WELCOME

to the Workshop:

*The GeoSmartCity Hub: a data platform for supporting the operativeness of Smart Cities*

Giorgio Saio, GISIG

Objectives of the Association

A European Network for innovation and technology transfer in the GI sector and its application domains (territorial planning, water resources and utility networks, coastal management, nature conservation….) for:

- Sharing experience among universities, companies, National and local Bobies and users

- Promoting and developing projects of common interest, with particular reference to the EU programmes

Activity ⟹ EU Projects – Thematic Networks
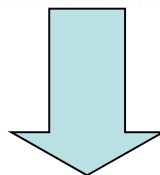
- ▪ Developed initiatives and EU projects, also with the promotion of thematic networks (participated by several organisations) such as:
    - o Water resources Management
    - o Coastal Management
    - o Nature Conservation
    - o ………

- ▪ Applications and technical solutions in line with the EU Directives for Geographic Information (INSPIRE, SEIS Communication for a Shared Environment Information System for Europe, etc.)

Our latest European projects

eENVplus	eENVplus	*eEnvironmental services for advanced applications within INSPIRE*
LIFE+IMAGINE	LIFE+IMAGINE	*Integrated Coastal Area Management Application Implementing GMES/Copernicus, INSPIRE and SEIS Data Policies*
LINKVIT	Linkvit	*Leveraging INspire Knowledge into Vocational Innovative Training*
i-locate	i-locate	*Indoor/outdoor location and asset management through open geodata*
giCASES	giCASES	*Creating a University-Enterprise Alliance for a Spatially Enabled Society*
GeoSmartCity	GeoSmartCity	*Open geo-data for innovative services and user applications towards Smart Cities*

GeoSmartCity

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

CIP ICT-PSP Project n. 621150

Start date 01-03-2014, duration 36 months

GeoSmartCity implements a platform to share and public geographical open data coming from different sources, such as Public Administrations, Multi-utilities, Companies and Crowd-sourcing.

The platform includes specialized web services to integrate public geographical data with other geo-refenced data (public or private) useful for the smart management of urban infrastructures and public services in the context of the **Smart City** initiative and the **Digital Agenda** for Europe.

Partnership

Objectives

- Support Cities to 'open' their data to professionals and citizens

- Establish a cross-platform, re-usable, able to publish open-(GI) data, in an urban context, but with a European dimension

- Provision of tools and facilities to integrate GI data/info with open data

- Framework and services to integrate proprietary/restricted data with open (GI) data of the City

Objectives vs Exploitation

- Open infrastructure to build new business model for PAs and SMEs

- PPP (Public Private Partnerships): collaborative management of Open(GI) data

- Integration of restricted data in a secure way
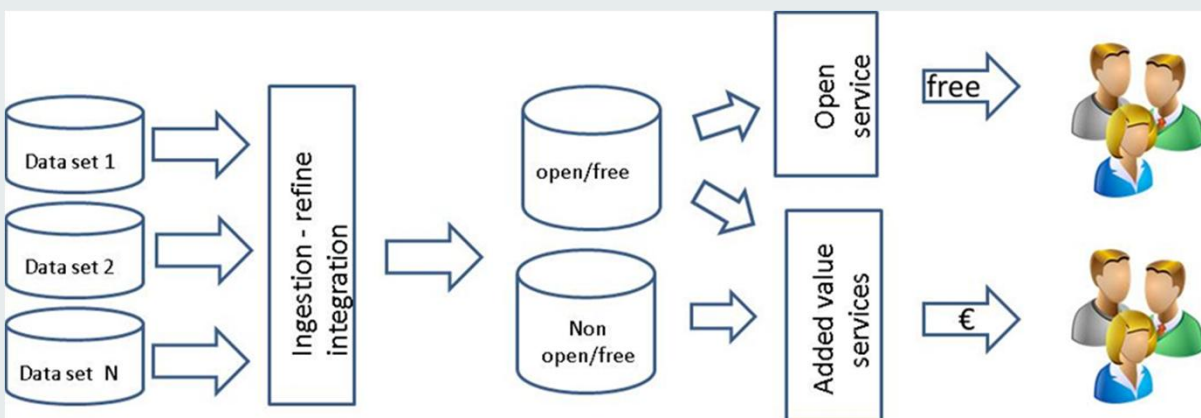
- Open infrastructure extandable to different SmartCity contexts

- Two application scenarios:

  ✓ Green Energy (5 pilot cases)
  ✓ Underground (6 pilot cases)

