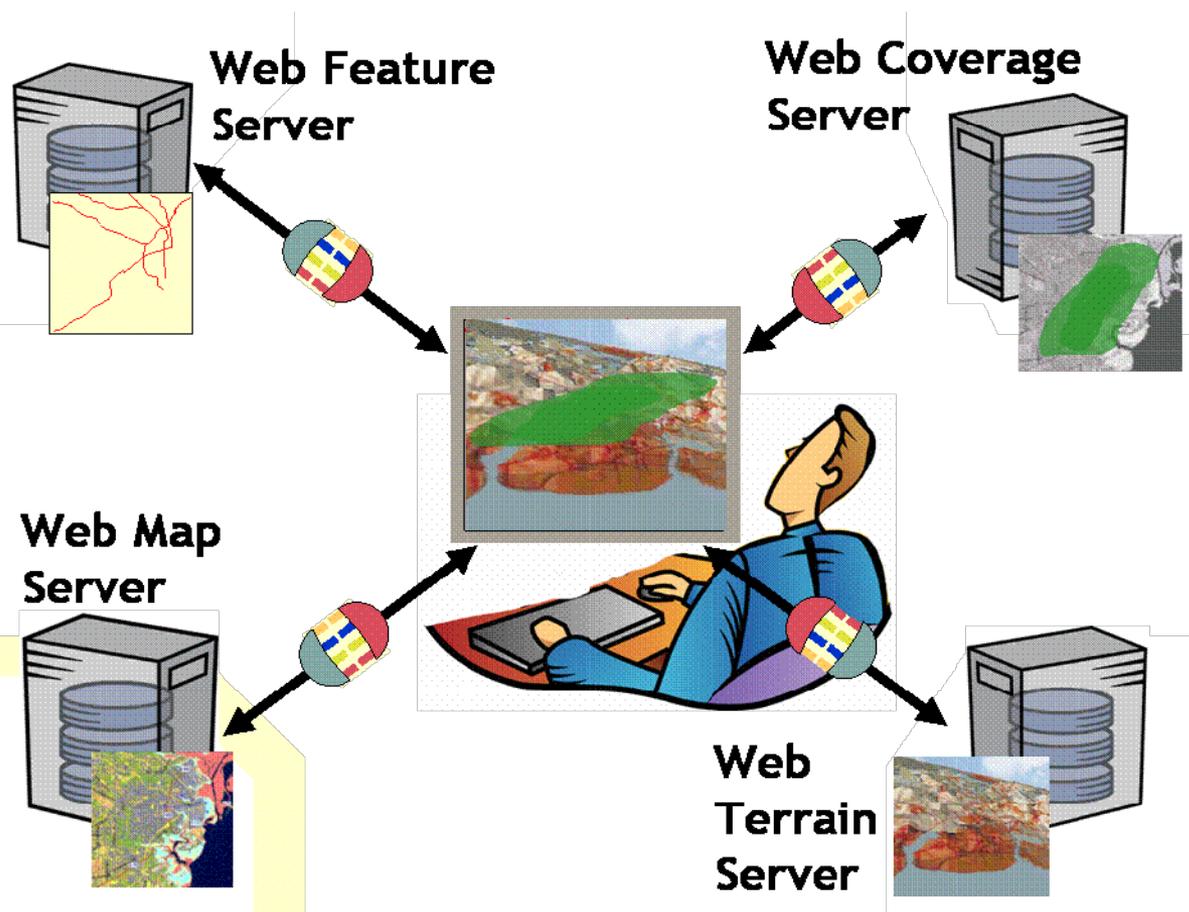
We are addressing critical issues, that need cooperation:

- Growth in urban centers and coastal areas
- Climate Change, Environmental Monitoring
- Water Resource availability and quality
- Emergency planning, preparedness & response
- Aviation Safety
...and many more



<http://www.ogcnetwork.net/pub/ogcnetwork/GEOSS/AIP3/index.html>

Geo* and Location* on the Web



Just as http:// is the dial tone of the World Wide Web, and html / xml are the standard encodings, the geospatial web is enabled by OGC standards.

