



What you always wanted to know about the OGC Programs, Process, Participation

UNIGIS International

u_Lecture, 25. March 2014

<https://www3.gotomeeting.com/register/909498390>

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Director European Services

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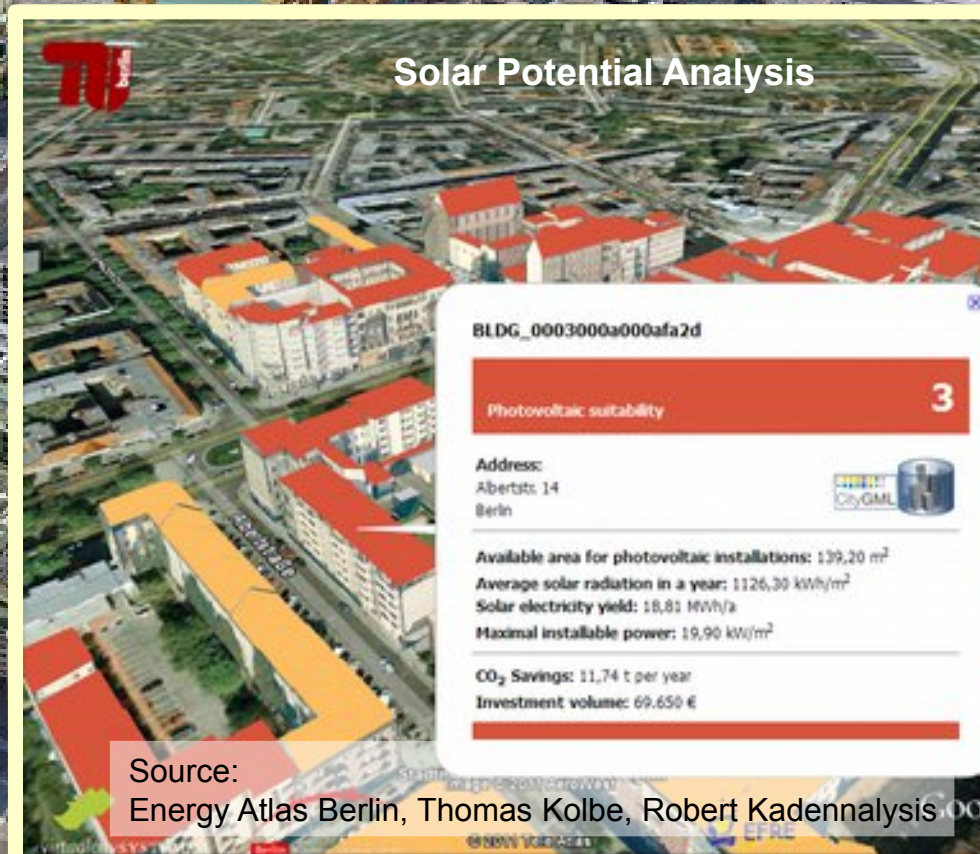
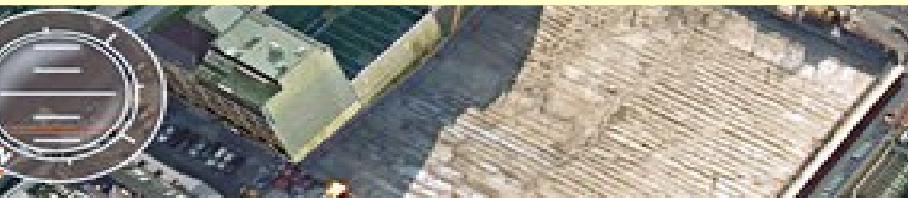
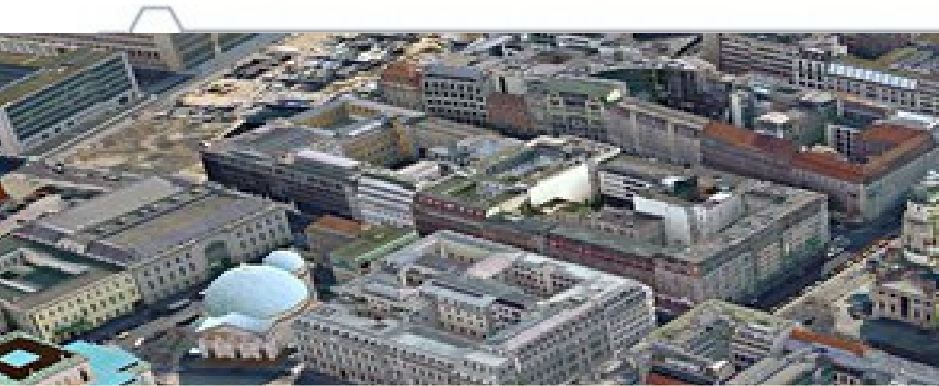
<http://www.opengeospatial.org>

This presentation is about...



- ... a general introduction to open standards and the OGC
- ... the OGC Programs and Processes
- ... examples and engagement

Urban Sustainability



Pandemic Disease Events



Source: de.dreamstime.com



<http://www.popsci.com/sites/popsci.com/files/images/2008/07/sars.jpg>



FreeFoto.com

Cross-Boundary Information Sharing



Continues to be one of our biggest challenges!

