The Training Framework
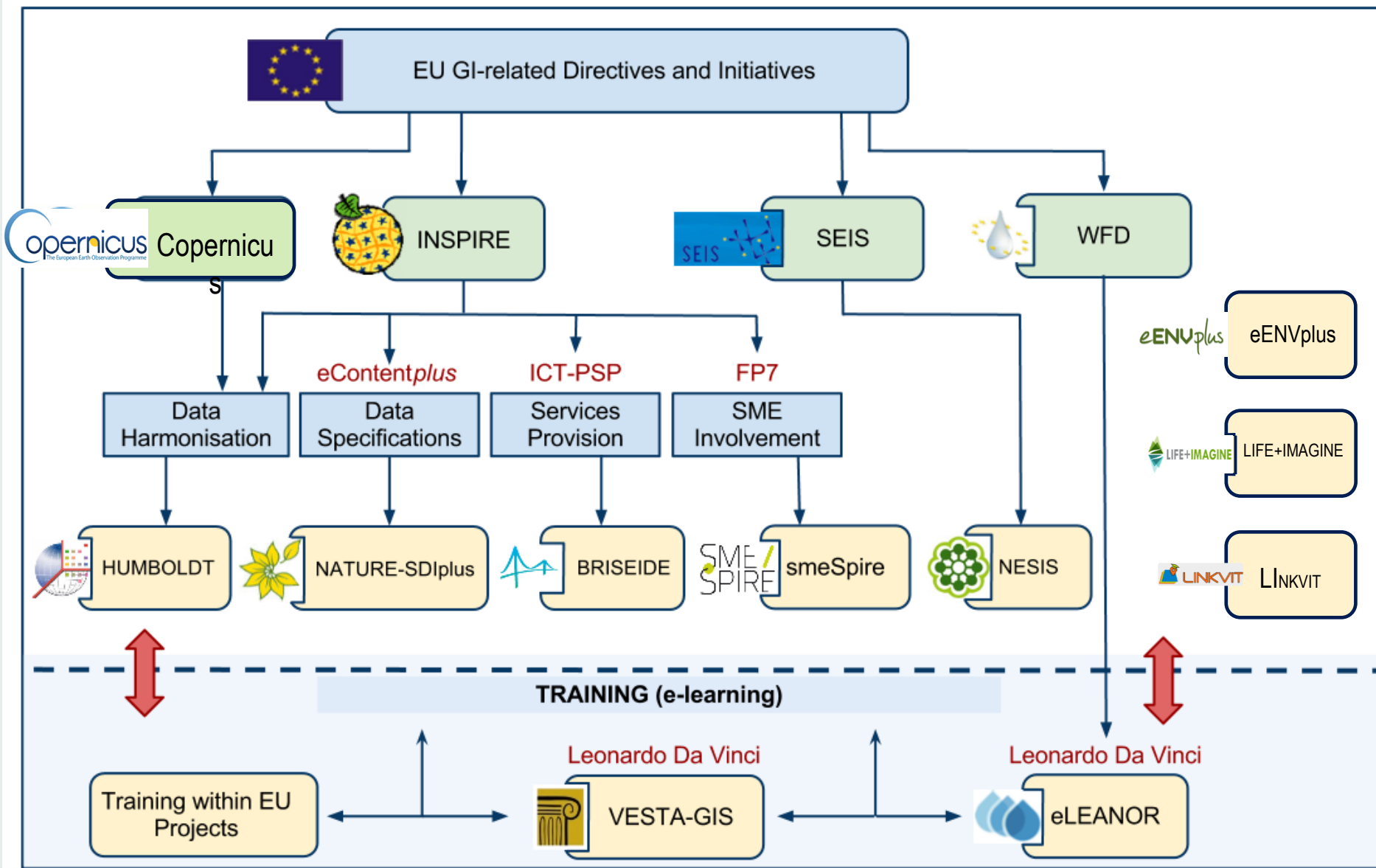