Major OGC Standards

<http://www.opengeospatial.org/standards>

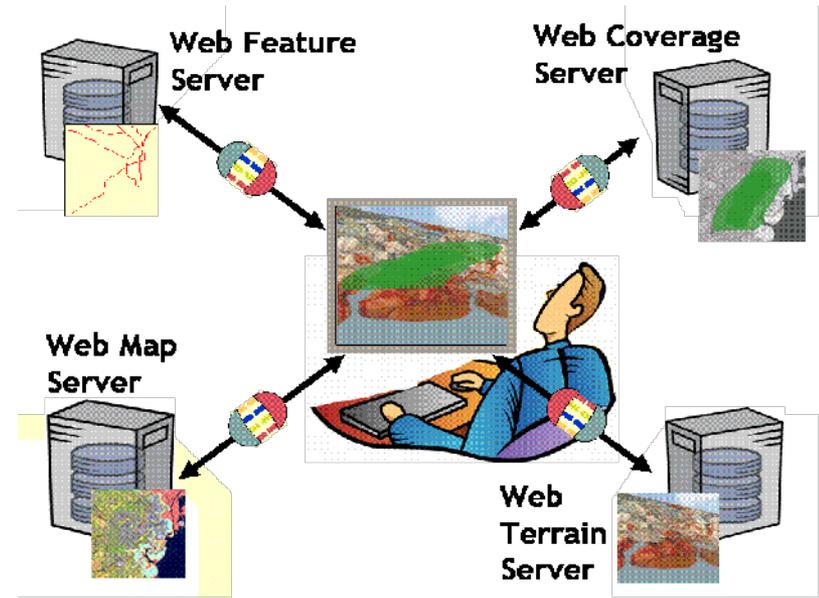


Some examples

- **Web Map Servers (WMS)**
- **Web Feature Servers (WFS)**
- **Web Coverage Servers (WCS)**

As well as the:

- **KML (formerly Keyhole Markup Language)**
- **Web Map Context (WMC)**
- **Geography Markup Language (GML)**



Standards Development is not easy!



- Requires understanding of differences
- Requires cooperation on a global basis
- Requires consensus by many organizations
- Requires give and take
- Requires certified, repeatable process

... and does not exist in isolation

Alliance Partners: Critical Resource for Advancing Standards



I E T F®



OASIS



... and others

<http://www.opengeospatial.org/ogc/alliancepartners>



**Standards are like
parachutes:
they work best
when they're open.**

Mary Mc Rae, OASIS*

* “Minds, like parachutes, function better when open, but, like fists, they strike harder when closed.” — *L.E. Modesitt, Jr., American Author (1943 --)*

Why Open Standards?



- **Prevents a single, self-interested party from controlling a standard**
- **Lower systems and life cycle costs**
- **Encourage market competition**
 - Choose based on functionality desired
 - Avoid “lock in” to a proprietary architecture
- **Stimulates innovation beyond the standard by companies that seek to differentiate themselves.**

„What OGC brings to the table is...everyone has confidence we won't take advantage of the format or change it in a way that will harm anyone”

**Michael Weiss-Malik,
Google KML product
manager**

Open Technology



„People want the government to be transparent, so why shouldn't the technology be?“

Jim Willis, Director of e-Government at the Rhode Island Secretary of State Office

What is an OGC Standard?