ICT Objectives
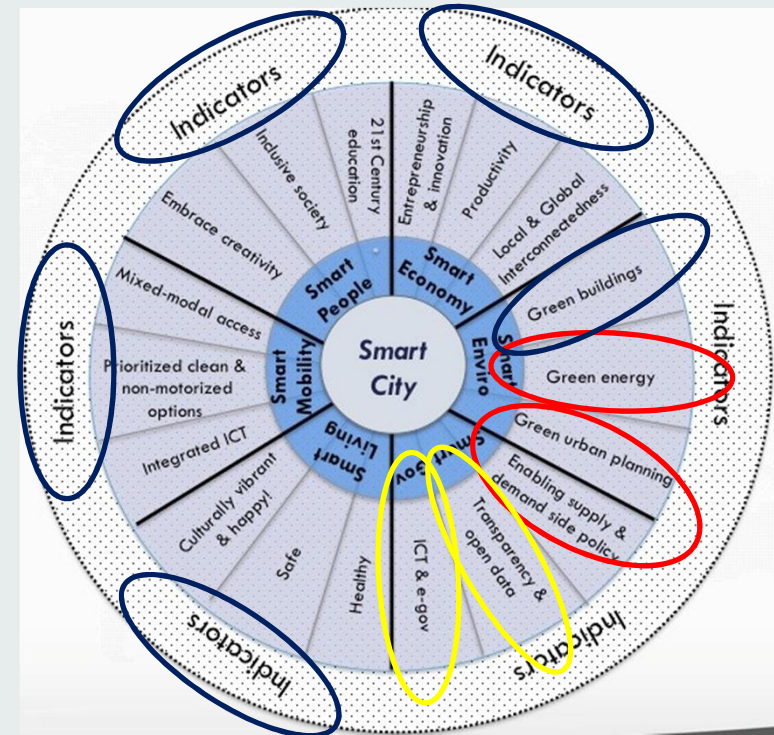
- Harmonised environment to integrate different operational protocols and standards, based on existing infrastructures
- Re-use of specialized services based on open standards
- Integration of new base/specialized services
- Ingestion and data integration engine composed by:
  - Harmonised data storage (based on GI standard, open data format)
  - a set of ingestion and data relation services:
    - Ingestion toolkit of GI data (open/restricted)
    - Ingestion toolkit of not-GI data (open/restricted)
    - Refine and reconcile toolkit to link and interconnect data
    - Crowd-sourcing base services based on location services

1. **GI Open Data Repository and Target Data Models**

   Open and proprietary datasets including geo-spatial information in an interoperable infrastructure based on open standards.

2. **GeoSmartCity Hub**

   A cross-platform, re-usable and open hub able to publish open geographic information and to provide specialised services based on open standards services.

3. **Innovative Services**

   Services platform to View, analyze, extract data from the GeoSmartCity OpenData Hub; Universal Discovery Services; BI and Geoprocessing service platform; Ingestion and data integration engine.
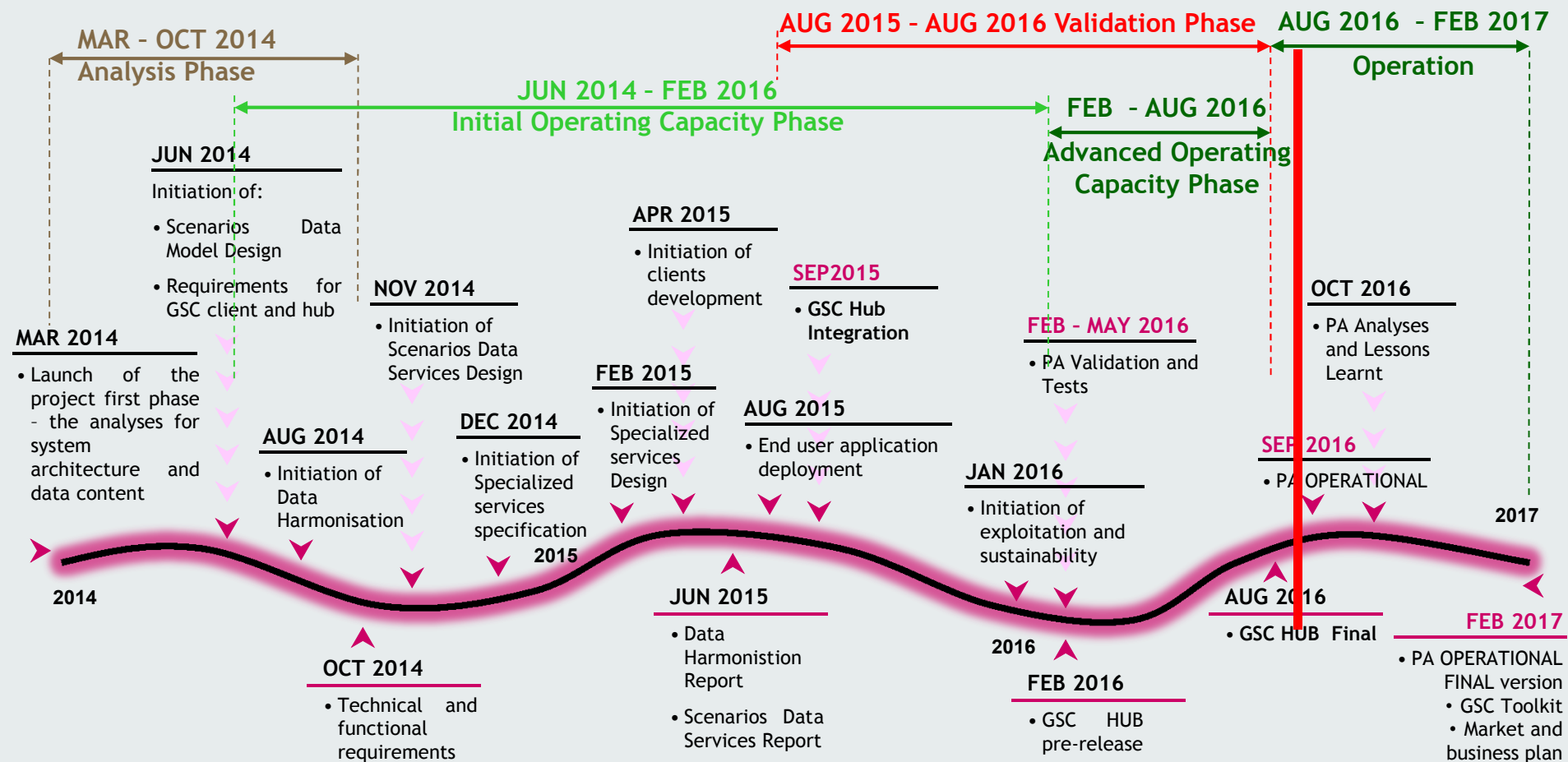
4. ***Green Energy Scenario***

