



## Location and Interoperability Input from the OGC

AMFM GIS Italia Workshop 2014 Location as unifying element of actions and information for citizen services Rome, ITALY – 24<sup>th</sup> September 2014



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## The presentation is about ...

- ... standards and interoperability
- ... the Open Geospatial Consortium
- ... examples of OGC standards





## What is it all about?

## Extreme Weather / Climate Change



Source: http://www.itartass.com/en/c680/864095.html TAR-TASS/ Dmitry Morguits



Geographic, photo and caption by Andrea Barletta



Oxfam East Africa at http://www.flickr.com/photos/46434833@N05/5933226731



## Improving Knowledge Sharing and Transfer...

- ... by addressing critical issues, that need cooperation ... across domain and multi-disciplinary
  - 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

Making location count.



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

## Standards, Interoperability & Data Access

Availability of geo data is crucial for the administration, businesses and citizens alike. But how to share data? Key factor for accessibility is <u>standardisation</u>. It is the definition of common interfaces to enable <u>interoperability</u>.





## 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 (1)

• Founded in 1994, not for profit, consensus based and voluntary

 470+ member organisations (industry, government, academia) (September 2014) http://www.opengeospatial.org/ogc/members

#### Italy (14)

- CNR IIA
- Epsilon Italia Srl
- ETCWARE Srl
- European Space Agency (ESA)
- Fondazione CIMA
- Fondazione Graphitech
- IDS Ingegneria dei Sistemi SpA
- EC Joint Research Centre (JRC)
- Planetek Italia Srl
- Politecnico di Milano
- Telespazio SpA
- Terradue Srl
- Trilogis Srl

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Austria (8)

**Czech Republic (2)** 

France (20)

Germany (46)

Greece (4)

Spain (15)

Switzerland (12)

## OGC at a glance (2)

- 30+ 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



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

## OGC at a glance (3)

 Broad user community worldwide, many policy positions for National and International Spatial Data Infrastructures 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













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#### Influenced by changing Technology ... and many more

- Web 2.0, IPV6
- The Cloud
- Earth Browser Systems
- Service Oriented Architecture "vs" Restful Oriented Architecture
- Mobile Applications
- Geolocated devices and sensors
- Mass / Consumer Market
- Social Networking
- · Crowd Sourcing





## **Views on Interoperability Levels**

Cooperating partners with compatible visions, **Political Context** aligned priorities, and focused objectives Legal Interoperability Aligned legislation so that exchanged data is accorded proper legal weight Legislative Alignment Organisational Interoperability Coordinated processes in which different organisations achieve a previously Organisation and Process agreed and mutually beneficial goal Alignment Semantic Interoperability Precise meaning of exchanged information which is preserved and understood Semantic Alignment by all parties **Technical Interoperability** Planning of technical issues involved in linking computer systems and services Interaction & Transport Source: European Interoperability Framework, Annex II, p 26

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## Use cases valuable for society and citizens

## **Example ADRIARadNet (1)**

"ADRIAtic integrated RADar-based and web-oriented information processing system NETwork to support hydro-meteorological monitoring and civil protection decision"



#### **Radar-based products**

#### **Satellite products**







#### Content provided by Marco Massabo Fondazione CIMA

## **Example ADRIARadNet (2)**

"ADRIAtic integrated RADar-based and web-oriented information processing system NETwork to support hydro-meteorological monitoring and civil protection decision"



#### **Meteo-forecasting model**

#### Hydro/Meteorological Model







Content provided by Marco Massabo Fondazione CIMA

## **Example ADRIARadNet (3)**



Content provided by Marco Massabo Fondazione CIMA

me Range - Start: Wednesday 28 April 2010 18:30 UTC End: Thursday 29 April 2010 18:30 UTC

## Example: GEOSS Architecture Implementation Pilot

The **OGC** is a participating organisation in the Group on Earth Observation (GEO) and **leads the GEOSS Architecture Implementation Pilot (AIP)** using the OGC Interoperability Program policy and procedures.

AIP is an agile and evolutionary development process, that proves the maturity of the infrastructure components.

Need to establish a good set of standards and results that show web access to EO data.

The current phase (AIP-7) focusses on "Key Apps" development to demonstrate the value of standards-based access to EO data & services registered with GEOSS.

The process was initiated in 2007.

 $\rightarrow http://www.opengeospatial.org/projects/initiatives/geoss/ogc$ 

→ http://www.ogcnetwork.net/Alpilot









#### **GEOSS** Portal:

#### connecting to community portals and other resources



### Summarizing

→ avoid re-inventing the wheel, duplication of work and efforts → interoperability & open standards help to sustain investments → cooperation on international level is key to success

### Thank you for your attention Questions? Get involved!

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## **OGC & the AMFM White Paper**

## Positioning and Location → Interoperopability as key factor to make data accessible and applicable

Indoor Location

 $\rightarrow$  OGC 3D Information Model (3DIM) and IndoorGML Standards Working Groups

Urbanisation

 $\rightarrow$  OGC 3DIM, Urban Planning, LandInfra, Smart City Interoperability pilot

- Producer & Consumer
  - $\rightarrow$  Mobile Location working group
- Location and Health Care
   → OGC Health DWG and IP Initiative



# **INSPIRE** technical architecture http://www.opengeospatial.org/pressroom/r



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**INSPIRE** Discovery service:

-OGC Catalogue Service for the Web (CSW)

-Query language: OGC Filter Encoding

**INSPIRE** View service:

Anannan Standards in Novie -ISO 19128 : WMS (Web Map Service) 1.3 (extensions)

**INSPIRE** Download service:

-Pre-defined data sets => standard Internet protocols (like FTP)

- —Direct access data with queries
- -Web Feature Service: OGC WFS / ISO 19142
- -Filter Encoding: OGC Filter Encoding / ISO 19143

**INSPIRE** Coordinate Transformation service:

-An Application Profile of the Web Processing service (WPS) based on the Web Coordinate Transformation Service (WCTS) Making location count.