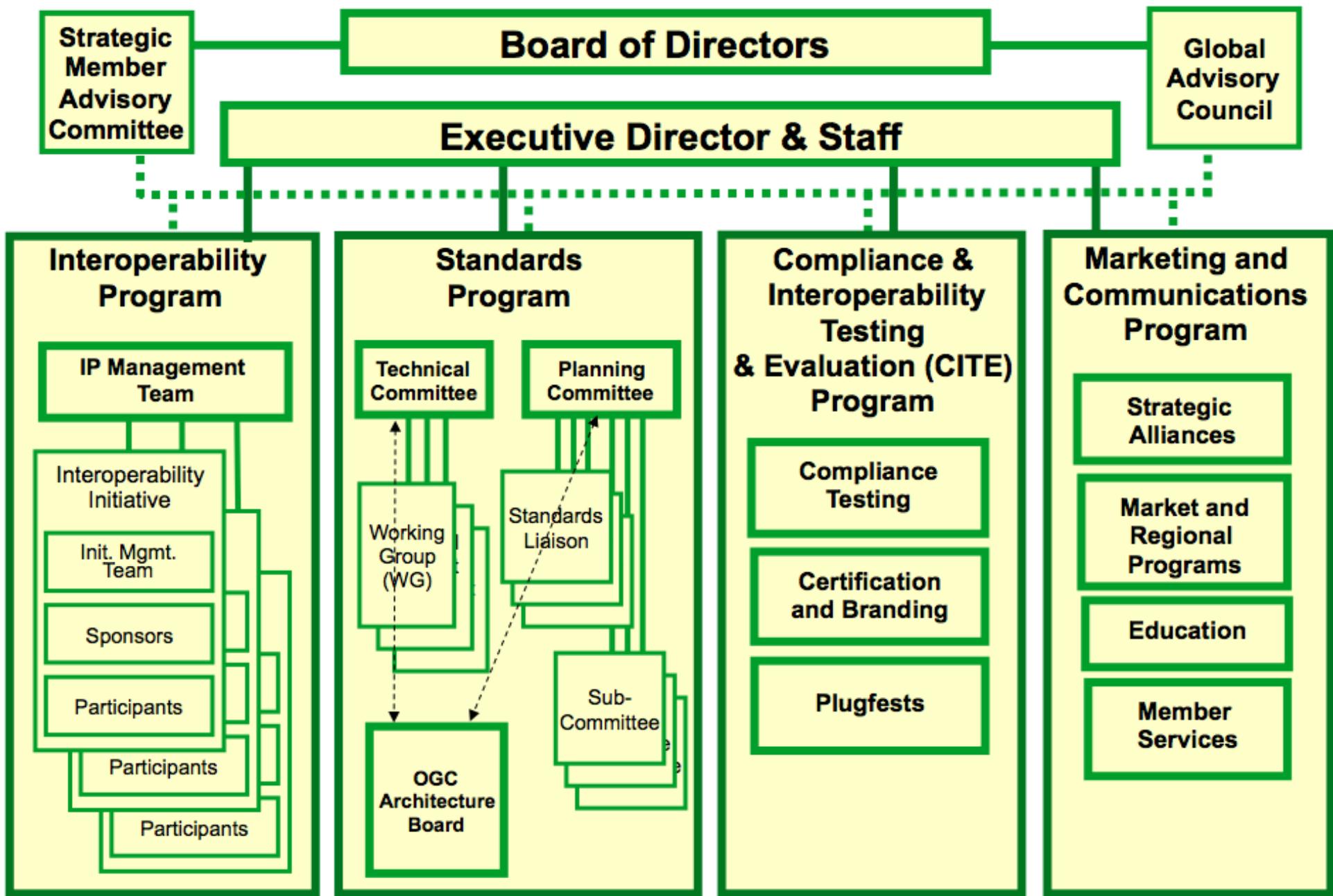
- A document, established by consensus, approved by the OGC membership (balance of interest, all members have an equal vote)
- Provides, rules, guidelines or characteristics
- Implementable in software
- Open standards does not mean open source software (Free Software). OGC/OSGeo Paper on Open Source Software and Open Standards: http://wiki.osgeo.org/wiki/Open_Source_and_Open_Standards
- OGC standards are ***Open Standards***
 - Freely and publicly available
 - No license fees
 - Vendor neutral

„People want the government to be transparent, so why shouldn't the technology be?“

**Jim Willis, Director of e-Government at
theRhode Island Secretary of State
Office**



How does OGC work? Programs and Processes



How does OGC work?

<http://www.opengeospatial.org/ogc/programs>



- **Consensus process** – that is reflecting a common understanding of requirements and a membership driven process.
- **Formalised standards development process** – based on commonly agreed, structured and well defined policies and processes (→ Standards Program <http://www.opengeospatial.org/ogc/programs/spec>).
- Making use of **innovative processes** – for testing, verifying and documenting user requirements (→ Interoperability Program <http://www.opengeospatial.org/ogc/programs/ip>).



Standards
Setting



Rapid Interface
Development

...plus Compliance Testing & Certification Program (<http://www.opengeospatial.org/compliance>) **and Marketing & Communication Program** (<http://www.opengeospatial.org/ogc/programs/ocap>).