    Operative and re-usable pilot cases to facilitate diffusion and management of renewable energy within cities.

5. ***Underground Scenario***

    Operative and re-usable pilot cases to support integrated management of underground utilities infrastructures

6. ***GeoSmartCity Training Framework***

    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

GeoSmartCity

MAR – OCT 2014 Analysis Phase

JUN 2014 – FEB 2016 Initial Operating Capacity Phase

AUG 2015 – AUG 2016 Validation Phase

AUG 2016 – FEB 2017 Operation

FEB – AUG 2016 Advanced Operating Capacity Phase

JUN 2014
Initiation of:
• Scenarios Data Model Design
• Requirements for GSC client and hub

MAR 2014
• Launch of the project first phase – the analyses for system architecture and data content

AUG 2014
• Initiation of Data Harmonisation

OCT 2014
• Technical and functional requirements

NOV 2014
• Initiation of Scenarios Data Services Design

DEC 2014
• Initiation of Specialized services specification

FEB 2015
• Initiation of Specialized services Design

APR 2015
• Initiation of clients development

JUN 2015
• Data Harmonistion Report
• Scenarios Data Services Report

AUG 2015
• End user application deployment

SEP2015
• GSC Hub Integration

FEB – MAY 2016
• PA Validation and Tests

JAN 2016
• Initiation of exploitation and sustainability

FEB 2016
• GSC HUB pre-release

AUG 2016
• GSC HUB Final

SEP 2016
• PA OPERATIONAL

OCT 2016
• PA Analyses and Lessons Learnt

FEB 2017
• PA OPERATIONAL FINAL version
• GSC Toolkit
• Market and business plan

2014 2015 2016 2017

City Pilots and Scenarios

Turku

South Moravian Region

Ruda Slaska (Katowice area)

Reggio nell'Emilia

Genova

Maroussi

Flanders Region

Comarca of Pamplona

Girona

Oeiras
Oeiras

UNDERGROUND - GREEN ENERGY

Green Energy Context

- "The Covenant of Mayors" to increase energy efficiency and use of renewable energy sources on their territories (> 6.000 signatories for over 190 Mln people).

- Sustainable Energy Action Plan (SEAP) ➜ CO2 reduction target by 2020

- Related information:
  - Buildings
  - Environmental info
  - Energy Infrastructure
  - Planning
  - Smart grids

What Is Green Building?

The 2020 climate and energy package:

- A 20% reduction in EU greenhouse gas emissions from 1990 levels;
- Raising the share of EU energy consumption produced from renewable resources to 20%;
- A 20% improvement in the EU's energy efficiency.