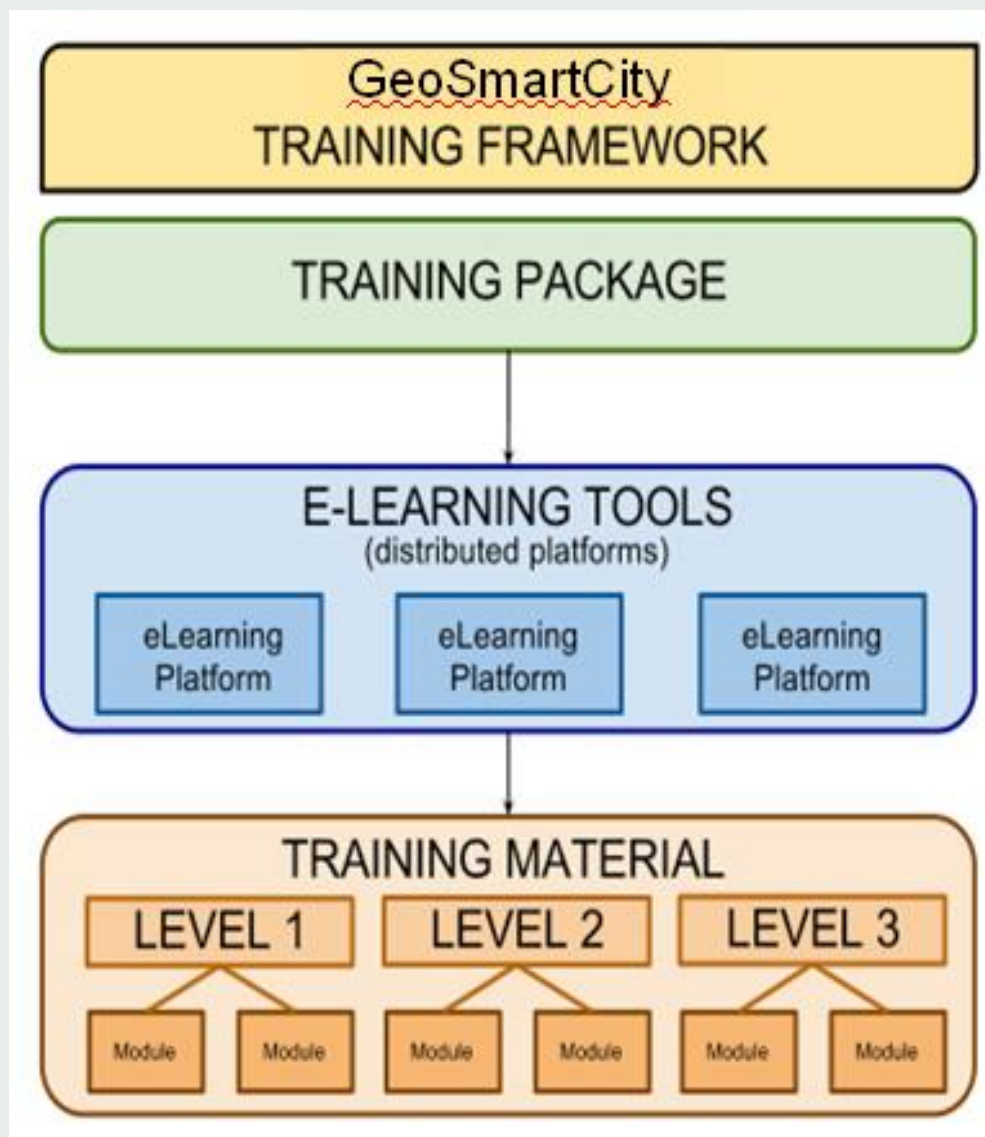
Giorgio Saio, GISIG

