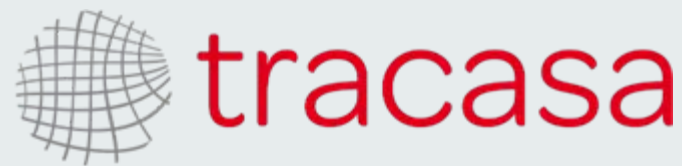


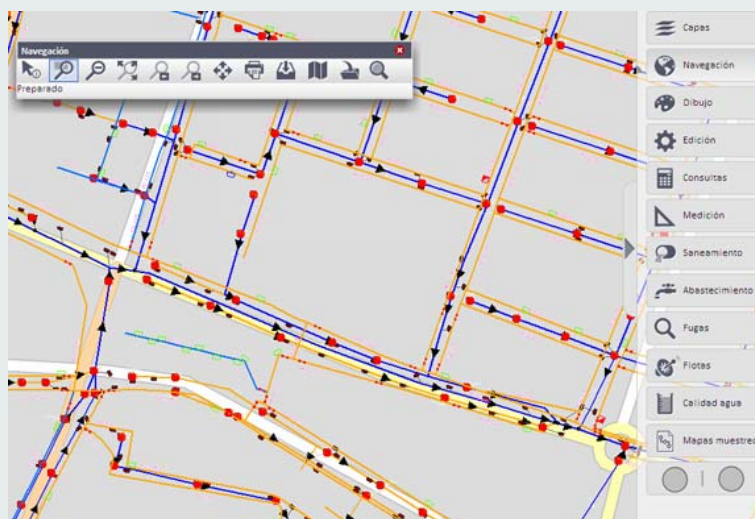
UNDERGROUND SCENARIO USE CASES AND REQUIREMENTS



Maria Cabello
mcabello@tracasa.es

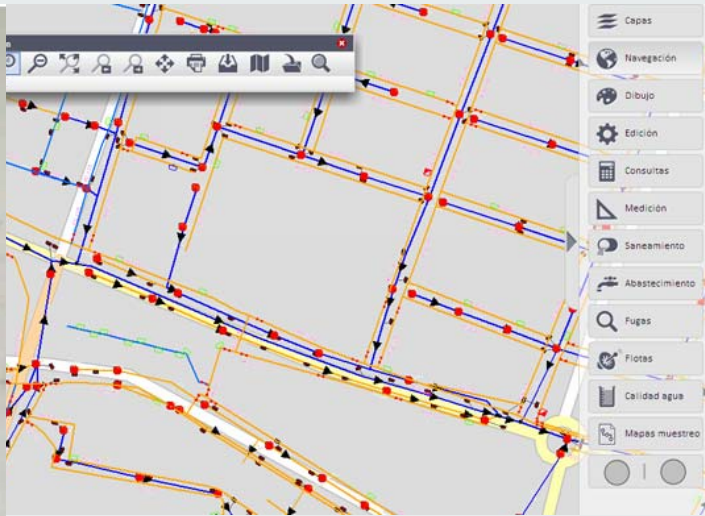
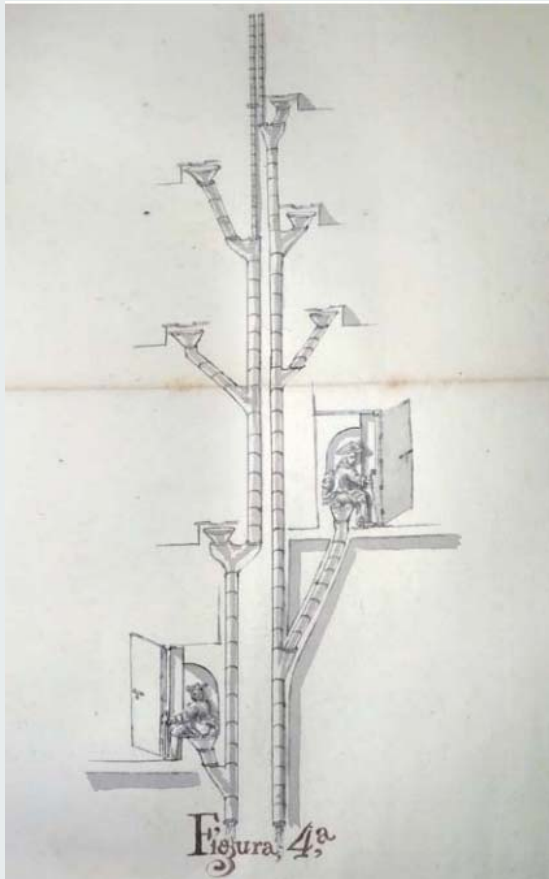