2030
FRAMEWORK for CLIMATE & ENERGY
#EU2030
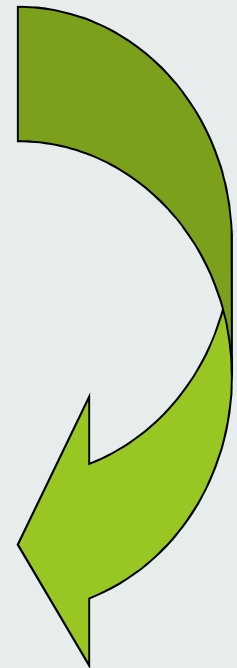
- ❑ *Reducing greenhouse gas emissions by at least 40%*
- ❑ *Increasing the share of renewable energy to at least 27%*
- ❑ *Increasing energy efficiency by at least 27%*

From: http://ec.europa.eu/clima/policies/2030/index_en.htm

Objectives:

➢ To provide the PAs with instruments for the definition and management of their "smart energy" policies

➢ Support the process of energy transition (traditional to renewable) and to provide the needed knowledge

➢ Demonstrate the importance of data integration to optimize and improve the use of energy resources: real time sensors (enviro/climate/energy consumption), smart metering, smart grid

➢ To activate and test, on real use cases with high added value, new public-private collaborations

➢ To create an environment which favours the economic development at territorial level by exploiting the opportunities from the energy transition and the ICT potentiality

5 pilot cases (IT, GR, PT, FI, ES)

Underground Context

- Different infrastructure under the same area
- Unconnected information for the management of assets and systems (damages during maintenance activities)
- Environmental ← impact → infrastructure
- Safety and security

Objectives: enforce the dialogue between utility companies and Public Administrations to improve the sharing of underground data and the data flow toward and from the Public Administration.

Benefits:

- access to updated data, to speed up the planning process, the development and the control of works

- Integration of underground data with territorial data to search for papelines located in risk zones (hydrogeologic, hydraulic, sysmic…) and that need a specific monitoring

- Availability of Apps and Augmented Reality in the daily management of utility networks and to optimize emergecy interventions

- Involvement of citizens which are asked to signal, through their smartphones, possible failures of the utility networks (crowd-sourcing)

6 pilot cases (ES, IT, PT, BE, CZ, PL)

Pilots

The potentiality of the GeoSmartCity toolkit is demonstrated through the development of 11 operative and re-usable pilot cases in the frame of the two scenarios Green-Energy and Underground.

Pilot cases **Green Energy**:
- Reggio nell'Emilia (IT)
- Maroussi (GR)
- Oeiras (PT)
- Turku (FI)
- Girona (ES)

Pilot cases **Underground**:
- Genova (IT)
- Comarca de Pamplona (ES)
- Oeiras (PT)
- Flanders region (BE)
- South Moravia Region (CZ)
- Ruda Slaska (PL)

Partners

SINERGIS

iren acqua gas

INTERGRAPH

Epsilon ITALIA

tracasa

LT CASS

Comune di Genova

Epsilon

Vmm
VLAAMSE MILIEUMAATSCHAPPIJ

Universitat de Girona

COMUNE DI REGGIO NELL'EMILIA

Municipia ENERGY

asplan viak internet

GEOBID

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GeoSmartCity

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

Project co-funded by the European Commission
CIP Pilot Actions
Grant Agreement No. 621150

www.geosmartcity.eu

GeoSmartCity website (www.geosmartcity.eu)

Among the features:

❑ A subscription mechanism has been set up to permit visitors to receive email newsletters on the status and progress of the project

❑ For each Pilot a dedicated section has been created

❑ A section will be dedicated to the GeoSmartCity Training Framework

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**

+ **Introduction to Linked Data**

The potentiality of GeoSmartCity is demonstrated through the development of 11 operative and re-usable pilot cases in the frame of the two scenarios: Green-Energy and Underground. Learn more

To facilitate the day-to-day operation and management of key municipal infrastructure sectors and public utilities activities. Learn more

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

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

Adhesion to the GeoSmartCity Network

You will receive an inviation.

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

See more in the next presentations...

- *The Geosmartcity scenarios (Maria Cabello – TRACASA)*
    - o *Green Energy*
    - o *Underground*
- *Using and extending INSPIRE data models (Giacomo Martirano – Epsilon Italia)*
- *The GeoSmartCity Services and the Hub (Tor Gunnar Øverli –AVINET)*
- *Round table and conclusions : the GeoSmartCity exploitation*

and in the Poster session...

- *Intelligent management of water resources. GeoSmartCity Project. (Juan-Luis Cardoso Santos)*
- *INSPIRE dataspecs for Utility Services as a base for a new Waste Water Information System in Flanders. (Katia Beringhs)*

Moreover we invite you to the sessions:

Monday, September 26, 2016 - 12:30

- *INSPIRE Training [I]*

Tuesday, September 27, 2016 - 12:30

- *INSPIRE Training [II]*

Tuesday, September 27, 2016 - 09:00

- *Interoperable data for environmental management and planning of coastal zone: the **LIFE+IMAGINE** experience*

Thanks for your attention!

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