Source:

<http://www.ign-sn.de/GI2012/GI2012-OpenDataPolicies-FINAL-Programme-WEB.pdf>



Source:

http://de.wikipedia.org/w/index.php?title=Datei:Blauess_Wunder_Hochwasser_2002.JPG



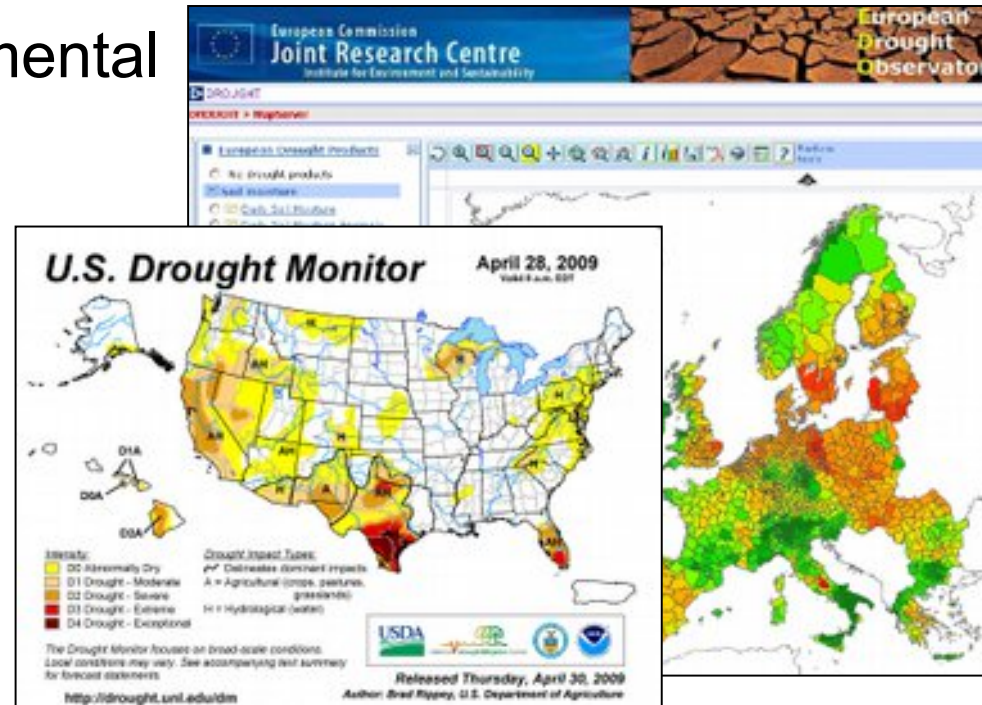
The ability to access, fuse and apply diverse data sources is critical to situational awareness

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>

So what does OGC do?



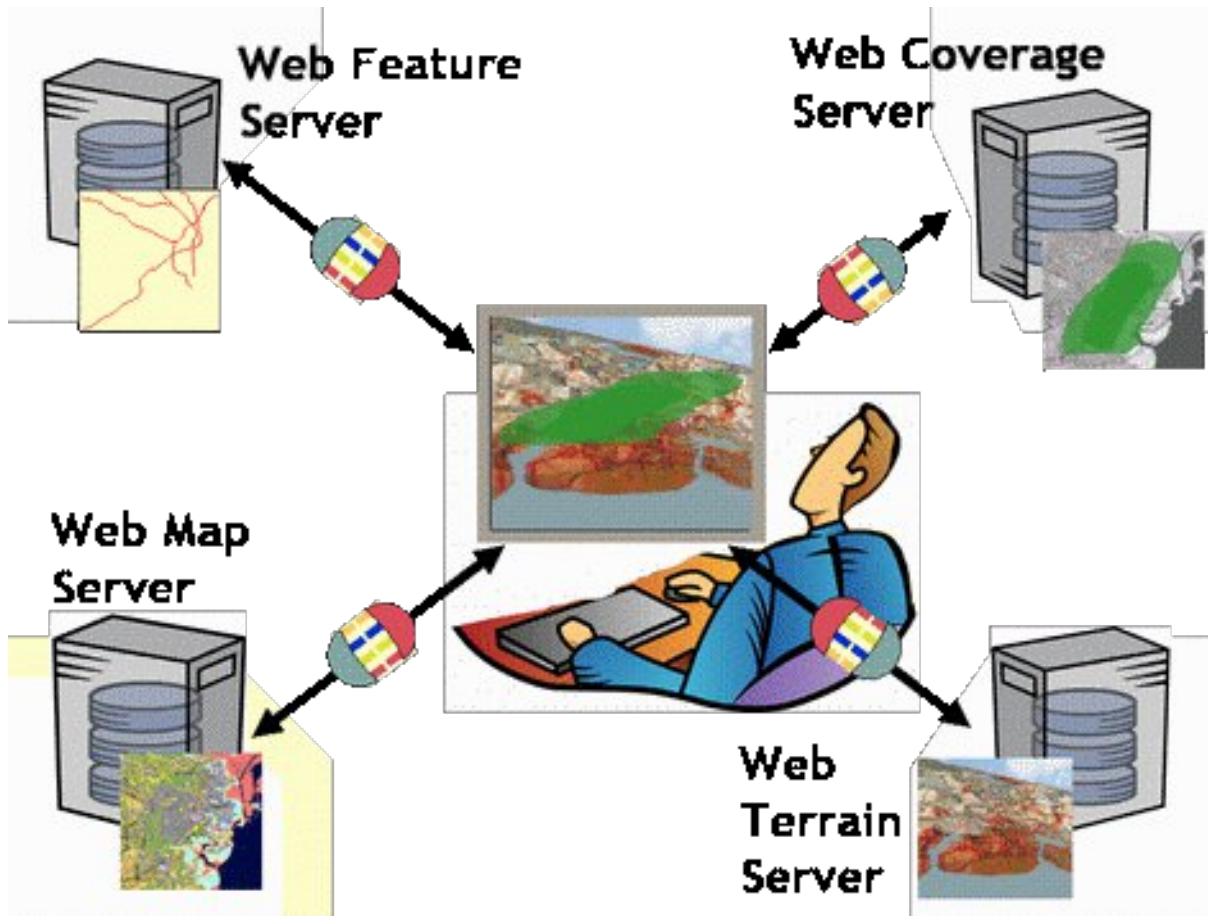
The Vision

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.