Underground scenario



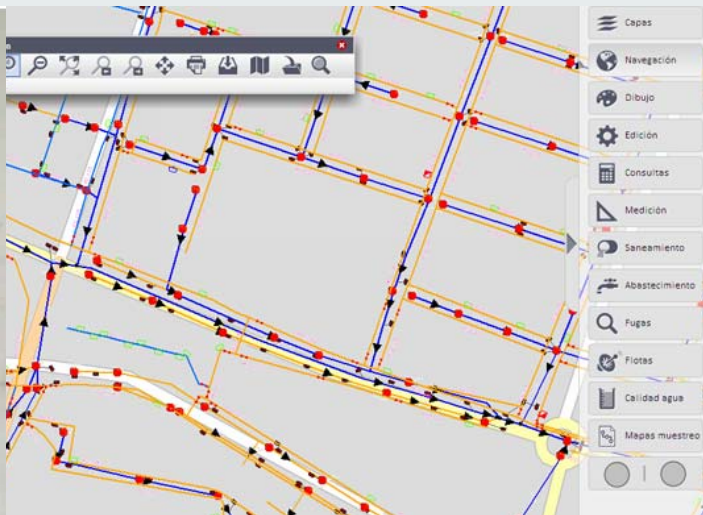
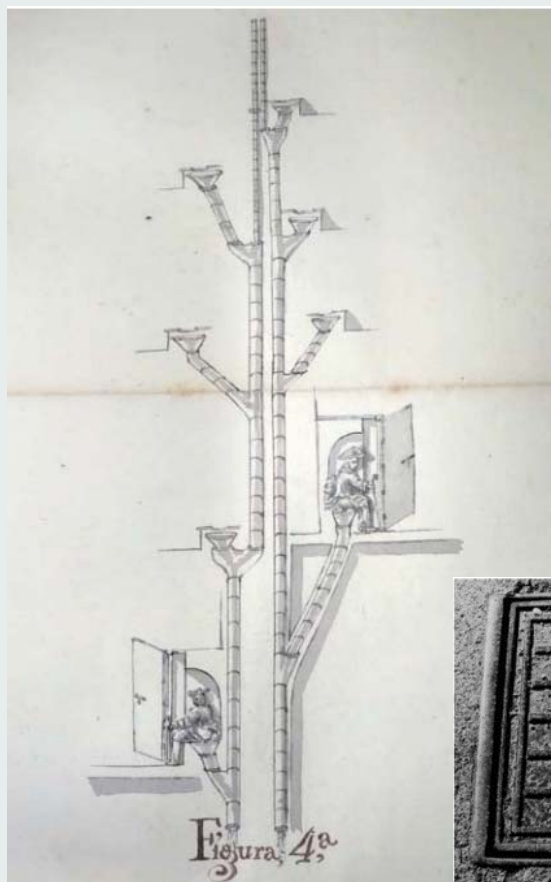


Underground scenario



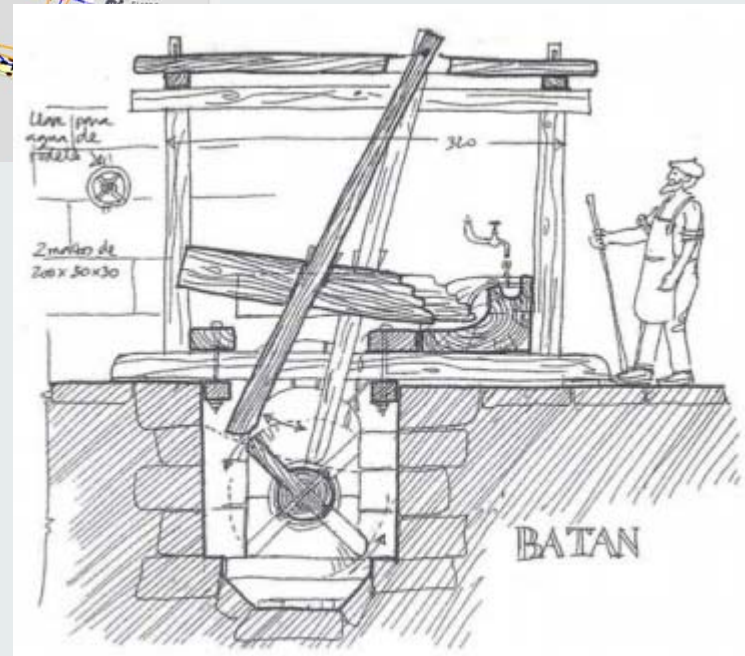
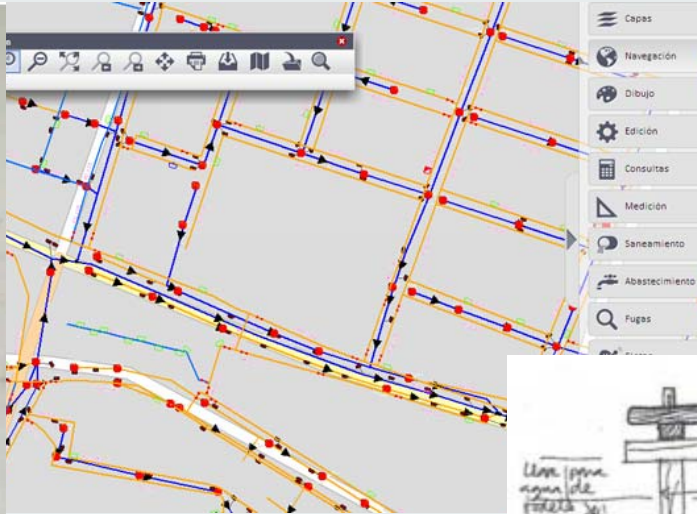
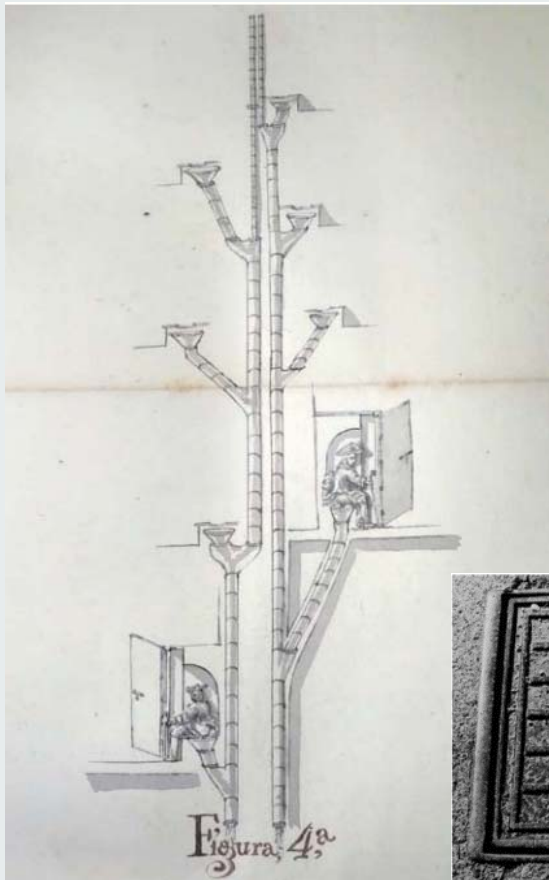