OGC Activities Driven by Community Needs



Education & Research



Sustainable Development



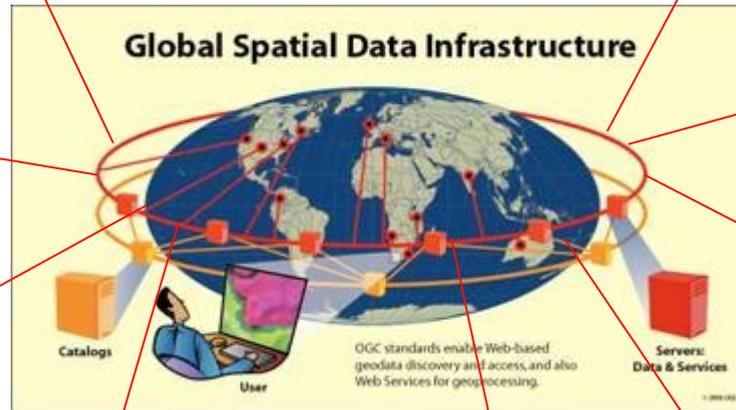
Defence



Health



Global Spatial Data Infrastructure



E -Government



Emergency Services,
Disaster Management



Energy



Consumer Services,
Real Time
Information



Geosciences:
land, sea, air information



... lead to Domain Working Groups

<http://www.opengeospatial.org/projects/groups/wg>

Domain Working Groups

Domain Working Groups (DWG or WG) provide a forum for discussion of key interoperability requirements and issues, discussion and review of implementation specifications, and presentations on key technology areas relevant to solving geospatial interoperability issues.

Name	Lead **
3DIM DWG (3DIM DWG)	Scott Simmons, CACI International Inc.
Architecture DWG (Arch DWG)	Doug Nebert, US Geological Survey (USGS)
Aviation DWG (Aviation DWG)	Navin Vembar, FAA System Operations Airspace and ATM Office
Catalog DWG (Cat DWG)	Doug Nebert, US Geological Survey (USGS)
Coordinate Reference System DWG (CRS DWG)	Victor Minor, Blue Marble Geographics
Coverages DWG (Cover DWG)	Peter Baumann, FORWISS (Bavarian Research Centre for Knowledge Based Systems)
Data Preservation DWG (PreservDWG)	Steve Morris, North Carolina State University
Data Quality DWG (DQ DWG)	Matt Beare, 1Spatial Group Ltd.
Decision Support DWG (DS DWG)	Stan Tillman, Intergraph Corporation
Defense and Intelligence DWG (D and I DWG)	Lucio Colaiacono, European Union Satellite Centre
Earth Systems Science DWG (ESS WG)	Phillip Dibner, Ecosystem Research
Emergency & Disaster Management DWG (EDM DWG)	Lewis Leinenweber, SE Solutions, Inc.
Geo Rights Management (GeoRM) DWG (GeoRM DWG)	Roland Wagner, BHT-Berlin (Beuth Hochschule für Technik Berlin)
GeoBI DWG (GeoBI DWG)	Raj R. Singh, Open Geospatial Consortium, Inc.
Geography Markup Language (GML) DWG (GML DWG)	Ron Lake, Galdos Systems Inc.
Geometry DWG (GeometryDWG)	John Herring, Oracle USA
Geosemantics DWG (Semantics)	Joshua Lieberman, Deloitte Financial Advisory Services, LLP
Hydrology DWG (Hydrology DWG)	David Lemon, CSIRO
Location Services DWG (LS DWG)	Marwa Mabrouk, Esri
Mass Market DWG (MassMarket DWG)	Ed Parsons, Google
Metadata DWG (Metadata DWG)	David Danko, Esri
Meteorology & Oceanography DWG (Met Ocean DWG)	Chris Little, UK Met Office

... provide a forum for discussion of key interoperability requirements and issues (...)

... and Standards Working Groups

<http://www.opengeospatial.org/projects/groups/swg>

Standards Working Groups

Standards Working Groups (SWG) have specific charter of working on a candidate standard prior to approval as an OGC standard or on making revisions to an existing OGC standard.