The Geospatial 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.

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

„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

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.**

„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

Major OGC Standards

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

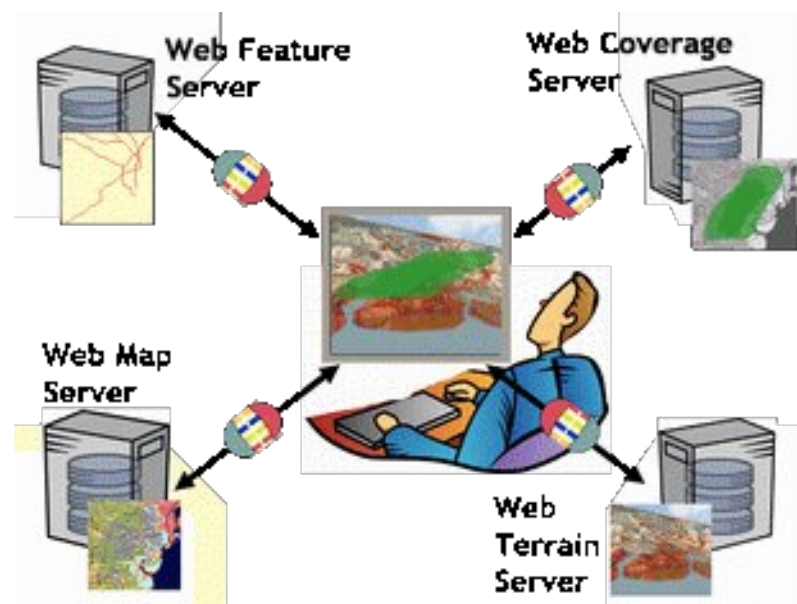


Some examples

- **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 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 --)

Source picture: <http://www.all-hd-wallpapers.com/wallpapers/sports/425236.jpg>



Some facts about the OGC



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

→ more videos on OGC's Youtube Channel:
<http://www.youtube.com/user/ogcvideo/videos>



OGC at a glance



- Founded in 1994, not for profit, consensus based and voluntary
- 470+ member organisations (industry, government, academia) (March 2014) <http://www.opengeospatial.org/ogc/members>
- 23 staff members
- 35+ 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 Members

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



- **Europe – 202**
- **North America – 177**
- **Asia Pacific – 79**
- **Middle East – 11**
- **South America – 4**
- **Africa – 2**

Membership by country

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

Adjusted Fee Structure and GovFuture



Adjusted membership fee

To better allow organizations from all over the world to participate in our process, we recently have adjusted our membership fees. That gives certain categories of organizations discounts based on their country of registration.

More information at:

<http://www.opengeospatial.org/pressroom/pressreleases/1389>

<http://www.directionsmag.com/pressreleases/the-open-geospatial-consortium-ogc-announced-new-membership-options-fo/179393>

<http://mundogeo.com/es/blog/2011/06/10/ogc-reduce-cuotas-de-afiliacion-para-organizaciones-en-paises-en-desarrollo/>