Underground scenario





Underground scenario



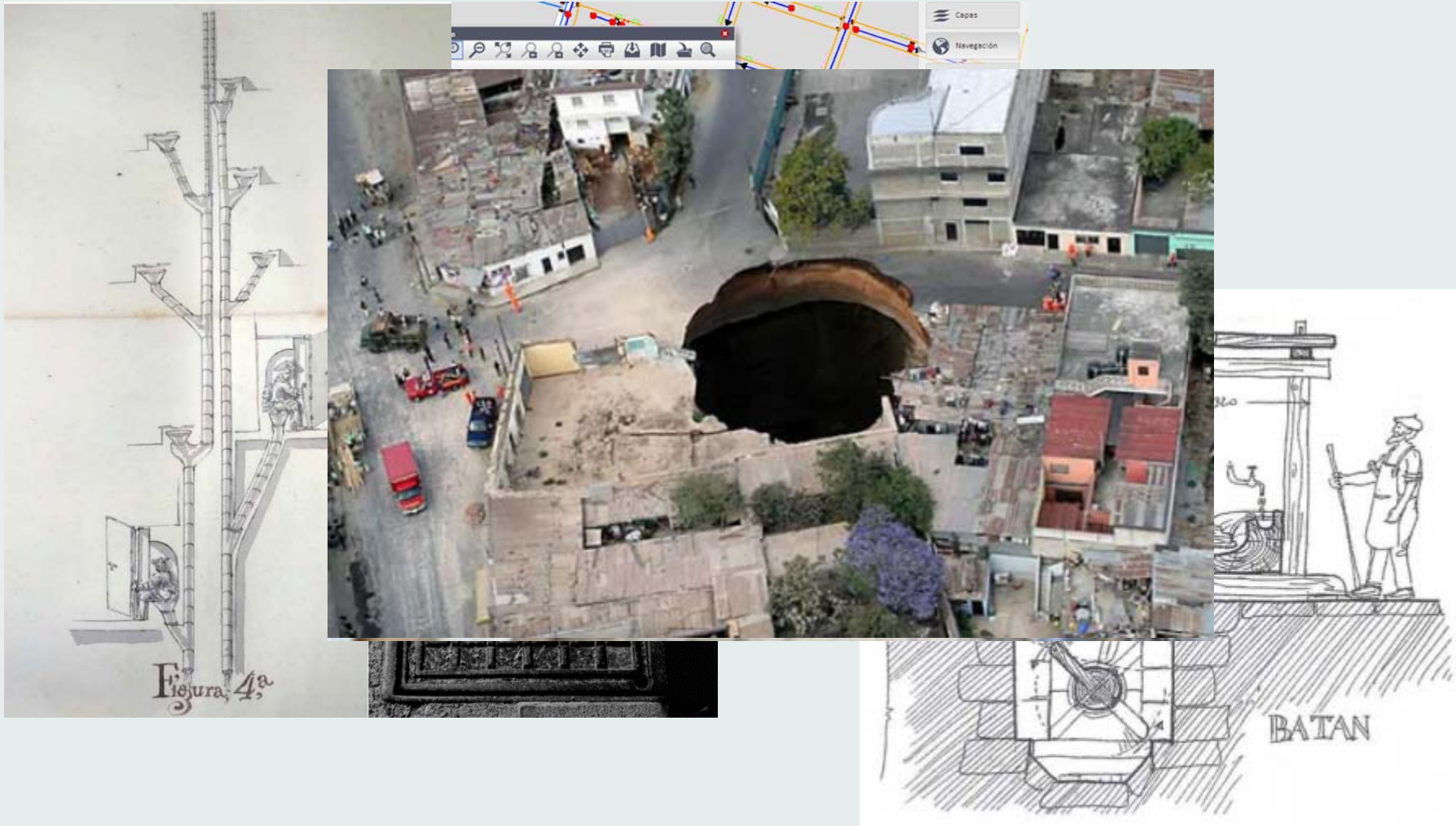


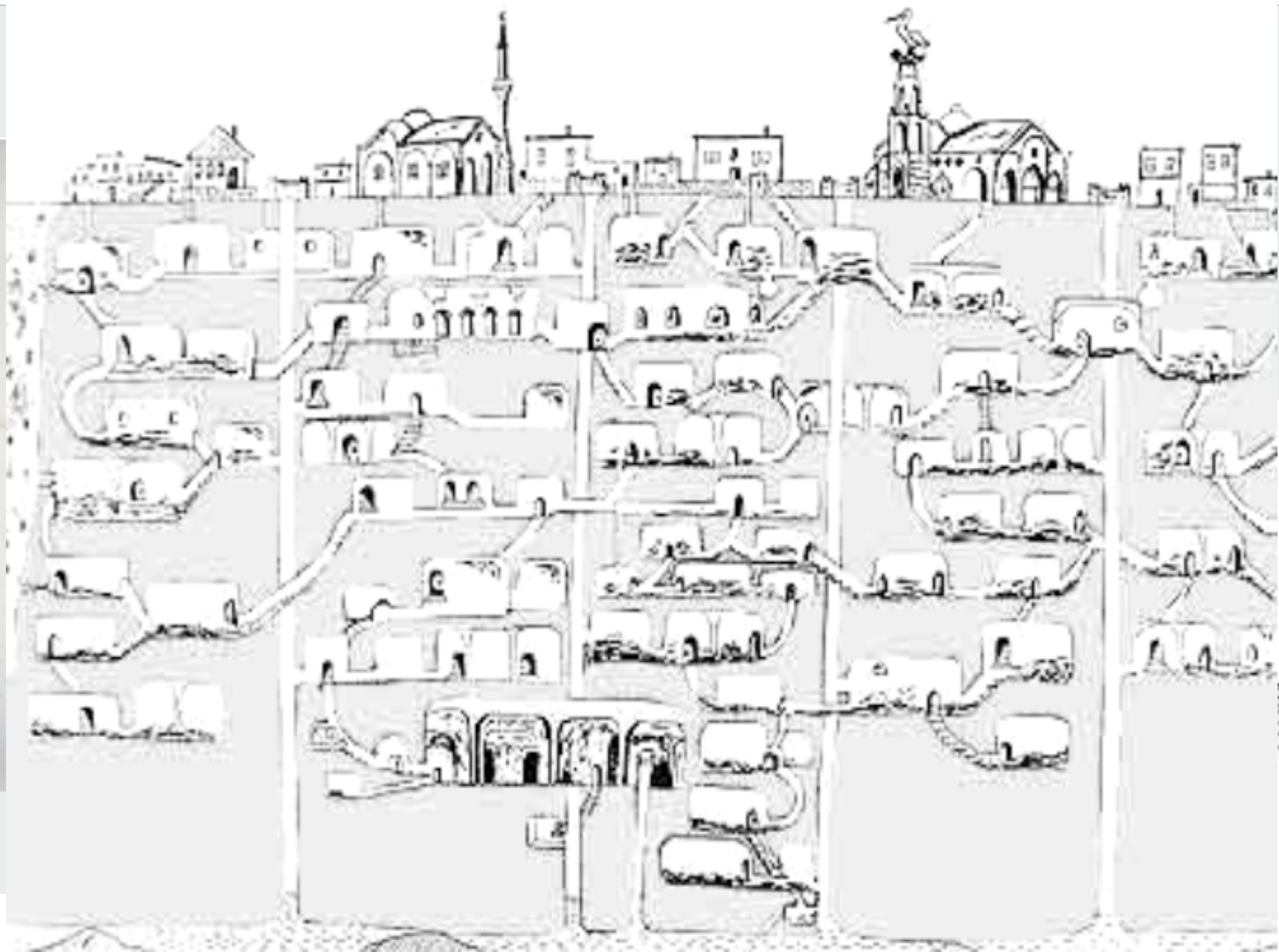
Underground scenario

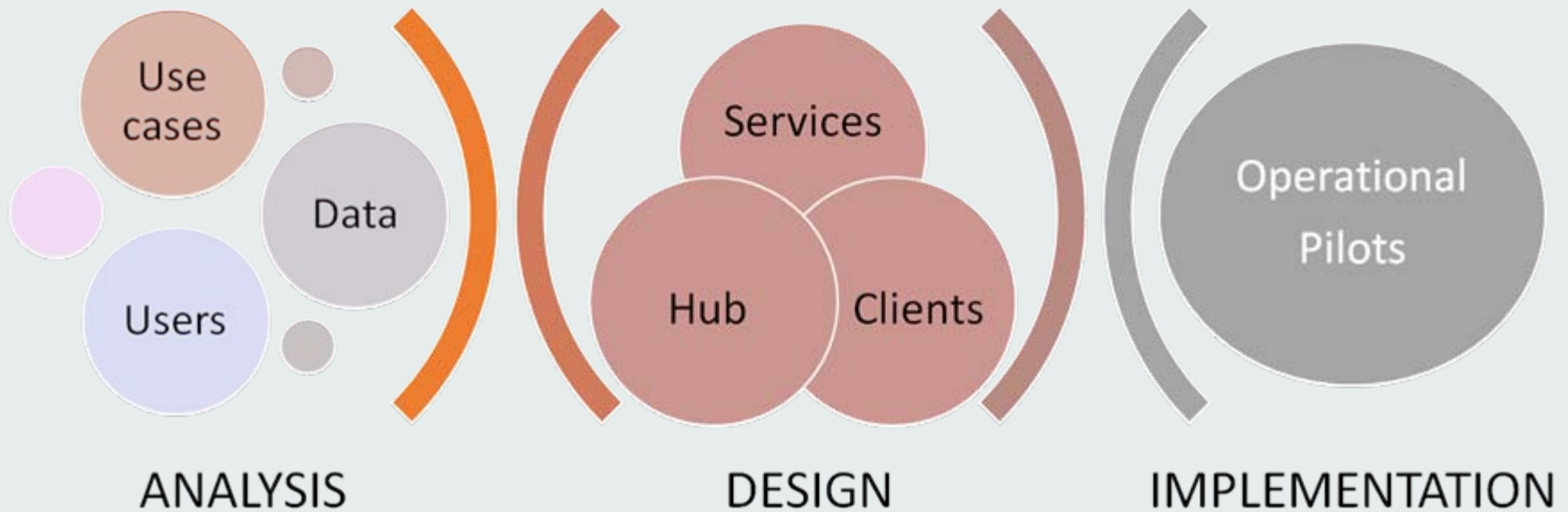


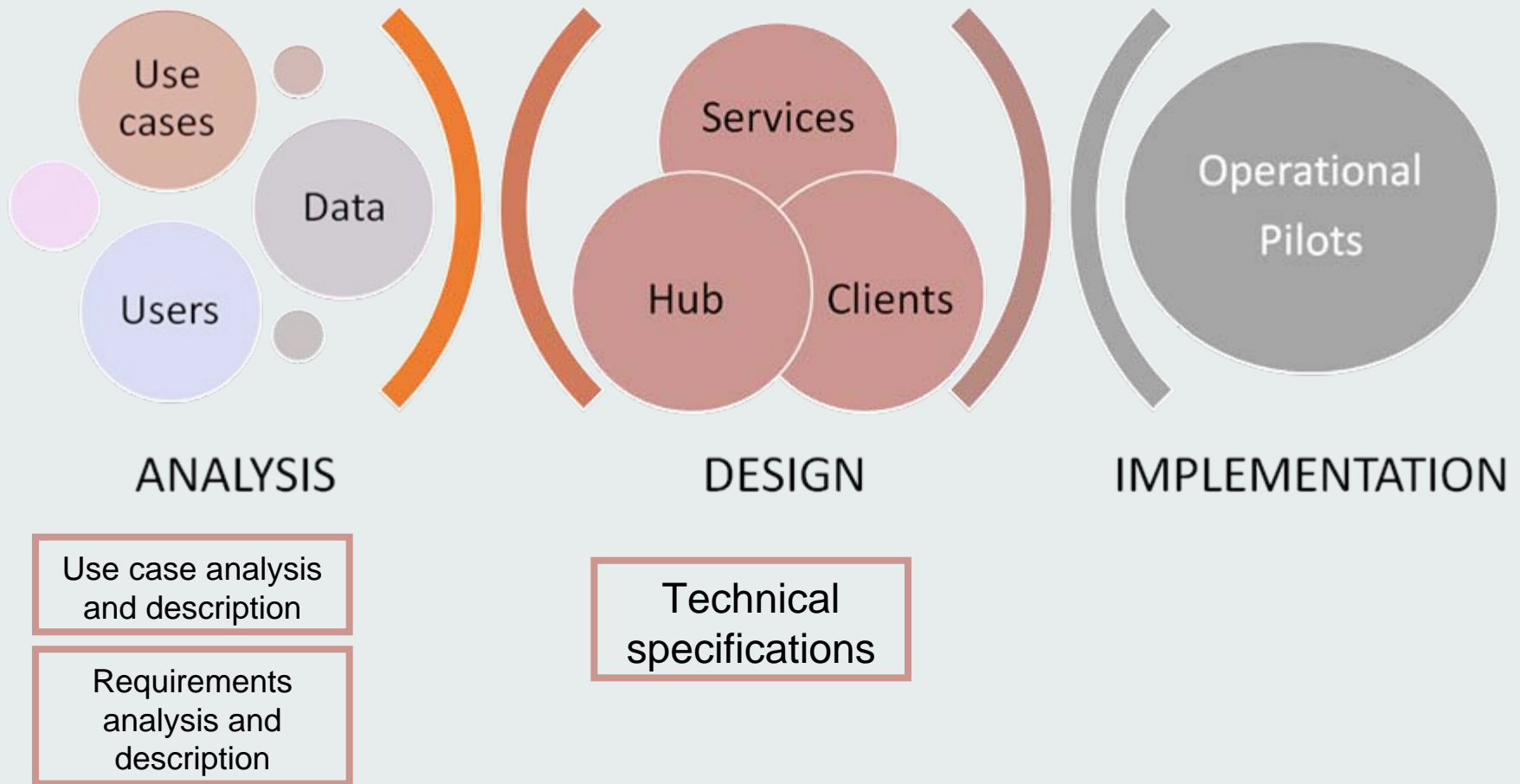


