



Overview

i-SCOPE project plans to develop and test technologies for the so-called smart cities services based on interoperable 3D Urban Information Models (UIMs). Indeed, the latest generation of UIMs created from accurate urban-scale geospatial information, can be used to create smart web services based on geometric, semantic, morphological and structural information at urban scale level, which can be used by local governments to:

- Improve decision-making on issues related to urban planning, city management, environmental protection and energy consumption based on urban pattern and its morphology.
- Promote inclusion among various users groups through services which account for barriers at city level.
- Involve citizens at wider scale by collecting geo-referenced information based on location based services at urban scale.

Furthermore, i-SCOPE aims at providing a significant contribution to standards in the domain of smart city services, through contribution to the extension and wider adoption of CityGML as a key enabling open standard for 3D smart city services. With specific regard to this, i-SCOPE has the following goals:

- Promoting establishment of a common "Urban Information Model" (UIM).
- Accelerate the uptake of CityGML as the reference standard to support simulation.
- Extending the core CityGML open standard.
- Promoting a number of awareness activities to accelerate the uptake of CityGML as the reference standard to support urban-scale smart services, sustainable planning and simulations.

Moreover, i-SCOPE will deliver an open platform on top of which to develop three 'smart city' services, which will improve:

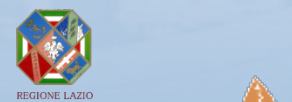
- Inclusion and personal mobility of aging and diversely able citizens.
- Optimization of energy consumption.
- Environmental monitoring.

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Fact & Figures

- i-SCOPE, interoperable Smart City services through an Open Platform for urban Ecosystems
- i-SCOPE is supported by the CIP / ICT Policy Support Programme Pilot Type B of the European Commission
- Framework: Competitiveness and Innovation Framework Programme
- ICT PSP Identifier: CIP-ICT-PSP-2011-5
- Objective Identifier 5.1: Open innovation for Internet-enabled services in «smart» cities
- Duration: 36 months
- Project Coordinator
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Project progress

The main goal achieved during the previous period is the harmonization and generation of cityGML for each pilot city. During the WP2 has been defined a methodology for the harmonization of raw dataset which will be used as input data for the cityGML generation services. These services take as input datasets available at the municipality level such as DTM, DSM and building footprint and produce as output a complete cityGML geometric model of building up to LOD2.

Following the work carried on during the reporting period within WP2, the main focus of the work has been the development and the deployment of the 3D city model generation services. The service purpose is to provide to pilot partners a web tool in order to generate the 3D buildings models starting from the WP2 harmonized data.

Furthermore, this period has been mainly oriented to the development phase, with the aim to release the first i-SCOPE prototype in line with the milestone fixed on month 25. Indeed in this date should start the trial and testing phase where the involved pilot partners will make the first tests and will provide the first feedbacks. So the activities of WP4 are therefore central in this phase.

The main activities performed are related to the setting-up and the deployment of the smart city services toolkit, in particular:

- Setting-up and deployment of the i-SCOPE 3D platform to provide access to the cityGML information.
- Implementation of disabled people routing algorithm.
- Development of the dialog interface between routing and semantic description.
- Definition and implementation of the solar potential services, including all components starting from the solar irradiation calculation to the graphical web interface.
- Definition of the crowd source noise mapping services.
- Development of web-based and mobile client.
- Starting of services integration.

One of the main activities was related to the visualization and interaction with 3D cityGML model through a web-application. The main achievement is the capability to visualize the pilot's 3D city model with very high performance using a java web-applet. This work is particularly challenging and complex, because the increasing on city model LoD decreases very much the rendering performance of the client.

Open Street Map

Technological changes over the past 10 years, in combination with increased bandwidth and the ability to provide better tools for collaboration, have led to “crowdsourcing”—a term developed from the concept of outsourcing in which business operations are transferred to remote, many times cheaper locations.

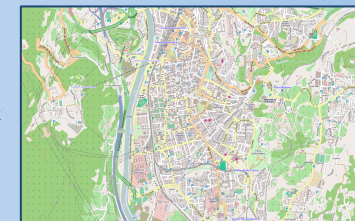
Open Street Map is a crowd source initiative to create and provide free geographic data, such as street maps, to anyone.

OSM follows the peer production model that created Wikipedia; its aim is to create a set of map data that's free to use, editable, and licensed under new copyright schemes.

OSM plays an important role within i-SCOPE project indeed thanks to its openness and the possibility to involve citizen into the data collection. OSM network has been selected as basis for the disabled people scenario.