GovFuture

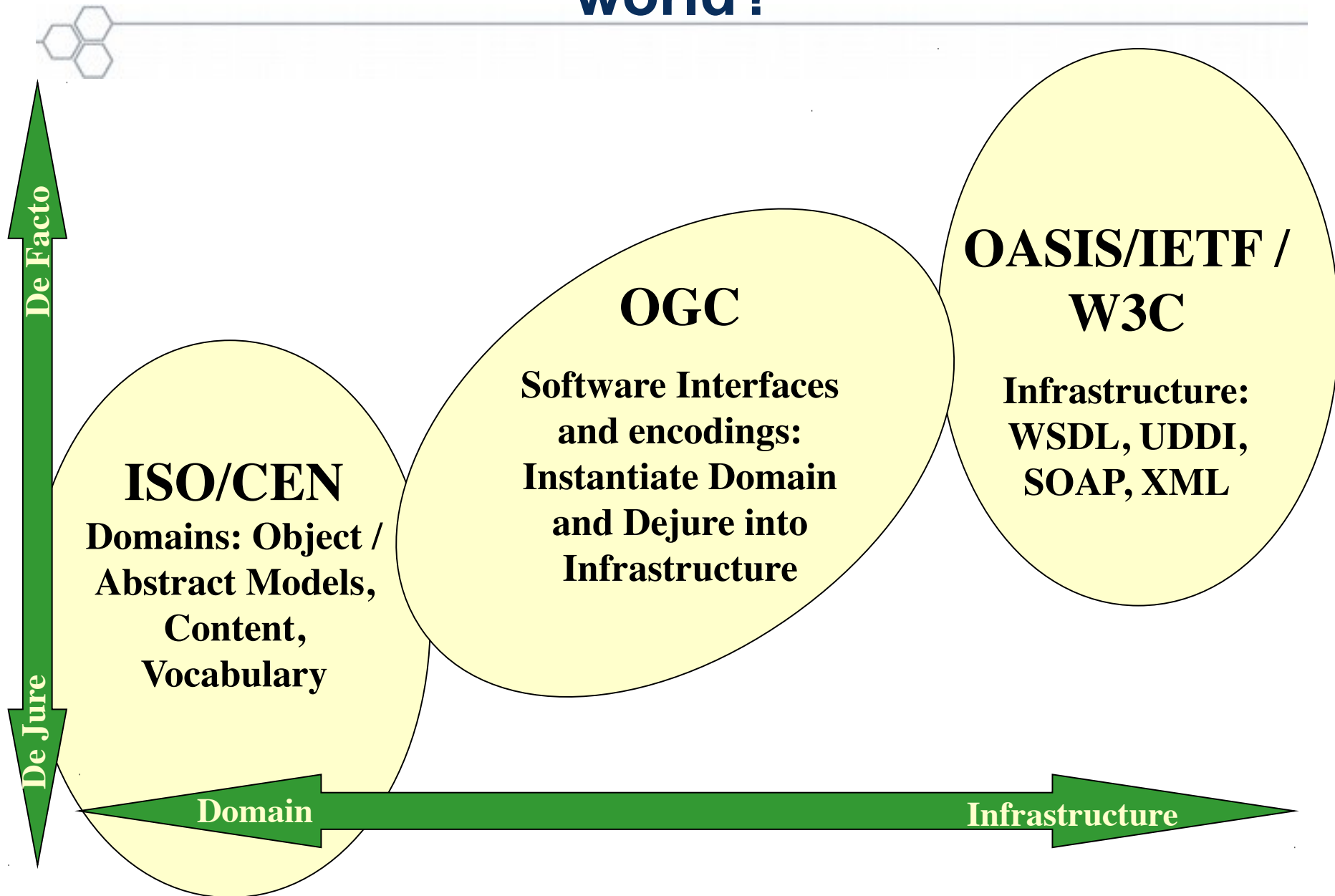
New membership option for local and state/provincial government agencies, worldwide and for a very small fee (200US\$/500US\$).

More information at: <http://www.ogcnetwork.net/node/1568>

and

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

Where does OGC fit in the “standards” world?



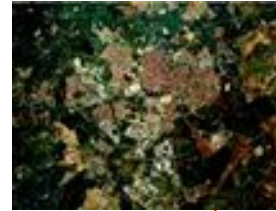
OGC Activities Driven by Community Needs



Education & Research



Sustainable Development



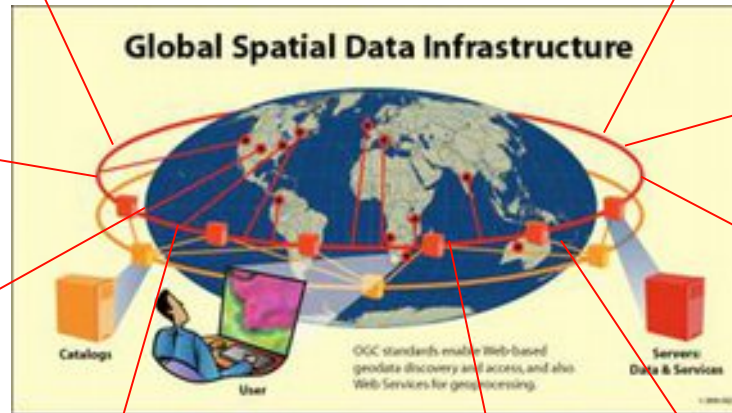
Defence



Health



**Emergency Services,
Disaster Management**



E -Government



Energy



**Consumer
Services, Real Time
Information**



**Geosciences:
land, sea, air information**



and influenced by ...



- **Policy** – addressing the wide variation in policy worldwide related to information -sharing, -access and use, -funding, -privacy, etc.
- **Changing Technology** – The Cloud, Mobile Applications, Geolocated devices and Sensors, etc.
- **Language** – not just spoken and written language but: Semantics, vocabularies, content models, ontologies
- **Members, regional requirements, public input** – and many more

OGC Standards and Policy



pol·icy

statement of id

government,

OGC standards and policy

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



- Group on Earth Observation (GEO) & Global Earth Observation System of Systems (GEOSS)
- GSDI, UNSDI and UN-GGIM
- European Environment Agency
- European INSPIRE Directive
- GeoConnections Canada
- National legislation, e.g. the Netherlands, UK Ordnance Survey
- and many more...