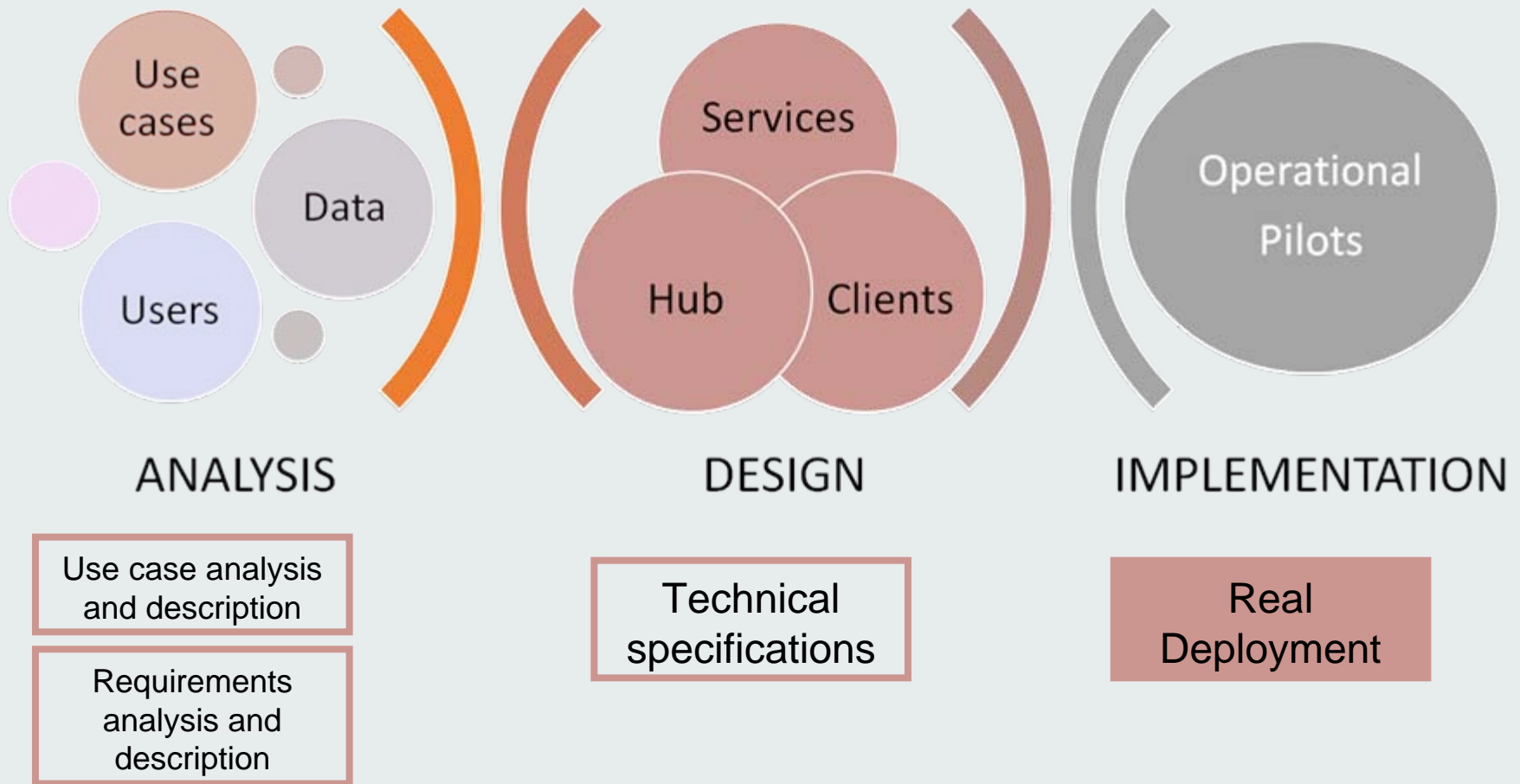
Underground scenario

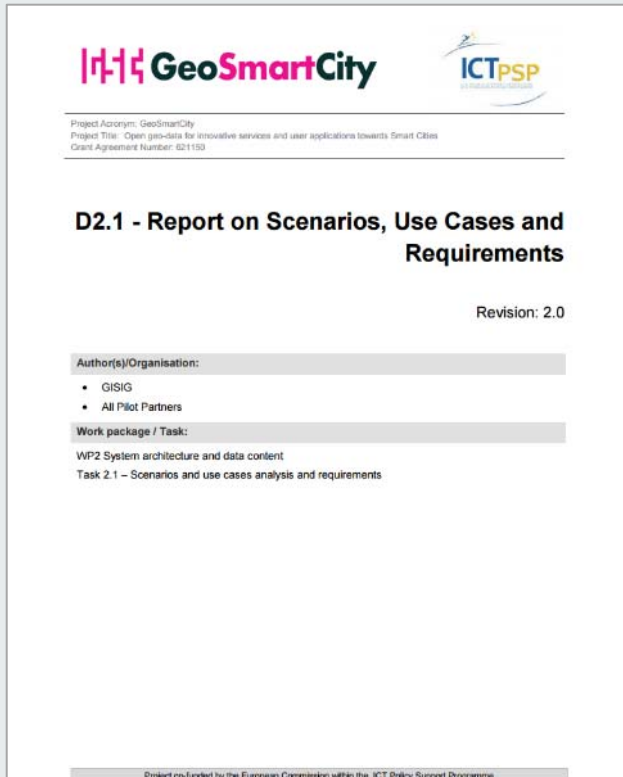












- Focus on Use Case analysis and description (and also early requirements collection)
- Introduces the methodology for the second step " Functional Requirements analysis
- Based on a common use cases definition

Pilots are not immutable, some use case have been refined or better described the during technical specification phase

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Task 2.1 - Scenarios and use cases analysis and requirements

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GSC - WP2
June 13, 2014

This is a repository of use-cases for the task 2.1.