Name	Lead **
ARML 2.0 SWG (ARML 2.0 SWG)	Martin Lechner, Wikitude GmbH.
Catalogue Services 3.0 SWG (Cat 3.0 SWG)	Doug Nebert, US Geological Survey (USGS)
CF-NetCDF 1.0 SWG (CF-NetCDF1.0SWG)	Ben Domenico, University Corporation for Atmospheric Research (UCAR)
CityGML SWG (CityGML SWG)	Carsten Roensdorf, Ordnance Survey
ebRIM AP of CSW SWG (ebRIM AP of CSW)	Frédéric Houbie, Intergraph Corporation
ebXML RegRep SWG (ebXMLRegRepSWG)	Frédéric Houbie, Intergraph Corporation
GeoAPI 3.0 SWG (GeoAPI 3.0 SWG)	Martin Desruisseaux, GEOMATYS
Geographic Linkage Service 1.0 SWG (GLS 1.0 SWG)	Peter Schut, GeoConnections - Natural Resources Canada
GeoServices Rest SWG (GServRestSWG)	Satish Sankaran, Esri
GeoSPARQL SWG (GeoSPARQL SWG)	Carl Reed III, Open Geospatial Consortium, Inc.
GeoSynchronization 1.0 SWG (Geosync SWG)	Panagiotis (Peter) A. Vretanos, CUBS/Geo
GeoXACML SWG (GeoXACML SWG)	Jan Herrmann, Technische Universität München, Dept. of Informatics
GML 3.3 SWG (GML 3.3 SWG)	Clemens Portele, interactive instruments GmbH
GMLJP2 1.1 SWG (GMLJP2-1.1SWG)	Lucio Colaiacono, European Union Satellite Centre
IndoorGML SWG (IndoorGML SWG)	Ki-Joune Li, Pusan National University
KML 2.3 SWG (KML SWG)	David Burggraf, Galdos Systems Inc.
O&M 2.0 SWG (OM 2.0 SWG)	Simon Cox, CSIRO
OLS 1.3 SWG (OLS 1.3 SWG)	Carl Stephen Smyth, MAGIC Services Corporation
Open GeoSMS SWG (Open GeoSMS SWG)	Kuo-Yu Chuang, Industrial Technology Research Institute
Ordering Services for Earth Observation Products SWG (order-eo1.0.svg)	Daniele Marchionni, European Space Agency (ESA)
OWS Common 1.2 SWG (OWSCommon1.2SWG)	James Greenwood, SeiCorp, Inc.
OWS Context SWG (OWScontextSWG)	David Wesloh, US National Geospatial-Intelligence Agency (NGA)

... work on candidate OGC standards prior to approval, make revisions to existing OGC standard.

Understanding OGC standards – the ORM*

OGC Reference Model www.opengeospatial.org/standards/orm



- What is the purpose of the ORM?
 - Overview of OGC Standards Baseline
 - Insight into the current state of the work of the OGC
 - Basis for coordination and understanding of the OGC documents
 - Resource for defining architectures for specific applications
- In Spanish
 - http://external.opengeospatial.org/twiki_public/ILAFpublic/QueEsOpenGeospatial





Participation in the OGC process

IP - Emphasis on Testing and Validation



Testbeds, Pilots and Experiments

Participants work with sponsors to define and/or refine standards to solve a given interoperability problem.

- Joint actions by technology providers and users
- Driven by user community scenarios
- Produce:
 - Tested and validated draft standards
 - Industry technology implementations
 - Architectural recommendations
 - Live demonstrations to validate utility of standards in user context

Over **50 initiatives** have been **successfully completed** since 1999.

Most OGC standards are advanced through this process.

OGC staff manages the entire process with policies and procedures proven to produce results.



The OGC and its Interoperability Program



<http://www.youtube.com/user/ogcvideo/videos>
→ OGC Interoperability Program Introduction

→ more videos on OGC's YouTube Channel:

<http://www.youtube.com/user/ogcvideo/videos>

Benefits



Arnaud Cauchy of Spot Image, an EADS Astrium company, explained, " (...) **The AIP-3 Disaster Management Reference Scenario is a key contribution, helping participants to define efficient procedures and related GEOSS services to provide the right response at the right time to an emergency situation. The scenario demonstrates information flows involved in providing real-time updates** to an evacuation plan during a flood disaster."