Training Framework

Training Framework

Home / Training

Training

Our e-Learning training modules provide to the target audience of GeoSmartCity the advanced skills required to cope with the INSPIRE implementation process, knowledge related to Linked Open Data and the documentation and the necessary means to interact, benefit and adopt the GeoSmartCity Infrastructure.

Subscribe to the GeoSmartCity Training Modules

Log in or create a new account in our e-Learning platform.
Some Training Modules are still under development.

Subscribe to the Modules

Level 1: Background Knowledge

Knowledge on Directives/ Technologies. Click the module name for more information and access to the training material.

The INSPIRE Directive and related technologies

✚ **Introduction to INSPIRE**

✚ **Basics of INSPIRE Data Specification**

✚ **Basics of INSPIRE Network Services**

✚ **Data Harmonisation**

✚ **Procedures for Data and Metadata Harmonization**

✚ **Examples of Data Transformation**

✚ **Metadata and Data validation for INSPIRE**

Training organisation

The Training Framework is organised on 3 levels:

1. Background knowledge

    • Knowledge on Directives/ Technologies

2. The GeoSmartCity Infrastructure

    • Knowledge on the technical outcomes and adoption of GeoSmartCity.

3. The GeoSmartCity Pilots

    • Knowledge on the Pilot applications using the GeoSmartCity Infrastructure.

The INSPIRE Directive and related technologies

o   Introduction to INSPIRE
o   Basic of INSPIRE Data Specification
o   Basics of INSPIRE Network Services
o   Data Harmonisation
o   Procedures for Data and Metadata Harmonization
o   Example of Data Transformation
o   Metadata and Data validation for INSPIRE
o   Introduction to Linked Data

GIS Technologies

o   GIS Introduction
o   Data Visualization &Cartography
o   Geo-Crowdsourcing: Open Street Map workflow

Thematic Knowledge: Underground Management

o   Urban drainage & Sewerage
o   Operation And Maintenance Of Underground Assets
o   Water Supply System
o   Water and wastewater pollution characterisation and sources
o   General Aspects Of Waste Water Treatment Plant

Thematic Knowledge: Greeen Energy

o   The European Energy Policy Strategy
o   Energy efficiency in buildings
o   The Covenant of Mayors

2. The GeoSmartCity Infrastructure

o   The GeoSmartCity Data Models
o   The GeoSmartCity Architecture
o   The GeoSmartCity Hub services
o   The GeoSmartCity Specialized services: Green Energy
o   The GeoSmartCity Specialized services: Underground
o   The GeoSmartCity Client functionalities
o   The GeoSmartCity Mobile Client and Crowdsourcing

3. The GeoSmartCity Pilots

o   The GeoSmartCity Pilot Applications

Common Metadata template

Structured in a clustering training perspective to allow interoperability of training modules within different project Training Frameworks.

Format

- Expected workload

Introduction to INSPIRE

Source

Earlier versions of this training module have been developed within the VESTA-GIS project in 2009 (http://www.vesta-gis.eu/), the Nature-SDIPlus project in 2010 (http://www.nature-sdi.eu/) and within the Educational Services Programme (EduServ) of EuroSDR in 2010 and 2011 (http://www.eurosdr.net).

Ownership

Author: Danny Vandenbroucke, KU Leuven. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).

Abstract

The INSPIRE initiative was initiated by the European Commission in 2001 to enhance the sharing of harmonized spatial data and services between public authorities in order to assist environmental policy-making and activities that may have a direct or indirect impact on the environment. The INSPIRE Directive entered into force in May 2007. Member States transposed the Directive into national legislation and started to implement INSPIRE components: setting-up a coordinating structure, harmonizing spatial data, developing network services to access the data, maintaining metadata for spatial data & services, and putting in place measures to improve data & service sharing.

This module deals with the main elements of the INSPIRE Directive: its context and background, the scope and major chapters of the Directive, an overview of the related implementing rules, the conformity of spatial data and services, and the potential for new innovative solutions based on INSPIRE. The module also pays attention to the relationship between INSPIRE and other Directives such as the Directive 2003/98/EC on the re-use of public sector information (PSI) and Directive 2003/4/EC on public access to environmental information. The training material consist of presentations, supporting documents and a weblecture. The module is a self-learning module.