OGC Standards and Industry



Source: <http://techpinions.com/touch-computing-and-the-re-birth-of-the-software-industry/7096>

Benefits for Industry

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



- „Having influence in the content of a standard is an important factor in gaining competitive advantage.“
- Early insight into user requirements, knowledge and access to information
- Sharing costs of interface development
- Improve choice and competition in the marketplace
- Reduce technology risks
- Opportunity to cooperatively develop and influence open standards
- OGC Compliance Software

OGC Standards – Research and Academia



Pictures: <http://cpeng10.acsd.wikispaces.net/Research+Project> and
<http://mirlabs.org/research.php>

Value & Benefits

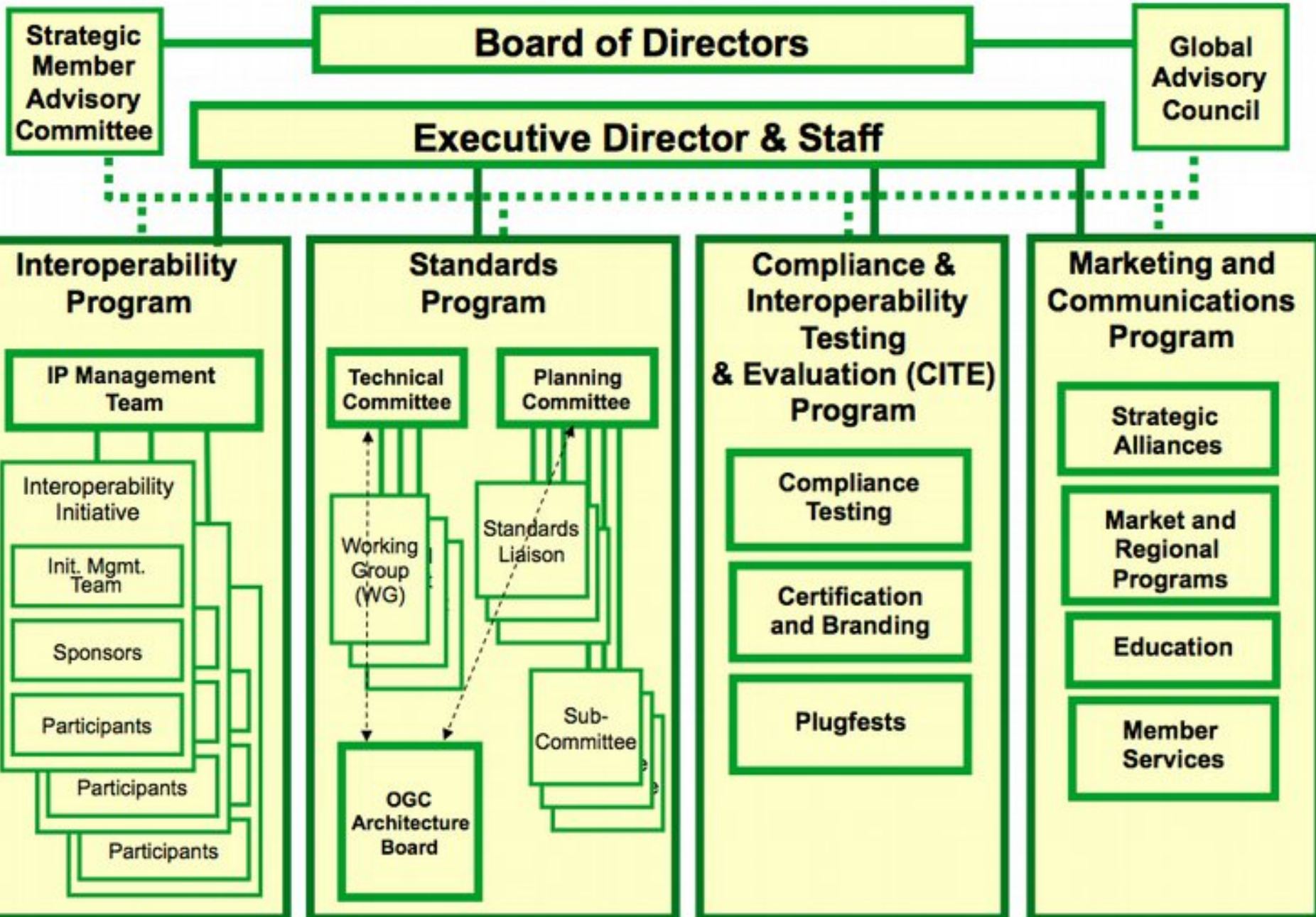


- **Various levels of benefits** (results from a NASA study on the use of open GI standards)
 - Easy sharing, data availability and accessibility can put value to your data
 - Influence policy and research agendas
 - Provide input for better decision making ability, institutional effectiveness, efficient use of taxpayer resources
- Participate in a huge international network of experts and peers