- ☐ Pilot01: Girona - Scenario: Green Energy
- ☐ Pilot02: Reggio nell'Emilia - Scenario: Green Energy
- ☐ Pilot03: Maroussi - Scenario: Green Energy
- ☐ Pilot04: Oeiras - Scenario: Green Energy
- ☐ Pilot05: Turku - Scenario: Green Energy
- ☐ Pilot06: Comarca of Pamplona - Scenario: Underground
- ☐ Pilot07: Genova - Scenario: Underground
- ☐ Pilot08: Oeiras - Scenario: Underground
- ☐ Pilot09: South Moravian Region - Scenario: Underground
- ☐ Pilot10: Ruda Śląska (Katowice area) - Scenario: Underground
- ☐ Pilot11: Flanders region - Scenario: Underground

Files

- [GeoSmartCity_Use-Cases_03_GISIG.doc](#) - Use Cases document Genova - draft version (345 KB) Silvia Gorni, June 13, 2014 07:14 PM
- [GeoSmartCity_Use-Cases_VMM.doc](#) - Use Cases document Flanders - draft version (185 KB) Silvia Gorni, June 13, 2014 07:22 PM
- [GeoSmartCity_Use-Cases_2014_06_04.doc](#) - Use Cases document Reggio Emilia - draft version (133 KB) Silvia Gorni, June 13, 2014 07:28 PM
- [GeoSmartCity_Use-Cases_eps.doc](#) - Use Cases document Maroussi - draft version (116 KB) Silvia Gorni, June 13, 2014 07:37 PM
- [UC-GSCP04-01 - Oeiras_Urban Sustainable Planning Tool.doc](#) - Use Cases document Oeiras Green Energy - draft version (368 KB) Nelson Mileu, June 19, 2014 05:50 PM
- [UC-GSCP04-02 - Oeiras_EventManagementUnderground.doc](#) - Use Cases document Oeiras Underground - draft version (230 KB) Nelson Mileu, June 19, 2014 05:55 PM
- [GeoSmartCity_Use-Cases_Underground_INGR_DRAFT.pdf](#) - Use Case Document South Moravia - draft version (205 KB) Roman Szturc, June 23, 2014 06:16 PM
- [GeoSmartCity_Use-Cases_SIGTE_v2.docx](#) - Use cases document Girona - draft version (48.8 KB) Rosa Olivella, July 03, 2014 11:36 AM
- [GeoSmartCity - Ruda ?l?ska 29_07.pdf](#) - Use cases document Ruda ?l?ska (196 KB) Adam Kaput, July 29, 2014 07:41 PM
- [GeoSmartCity_Use-Cases_Underground_INGR_South Moravian Region_Final.doc](#) - Use Case Document South Moravia - final version (235 KB) Silvia Gorni, July 30, 2014 12:44 PM
- [GeoSmartCity_Use-Cases_SIGTE_v3.docx](#) - Use cases document Girona - draft version (24.3 KB) Rosa Olivella, July 31, 2014 03:18 PM
- [GeoSmartCity_Use-Cases_07_TRACASA_v2.doc](#) - Use Cases document Pamplona - draft version (531 KB) Silvia Gorni, July 31, 2014 04:25 PM

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Task 2.1 - Scenarios and use cases anal

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This is a repository of use-cases for the task 2.1.

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- Pilot04: Oeiras - Scenario: Green Energy
- Pilot05: Turku - Scenario: Green Energy
- Pilot06: Comarca of Pamplona - Scenario: Underground
- Pilot07: Genova - Scenario: Underground
- Pilot08: Oeiras - Scenario: Underground
- Pilot09: South Moravian Region - Scenario: Underground
- Pilot10: Ruda Slaska (Katowice area) - Scenario: Underground
- Pilot11: Flanders region - Scenario: Underground

Files

- GeoSmartCity_Use-Cases_03_GISIG.doc - Use Cases
- GeoSmartCity_Use-Cases_VMM.doc - Use Cases
- GeoSmartCity_Use-Cases_2014_06_04.doc - Use Cases
- GeoSmartCity_Use-Cases_eps.doc - Use Cases
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- 2014 05:50 PM
- UC-GSCP04-02 - Oeiras_EventManagementUnderground
- 2014 05:55 PM
- GeoSmartCity_Use-Cases_Underground_INGR_DR
- PM
- GeoSmartCity_Use-Cases_SIGTE_v2.docx - Use Cases
- GeoSmartCity - Ruda Slaska 29_07.pdf - Use Cases
- GeoSmartCity_Use-Cases_Underground_INGR_So
- Gorni, July 30, 2014 12:44 PM
- GeoSmartCity_Use-Cases_SIGTE_v3.docx - Use Cases
- GeoSmartCity_Use-Cases_07_TRACASA_v2.doc - Use Cases

GeoSmartCity

Initial-conditions¶

List the conditions/constraints which need to be taken into account during the execution of the use case. For example the actor has to download an application for running the system locally or some configurations have to be done prior to executing the use case, etc.¶

Example:¶

- The user must be logged¶
- Data is available and published via OGC-services. ¶
- Data should be harmonized in. ¶
- The user must approve license-conditions first¶
- ...¶

Main-process¶

Simply imagine the operation of the system and document the steps in using it. Be short and concise in describing the interactions between the system and its external actors, related to a particular goal.¶

Describe the consecutive steps (Flow of Events) during the main process of the use case in the following form: ACTOR does something.¶

Example:¶

1. → The PLANNER and/or the RESEARCHER logs in into the SYSTEM¶
2. → The SYSTEM provides. ¶
3. → The USER can make a choice between...¶
4. → The USER selects...¶
5. → The SYSTEM returns...¶
6. → ...¶

Alternative-process (Optional)¶

Description of the consecutive steps in an alternative process.¶

Example:¶

- Instead the steps K to Y, A to D can be chosen¶

Exceptional-Situations (Optional)¶

Description of exceptional situations which can occur during the execution of the use case including the step in which the situation can occur and the handling of the exception by the SYSTEM¶