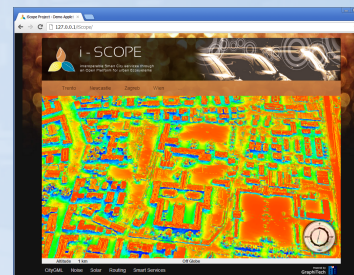
For more information:

http://wiki.openstreetmap.org/wiki/Main_Page



Grass r.sun

r.sun computes direct, diffuse and ground reflected solar irradiation raster maps for given day, latitude, surface and atmospheric conditions. Solar parameters (e.g. time of sunrise and sunset, declination, extraterrestrial irradiance, daylight length) are stored in the resultant maps' history files. Alternatively, the local time can be specified to compute solar incidence angle and/or irradiance raster maps. The shadowing effect of the topography is optionally incorporated. This can be done either by calculating the shadowing effect directly from the digital elevation model or using rasters of the horizon height which is much faster.



r.Sun is the engine at the basis of the i-SCOPE solar assessment services, indeed GRASS r.sun has been used to calculate the solar irradiation for each pilot.

The value estimated using r.sun has been then associated to each roof surface on cityGML model in order to assess the photovoltaic energy using a WPS services.

For more information:

http://grass.osgeo.org/grass65/manuals/r_sun.html

Key past events

The i-SCOPE project has been presented in various conferences and events during the second year of its lifetime:

- The presentation entitled "*Enhancing resilience of communities and territories through City GML: The i-SCOPE experience*" has been shown on 10 April 2013 at **Cen287 workshop "The impact of Standards on pan-European Geographic Information projects"** in Oslo (Norway).
- The paper on "*Using CityGML to deploy Smart-City services for urban ecosystems*" has been presented at **UDMS (Urban Data Management Society) conference**, held from 29-31 May 2013 in London (UK).
- The paper on "*Visualization and Analysis of CityGML Dataset within a Client Server Infrastructure*" has been presented as a poster at **18th International Conference on 3D Web Technology**, held from 20-22 June 2013 in San Sebastian (Spain).
- The i-SCOPE project has been presented at the **Biennale dello Spazio Pubblico** on 17 May 2013 in Rome (Italy).
- The **INSPIRE Conference 2013** took place from 23-27 June 2013 in Florence, (Italy). Fondazione GraphiTech organized a workshop entitled "*Enhancing resilience of communities and territories through smart technologies*", and presented the paper "*Application Domain Extensions definition for crowd source and Volunteer Geographic Information for smart-cities services deployment*". Moreover, Fondazione GraphiTech attended the workshop "*Europa Challenge: NASA World Wind Apps for INSPIRE*" and presented the "*Visual Analytics Tool for Urban Traffic Simulation*".
- **Noise Tube**, an app for measuring and monitoring ambient sound levels won the **2013 GeoSpatial Award** in the category "Most innovative project". The GeoSpatial Awards is an initiative of Flemish Association for Geographic Information Systems and AM7FM-GIS Belux.
- The i-SCOPE project has been presented at **Smart City Exhibition 2013**, held from 16-18 October 2013 in Bologna (Italy). Smart City Exhibition is the new exhibition arising from the partnership from FORUM PA and Bologna Fiere, with the aim of building sustainable and far-seeing politics, useful to satisfy citizens' needs.
- The i-SCOPE project has been presented at the **ICT 2013** conference and exhibition in Vilnius (Latvia), held from 6-8 November 2013.
- The first edition of **TEDxTrento**, with the focus on quality of life, has been organized on 23 November 2013 in Trento (Italy). The event was the occasion to present the achievements of the i-SCOPE project.



Project meetings



Belgrade meeting

This project meeting was held on 22 and 23 January 2013 in Belgrade (Serbia). During the meeting was presented the state of the art of the project activities. The work package leaders, task leaders, as well as project coordinator have presented the undertaken activities and the overall project progress.



2nd Review meeting

The second review meeting was held on 24 April 2013 in the premises of the European Commission, Communications Networks, Content and Technology Directorate-General - DG CONNECT, in Brussels (Belgium).

The day after, the Consortium met to discuss the results of the review meeting and for brainstorming about the future activities, as well as the remedial actions to be undertaken in order to solve the problems pointed out by the reviewers.



Trento project meeting

This project meeting was held from 25-27 September 2013 in Trento (Italy). During the meeting, the work package leaders, task leaders and the project coordinator have presented the state of the art of the project activities. The meeting was also the occasion to discuss about the future project activities.

Follow us!



i-SCOPE @ Web 2.0

i-SCOPE project is also promoted through several social networks including Facebook, LinkedIn, Twitter and YouTube. These can be accessed at the following addresses or through the QR codes next to each of the social network logo.

LinkedIn:

http://www.linkedin.com/groups/iscope4eu-4263048?trk=mvq_ugrp_ovr

Facebook:

<http://www.facebook.com/pages/iscope4eu/286235631430210>

YouTube:

<http://www.youtube.com/user/iscope4eu>

Twitter:

<https://twitter.com/iscope4eu>