Life Cycle Management of OGC Standards

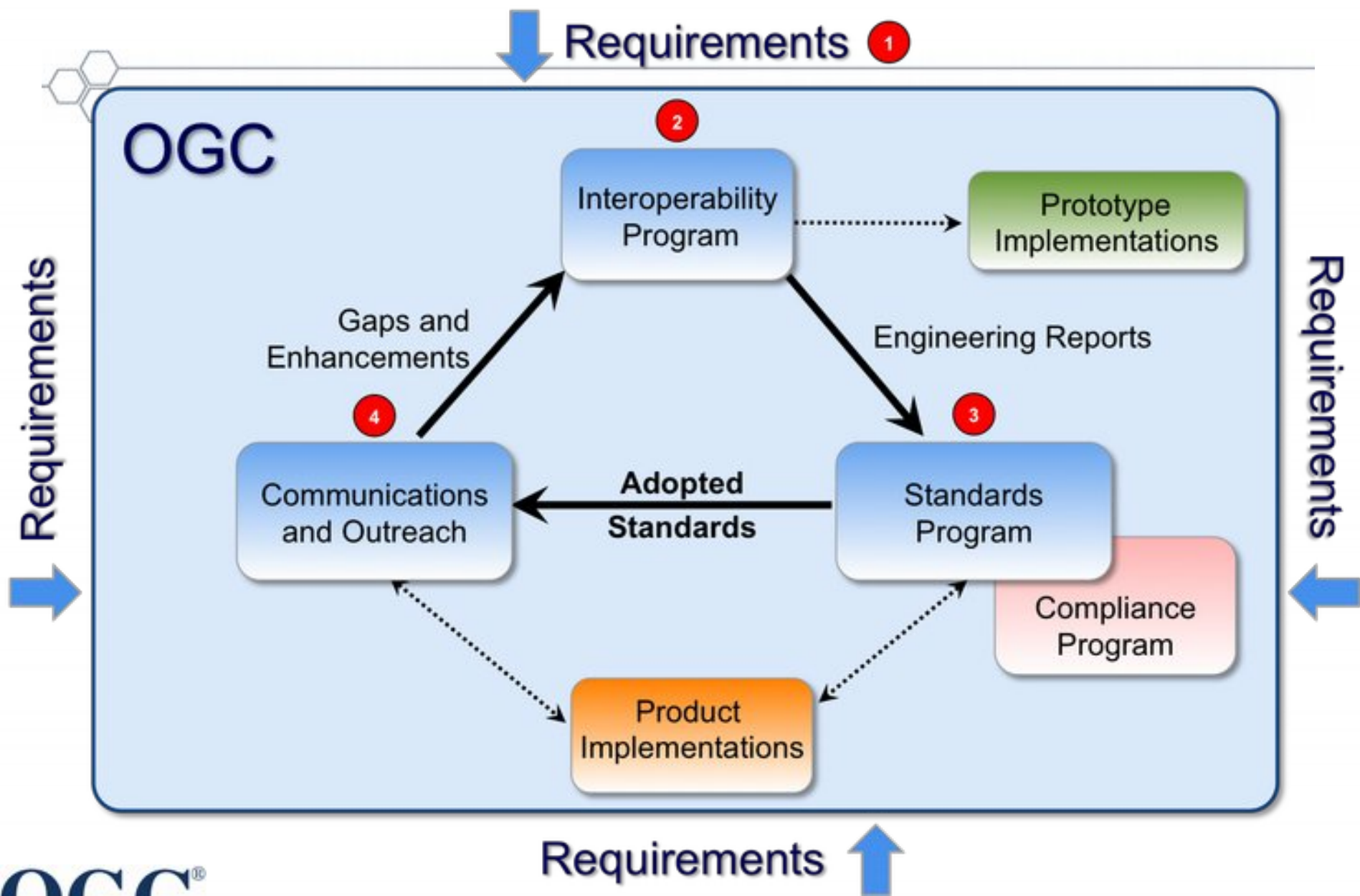
OGC Programs



Life Cycle Management



The OGC's standards life cycle process involves a coordinated and collaborative effort of each organizational unit of OGC as represented in the following diagram.



How does OGC work?

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



- **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>).

How does OGC work?

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



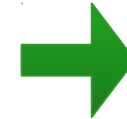
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Standards
Setting

SP: 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, ISpatial Group Ltd. |
| Decision Support DWG (DS DWG) | Stan Tillman, Intergraph Corporation |
| Defense and Intelligence DWG (D and I DWG) | Lucio Colalacomo, 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 (OGC) |
| 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 inter-
operability
requirements
and issues
(...)

SP: 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, Cesium |
| 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 Colalacomo, 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. |
| OM 2.0 SWG (OM 2.0 SWG) | Simon Cox, CSIRO |
| OLS 1.3 SWG (OLS 1.3 SWG) | Carl Stephen Smyth, MAGIC Services Forum |
| Open GeoSMS SWG (Open GeoSMS SWG) | Kuo-Yu Chuang, Industrial Technology Research Institute |
| Ordering Services for Earth Observation Products SWG (order-eo1.0.swg) | 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) |

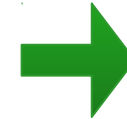
... work on
candidate
OGC
standards
prior to
approval,
make
revisions to
existing OGC
standard.

How does OGC work?

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



- **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>).



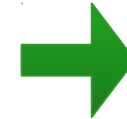
Standards
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Standards
Setting



Rapid Interface
Development



OGC Interoperability Program



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

OGC Interoperability Program



- *Proven process to rapidly develop, test, validate and demonstrate new standards* based on real world use cases identified by OGC members
- Effective way for members to *quickly align industry to advance standards to meet priority needs*
- *Efficient and competitive process*, regularly yielding a high-level of industry participation and cooperation
- *Repeatable process* – over 35 initiatives successfully conducted using proven policies and procedure

IP Program – Players & Return on Invest



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

Sponsors

- Contribute financial resources in support of an initiative
- Drive requirements, technical scope, agenda, demonstration form and content of an initiative

Participants

- Contribute to the definition of interfaces, prototypical implementations and other engineering support
- Contribute in-kind funding

Return on Invest

- for every one US\$ or € in sponsorship funding the testbeds have yielded between **2.5 and 4 times**
- Participants contribute more in in-kind resources (labor, software, etc) than is provided in Sponsor funding.





OGC Compliance Program

Learn in 2 minutes why you need to get OGC Certification:



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

Compliance Program Goals



- Provide robust standard compliance solutions for geospatial communities
- Provide a process whereby compliance for OGC specifications can be tested.
- Increase systems interoperability
- Reducing technology risks

More information? Ask...