Structure

This seminar contains the following parts:

1. The use of geographic information in work processes and policy making: key challenges
2. Spatial Data Infrastructures to facilitate access and sharing of data
3. Overview of the INSPIRE Directive
4. The Implementing Rules
5. The conformity of data and services
6. The potential for new innovative solutions

Learning outcomes

After the training offer, the participant will be able to summarize the major challenges for spatial data access and sharing; to understand and explain the concepts and main components of a Spatial Data Infrastructure; to define and summarise the main chapters of the INSPIRE Directive; to recognise and classify who is who in INSPIRE and its most important stakeholders; to define and discuss the different Implementing rules (metadata, data specifications, network services, data and service sharing, monitoring and reporting) and technical guidelines; to list and illustrate the most advanced SDIs in Europe and best practices; and to describe and discuss the major opportunities for different sectors to contribute to the development, maintenance and exploitation of INSPIRE.

Intended Audience

This seminar aims at professionals seeking for an overview of the INSPIRE initiative (e.g. managers of SME's and public bodies). Also unemployed people seeking new job opportunities.

Pre-requisites

No pre-requisites are required for this module.

Language

English

Format

PDF documents, presentations, Weblecture. The module is a self-learning module.

Expected workload

Expected workload is 4 hours.

Each Training Module must be detailed with metadata:

- Module name
- Source
- Ownership
- Abstract
- Structure
- Learning outcomes
- Intended audience
- Pre-requisites
- Language
- Format
- Expected workload

Introduction to INSPIRE

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E- learning Platform (www.gisig.eu/platform)

- Costitute the infrastructure(s) hosting the training modules and training material.

- Estabilished by widely diffused open source e-learning tools Moodle, the most popular open-source Learning Management System).

- Open to the project members and (open registration) to the users Communities.

- Once subscribed to the Module (or Modules), the user is redirected to an e-learning platform with personalized access.

- Decentralised: Training Material is hosted in different platforms.

- Training material developed on a variety of formats: Presentations with voice, screencasts, plain text lectures, exercises, etc.

- Allows monitoring the user progress and students/ teachers interaction.

Introduction to INSPIRE

Abstract

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Full course description

Access the training material:

The learning resources are sequenced into a learning path as follows.

Weblecture

Introduction to INSPIRE

Author: Danny Vandenbroucke (SADL/KU Leuven)
Run time: 130 minutes

Assignment

(optional)

Supporting material

Self Test

Self test

Self-learning material in different formats:

o Presentations
o Text Lectures
o Audio presentations
o WebLectures
o VideoLectures
o Exercises

Learning path

It defines the sequence of training modules to achieve the specified knowledge, skills and competences. For different stakeholders unique Learning Paths (Training Programmes) will be defined in GeoSmartCity project.

GeoSmartCity Training Package

It describes the training modules and **related learning paths**.

The main stakeholders of GeoSmartCity project were divided into three categories:

✓ managers (seniors, decision makers),
✓ professionals (developers, data providers, service providers) and
✓ end-users (administrative staff, NGOs, application website visitors etc.)

Managers

Level1: Background knowledge modules

Introduction to INSPIRE
Introduction to Linked Data
Basic of INSPIRE Data Specification
Basics of INSPIRE Network Services
Data Harmonisation
Procedures for Data and Metadata Harmonization
Example of Data Transformation
Metadata and Data validation for INSPIRE
GIS Introduction
Data Visualization & Cartography
Geo-Crowdsourcing: Open Street Map workflow
Urban drainage & sewerage
Operation And Maintenance Of Underground Assets
Water Supply System

Level 2 : GeoSmartCity Hub

The GeoSmartCity Architecture
GeoSmartCity Data Models
Hub services
Specialized services: Green Energy
Specialized services: Underground
Mobile and Crowdsourcin

Level 3:

The GeoSmartCity Pilots

Recommended Modules

Optional Modules

Professionals

Level1: Background knowledge modules

Introduction to INSPIRE

Introduction to Linked Data

Basic of INSPIRE Data Specification

Basics of INSPIRE Network Services

Data Harmonisation

Procedures for Data and Metadata Harmonization

Example of Data Transformation

Metadata and Data validation for INSPIRE

GIS Introduction

Data Visualization & Cartography

Geo-Crowdsourcing: Open Street Map workflow

Urban drainage & sewerage

Operation And Maintenance Of Underground Assets

Water Supply System

Level 2 : GeoSmartCity Hub

GeoSmartCity Data Models

The GeoSmartCity Architecture

Hub services

Specialized services: Green Energy

Specialized services: Underground

Mobile and Crowdsourcin

Level 3:

The GeoSmartCity Pilots

Recommended Modules

Optional Modules

This task consists also in the organisation of structured Training Actions (supported by the online GeoSmartCity Training Framework). These training actions will be organised in cooperation with the Project Partners in their respective countries and will be structured with training workshops followed by assisted self learning sessions and a training support forum at country level.

GeoSmartCity Training Framework

Open geo-data for innovative services and user applications towards Smart Cities

Smart City management requires integration of geographic data from many and heterogeneous sources, spanning from pan-European data sets (as the ones from the Public Sector Information and the INSPIRE Directives) to local data with "home-made" semantics. In order to analyse and visualize geographic information (GI) through these data sets, it is necessary to integrate the data in terms of formats, access protocols, transformation and coordinate reference system, data harmonization.

The ICT-PSP European project GeoSmartCity establishes a cross-platform, able to publish open GI and to provide specialized services based on open standards services protocols. Starting by the availability of the open GI through open standards, the platform gives the possibility to integrate them with other public/private data in order to design the specialized services needed to implement the two addressed Smart City scenarios: Green Energy and Underground.

The GeoSmartCity Training Framework is designed in order to make available existing knowledge and transfer the outcomes of the project towards the target groups of users. The Training Framework complements and support dissemination and exploitation, fostering Capacity Building.

Background Knowledge

TRAINING MODULES

Background Knowledge

The INSPIRE Directive and related technologies

- Introduction to INSPIRE
- Basic of INSPIRE Data Specification
- Basic of INSPIRE Network Services
- Data Harmonisation
- Procedure for Data and Metadata Harmonisation
- Examples of Data Transformation
- Metadata and Data validation for INSPIRE
- Introduction to Linked Data

GIS Technologies

- GIS Introduction
- Data visualization & Cartography
- Geo-Crowdsourcing: Open Street Map workflow

Thematic Knowledge: Underground Management

- Urban drainage & Sewerage
- Operation and Maintenance of Underground Assets
- Water Supply System
- Water and wastewater pollution characterization and sources
- General aspects of waste water treatment plant

Thematic Knowledge: Green Energy

- The European Energy Policy Strategy
- Energy efficiency in buildings
- The Covenant of Mayors

The INSPIRE Directive and related technologies

Introduction to INSPIRE
Deals with the main elements of the INSPIRE Directive: its context and background, the scope and major chapters of the Directive, an overview of the related implementing rules.

Basic of INSPIRE Data Specification
The module aims to teach the INSPIRE data specification development approach; it explains the standardized approach, the different interoperability components to be taken into account and how this was implemented in INSPIRE.

Basic of INSPIRE Network Services
The module introduces the concept of a Service Oriented Architecture (SOA). It describes and illustrates the 5 types of INSPIRE network services. It explains the link to existing standards of ISO and OGC (e.g. CSW) and also discusses the INSPIRE implementing rules that are applicable including conformity aspects.

Data Harmonisation
This module explains the basic concepts of data harmonisation in general and specifically schema translation.

Procedure for Data and Metadata Harmonisation
This Module explains how to transform heterogeneous source datasets and metadata according to the relevant INSPIRE target schemas.

Examples of Data Transformation
This module provides transformation examples of a source dataset into a dataset compliant to the INSPIRE Data Specifications.

Metadata and Data validation for INSPIRE
This module provides validation examples of datasets and metadata against the Requirements of the INSPIRE Data Specifications.

Introduction to Linked Data
The objective of this training module is to acquire know how on the basic concepts of Linked Data principle.