GEOSS Architecture Implementation Pilot (AIP) 3 -
<http://www.opengeospatial.org/pressroom/pressreleases/1323>

Navin Vembar, Aeronautical Information Management (AIM) Acquisition Lead, FAA, reported, "The (...) pilot proves that **OGC Web Services can be used in concert with domain-specific information exchange standards** to satisfy the operational needs of a wide variety of users. The use of the standards means that all of the **stakeholders' costs decrease while the benefits of the communication are realized quickly.**" OGC Aviation Information Brochure

Dave Wesloh, NGA: "We are very much a **supporter of the OGC Interoperability Program.** It provides us with a opportunity **to set our requirements out in the community.**"

OGC Web Services (OWS) 4 demo - <http://www.opengeospatial.org/pub/www/ows4/index.html>

Avenues for Public Input (1)



- **OGC Network**

<http://www.ogcnetwork.net/>

- **General Requests (for Information, for Comment, for Participation)**

<http://www.opengeospatial.org/standards/requests>

- **Change Requests and New Requirements**

<http://www.opengeospatial.org/standards/cr>

http://portal.opengeospatial.org/public_ogc/change_request.php

- **Contact us**

<http://www.opengeospatial.org/contact>

Avenues for Public Input (2)



- **Public Domain Working Groups**

- Many OGC DWGs are (to a certain extent) open to non-OGC members

<http://www.opengeospatial.org/projects/groups/aviationdwg>

- **Regional Forum Activities**

<http://www.opengeospatial.org/ogc/regions>

- **Business Value Committee**

<http://www.opengeospatial.org/projects/groups/businessvalue>

<https://lists.opengeospatial.org/mailman/listinfo/business.value>

- Understand and articulate the advantages of developing and using OGC standards

Summarizing



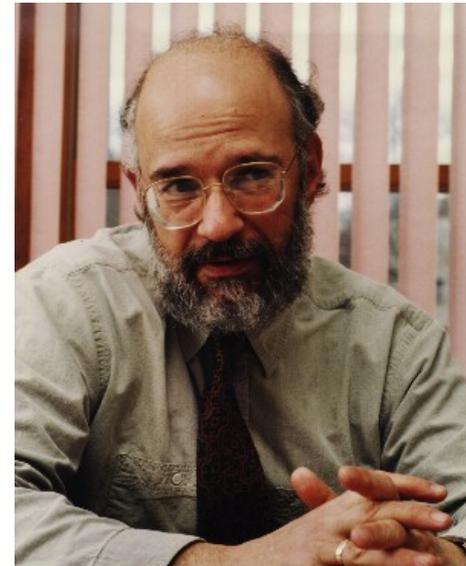
- lack of interoperability is lowering value of your data
- OGC => membership & huge network of colleagues and experts
- need for cross boundary & cross community
- OGC standards enable the geospatial web
- communication is key
- OGC programs help addressing requirements
- Participation in the OGC process is crucial (as member or non-member)

Some last thoughts...



“Interoperability seems to be about the integration of information. What it’s really about is the coordination of organizational behavior.”

David Schell
Chairman and Founder
OGC



Closing thoughts...



→ **Contribute, cooperate – and avoid „consuming attitude“**

→ **Don't re-invent the wheel: benefit from other's experiences – share your own!**

„The conventional view serves to protect us from the painful job of thinking“ (*John Kenneth Galbraith, economist*)



**Thank you!
Any Questions?**

Athina Trakas

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web: <http://www.opengeospatial.org>

GovFuture - Membership Level for Local and Subnational Government



new membership option for local and state/provincial government agencies

worldwide and for a very small fee (200US\$/500US\$)
(membership structure for different regions in the world coming soon)

reflects OGC's increased emphasis on knowledge transfer

- learn about new developments in geospatial technology
- benefit from those developments
- understand and address legal and policy issues
- liaise with other levels of government

More information at

**<http://www.opengeospatial.org/ogc/join/levels#associate>
and**

<http://www.opengeospatial.org/pressroom/pressreleases/1322>