Luis Bermudez, Director Compliance Program

lbermudez@opengeospatial.org

CITE Forum (any question about testing and tools)

<http://cite.opengeospatial.org/forum>

Question about certification
compliance@opengeospatial.org

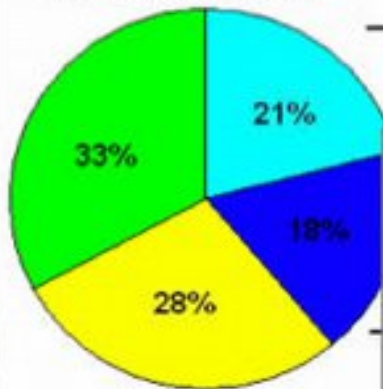




Examples active working groups

The OGC 3D Information Management DWG

Producers of Carbon Dioxide
Emmissions in the U.S.



Residential and
Commercial
Buildings



The 3DIM DWG - History



Formed as **CAD/GIS**
Domain Working Group

Initiated **CityGML**
Standards Working Group

3D Portrayal
Interoperability
Experiment (3DPIE)

2005

2007

2009

2011

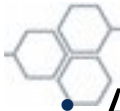
Initiated **Oblique Imagery**
Domain Working Group

today!

Changed name to
3D Information Management
Domain Working Group in 2007 to better
reflect the diversity of work in the group

**ARML and
IndoorGML**
Standards Working
Groups

CityGML



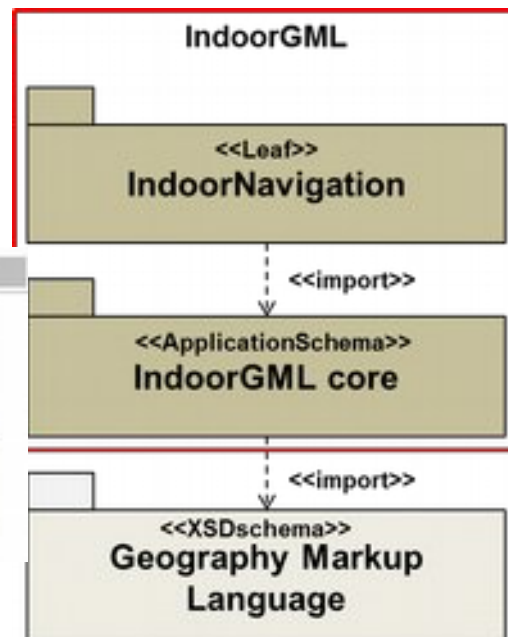
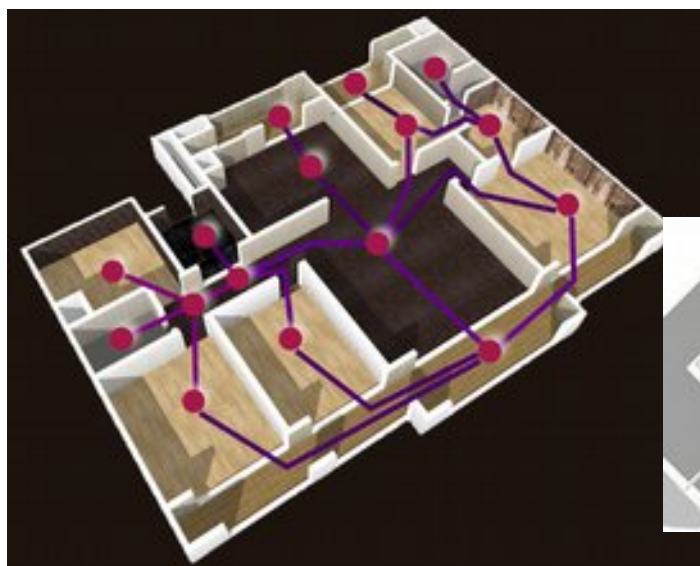
- Application independent geospatial information model and exchange format for 3D city models comprising different thematic areas (buildings, vegetation, water, terrain, traffic etc.) and dimensions . . .
- With semantics!



IndoorGML



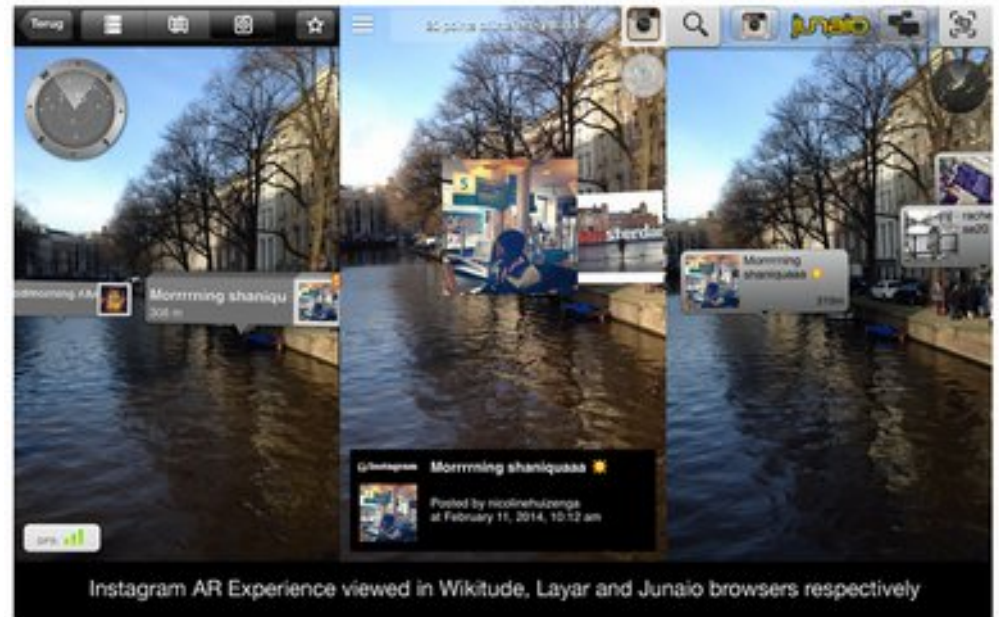
- The aim of IndoorGML is to represent and exchange the geoinformation that is required to build and operate indoor navigation systems.
- Not just geometry but a model of the indoor space!