GeoSmartCity

GIS Technologies
GIS Introduction
Provides definition about what is a GIS, which are the key components of a GIS, which are the inputs of the system, and how important it is the role that geodata plays in the whole system.

Data Visualization & Cartography
The module is designed to explore the basics of cartography, learn how to build better maps and discover different types of data visualization according to new tendencies.

Geo-Crowdsourcing: Open Street Map workflow
The training module seeks to highlight the OSM wokflow: starting with the capture and acquisition of geographical information, to editing and publishing the data.

Thematic Knowledge: Underground Management
Urban Drainage & Sewerage
This course aims at providing an explanation of the elements and processes involved in the urban drainage systems and a recommendation of appropriate application.

Operation and Maintenance of Underground Assets
Deals with having an overall understanding of processes, activities and authorizations needed to intervene on the underground infrastructures.

Water Supply System
The learner will be provided with an understanding of the basic principles and knowledge of water supply system.

Water and Wastewater Pollution Characterization and Sources
The module provides an overview of the water pollution and its origins providing an introduction to water quality guidelines, regulations and performance criteria.

General Aspects of Waste Water Treatment Plant
This course is designed to offer an overview of the various treatment processes including physical, chemical and microbiological treatment of water and wastewater.

Thematic Knowledge: Green Energy
The European Energy Policy Strategy
The module traces the path of the European energy policy evolution, starting from the beginning of the common European energy policy (2005) to the present days, highlighting goals, challenges and critical issues.

Energy Efficiency in Buildings
Overview of the building energy performance assessment activity and its role into improving the global energy consumption into the building sector.

The Covenant of Mayors
To provide a general overview of the Covenant of Mayors initiative, its history and further evolution.

The GeoSmartCity Infrastructure

A set of Modules to transfer the technical results of the project and the Infrastructure:

- GeoSmartCity Data Models
- GeoSmartCity Architecture
- GeoSmartCity Hub services
- GeoSmartCity Specialized services: Green Energy Models
- GeoSmartCity Specialized services: Underground
- GeoSmartCity Client functionalities
- GeoSmartCity Mobile Client and Crowdsourcing

The GeoSmartCity Pilot

GeoSmartCity Pilot applications
A set of Modules to transfer the results of the GeoSmartCity Pilot applications.

UNDERGROUND SCENARIO:
Pilots of: Comarca of Pamplona (SP), Flanders Region (BE), Genova (IT), Oeiras (PT), Ruda Slaska (PL), South Moravia (CZ).

GREEN ENERFY SCENARIO:
Pilots of: Girona (ES), Maroussi (GR), Oeiras (PT), Reggio nell'Emilia (IT), Turku (FI).

The GeoSmartCity Infrastructure

- GeoSmartCity Data Models
- GeoSmartCity Architecture
- GeoSmartCity Hub services
- GeoSmartCity Specialized services: Green Energy Models
- GeoSmartCity Specialized services: Underground
- GeoSmartCity Client functionalities
- GeoSmartCity Mobile Client and Crowdsourcing

The GeoSmartCity Pilots

- GeoSmartCity Pilot Applications

PARTNERS

GISIG, Geographical Information Systems International Group – ITALY
IREN S.p.A. - Italy
SINERGIS s.r.l. - Italy
INTERGRAPH CS s.r.o. - Czech Republic
AVINET - Norway
EPSILON ITALIA s.r.l. - Italy
TRACASA - Spain
Comune di Genova - Italy
TICASS - Italy
TUAS - Finland
EPSILON International SA - Greece
VMM - Belgium
GEOBID sp.z - Poland
Universitat de Girona - Spain
Comune di Reggio nell'Emilia - Italy
Municipia - Portugal

More info at:
www.geosmartcity.eu

The final outcome of GeoSmartCity is a long-term sustainable open network of stakeholders.

All the interested stakeholders are very welcome to join the GeoSmartCity Community.

Adhesion to the GeoSmartCity Network

You will receive an inviation

All the participants in this workshop will be invited to register to the GeoSmartCity newsletter and to the training actions.

Thanks for your attention !