Augmented Reality ML



- The purpose of the SWG is to progress ARML 2.0 to the state of an adopted OGC standard. The ultimate goal of ARML 2.0 is to provide an extensible standard and framework for AR applications to serve the AR use cases currently used or developed.



Source: <http://www.wikitude.com/>

- „OGC, Layar, Metaio and Wikitude invite Mobile World Congress attendees to AR Interoperability Demo“ - „...the OGC will host the world’s first Augmented Reality (AR) Browser Interoperability Demonstration. Layar, Metaio and Wikitude, the largest AR platform providers, have cooperated to make it easy for AR content to be shared across their technology platforms.“ - <http://www.opengeospatial.org/pressroom/pressreleases/1960>



Example

GeoPackage Standard

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

Why GeoPackage?



- Most file-based geodata formats are tech dinosaurs.
- An explosion of map applications for mobile handheld devices has resulted in a variety of incompatible data formats and interfaces.
- No existing standard addresses the provisioning of all types of geospatial data on traditional computing platforms or assorted makes of mobile handheld devices.
- Web services don't work without internet access.
- The Internet sucks power from a mobile device.



<http://www.geopackage.org>



- Read the standard
- Get sample data
- Find implementing software
- Report issues on GitHub

opengis / geopackage
forked from cholesw/zipfile

Browse Issues Milestones

Everyone's Issues 19

Assigned to you 0

Created by you 0

Mentioning you 0

No milestone selected

Labels

CRITICALITY: MINOR 1

enhancement 1

CRITICALITY: EDITORIAL 0

19 Open 55 Closed Sort: Newest

Close Label Assignee Milestone

REQ 10: table or view?

Opened by bradh 2 months ago 1 comment

Mapping WKT/WKB to GeoPackage Geometries

Opened by bradh 2 months ago 17 comments

/opt/features/geometry_encoding/data/blob

Opened by bradh 2 months ago 3 comments

REQ 30 inconsistent with REQ 22

Opened by bradh 2 months ago 2 comments

Table 41 constraints use old column name

Opened by bradh 2 months ago 1 comment

OGC
Making location count.

GeoPackage

Read the Standard

Find Software

Follow GeoPackage

Join us on GitHub

An Open Format for Geospatial Information

GeoPackage is the modern alternative to formats like SDTS and Shapefile. Its SQLite-based format efficiently stores and transfers geographic vector features and image tiles.

GeoPackage is the modern alternative to formats like SDTS and Shapefile. At its core, GeoPackage is simply a SQLite database schema. If you know SQLite, you are close to knowing GeoPackage. Install Spatialite – the premiere spatial extension to SQLite – and you get all the performance of a spatial database along with the convenience of a file-based data set that can be emailed, shared on a USB drive or burned to a DVD.

GeoPackage was carefully designed this way to facilitate widespread adoption and use of a single simple file format by both commercial and open-source software applications – on enterprise production platforms as well as mobile hand-held devices. GeoPackage is a standard from the Open Geospatial Consortium. It was designed and prototyped following a multi-year, open process of requirements testing and public input. It is designed for extension. So if you need more than the core GeoPackage feature set, join OGC's open process to standardize community-tested enhancements.



Official Standards Information

For all official, normative information on the GeoPackage standard, including PDF format download, see the OGC standards program GeoPackage page.

Implementations

Issue Tracker

Sample Data

Mailing List

Implementation Guide

FAQ

For more information:

<http://www.opengeospatial.org/blog/1978>



How and why to get engaged?

Why to get engaged in OGC Programs?



- Address interoperability requirements
 - Improve choice and competition in the marketplace
 - Reduce technology risks
 - Opportunity to cooperatively develop and influence open standards
 - Early insight into user requirements for interoperability
 - Bring new standards-based products and services into the marketplace earlier
 - Broaden market reach via products that implement OGC standards ... and many more...

Stay tuned...



- Join OGC on LinkedIn
<http://www.linkedin.com/groups?mostPopular=&gid=55322>
- OGC Blog — <http://www.opengeospatial.org/blog>
- Follow us on twitter: @opengeospatial
- Subscribe to the OGC Update
- OGC Youtube Channel
<http://www.youtube.com/ogcvideo> <http://www.youtube.com/user/ogcvideo/videos>
- Interested in becoming a member?
<http://www.opengeospatial.org/ogc/join/levels>
- Requests — <http://www.opengeospatial.org/standards/requests>
- Change Requests — <http://www.opengeospatial.org/standards/cr>



Closing Thoughts



- **Don't re-invent the wheel – Communicate with the community**
- **Get an understanding of the opportunities and benefits an engagement in the OGC is offering you and see where and how it fits into your organization's strategy.**



**Thank you for your attention
... and your questions!**

Athina Trakas

**Director European Service
OpenGeospatial Consortium, Inc.**

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