Example:¶

- Main process step 5: Online connection to web-service not available¶
- SYSTEM displays error message¶

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GeoSmartCity

Use-case: main user/functional requirements¶

Based on the workflow detailed before (Main process), here we ask you to list all functions that the GeoSmartCity system is supposed to accomplish to fulfil the objective of your use-case.¶

Example:¶

- The GeoSmartCity.Hub should handle and process the...¶
- The GeoSmartCity.mobile-client should be able to...¶
- ...¶

Final-results¶

Description of results of the use-case execution, e.g. generated datasets (persistent or not, form of data set, e.g. file, report, database) or a certain state of the system.¶

Example:¶

- Geo data in different layers are available to planners and professionals for browsing and analysis...¶
- WMS and/or WFS can be integrated into a Desktop GIS¶
- ...¶

UML-Activity-diagram (Optional)¶

Activity diagrams are graphical representations of step-by-step workflows of activities and actions.¶

There are some good free open source UML tools you can choose.¶

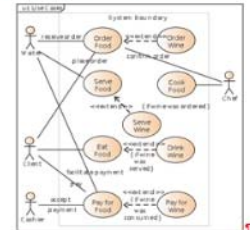


Figure 1: Use Case "XXXXXX" UML diagram¶

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Requirements collection per Pilot

- Excel table for requirements collection

Requirements analysis per Pilot

Pilot	Scenario	AVINET Requirements template	Requirements online form/spreadsheet	Partner
Pilot01 Reggio nell'Emilia	Green Energy	User Requirements Analysis	Requirements table	CRE - SINERGIS s.r.l.
Pilot02 Maroussi	Green Energy	User Requirements Analysis	Requirements table	EPSILON INTERNATIONAL
Pilot03 Oeiras	Green Energy	User Requirements Analysis	Requirements table	MUNICIPIA
Pilot04 Turku	Green Energy	User Requirements Analysis	see the Turku requirements table	TUAS
Pilot05 Girona	Green Energy	See Requirements table	Requirements table	UdG
Pilot06 Comarca of Pamplona	Underground	User Requirements Analysis	see Pamplona Use Case description	TRACASA
Pilot07 Genova	Underground	See Requirements table	Requirements table	TICASS - CDG - GISIG
Pilot08 Oeiras	Underground	User Requirements Analysis	Requirements table	MUNICIPIA
Pilot09 Flanders region	Underground	User Requirements Analysis	Requirements table	VMM
Pilot10 South Moravian Region	Underground	User Requirements Analysis	Requirements table	INTERGRAPH CS - SRO
Pilot11 Ruda Slaska (Katowice area)	Underground	User Requirements Analysis	Requirements table	GEOBID

Files

- GeoSmartCity_UserRequirements_Analysis_EPS.docx - EPSILON (15.8 KB) [Download](#) Silvia Gorni, September 11, 2014 03:20 PM
- GeoSmartCityUserRequirementsAnalysis_VMM_v10.09.2014.docx - VMM (367 KB) [Download](#) Silvia Gorni, September 11, 2014 03:20 PM
- GeoSmartCity_UserRequirements_Analysis.docx - template user requirements (13.7 KB) [Download](#) Silvia Gorni, September 11, 2014 05:40 PM
- GSC_2014-05-16.pptx - Sinergis presentation sw components (379 KB) [Download](#) Roderic Molina, September 11, 2014 07:51 PM
- GeoSmartCity_UserRequirements_Analysis_REGGIO.docx (25.8 KB) [Download](#) Stefano Pezzi, September 14, 2014 02:48 PM
- GeoSmartCity_UserRequirements_Analysis_TURKUL.docx (25.1 KB) [Download](#) Stefano Pezzi, September 14, 2014 02:48 PM

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Requirements collection per

☐ Excel table for requirements

Requirements analysis per P

Pilot

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Pilot02 Maroussi

Pilot03 Oeiras

Pilot04 Turku

Pilot05 Girona

Pilot06 Comarca de Pamplona

Pilot07 Genova

Pilot08 Oeiras

Pilot09 Flanders region

Pilot10 South Moravian Region

Pilot11 Ruda Slaska (Katowice)

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GeoSmartCity_UserRequirements

GeoSmartCity_UserRequirements

	A	B	C	D	E	F	G	H	I
	Scenario	Pilot	Requirement name	Requirement description	Comments	Use Case	Class	Category	Requirement Type
42	Underground	Genova	GPS Position	The mobile client should feature GPS positioning		UC-GSCP07-02, UC-GSCP07-03	Generic	Functional Requirement	Hardware / Software
43	Underground	Genova	Augmented Reality	The mobile client application should feature an Augmented reality module able to represent lines and 3D objects (pipes) in depth. The User should be able to switch from 2D map representation to AR visualisation and viceversa by tapping a button in both visualisation modes. In the map view, if no AR view is available in the surroundings of the user, the button will not be activated. (Sort of Peoman in G. Street view).		UC-GSCP07-02, UC-GSCP07-03	Application specific	Functional Requirement	Hardware / Software
44	Underground	Genova	From 2D to AR	Underground network data should have data related to the depth of the pipes for a 3D representation.		UC-GSCP07-02, UC-GSCP07-03	Application specific	Non Functional Requirement	Hardware / Software
45	Underground	Genova	Depth of pipes	Connection of the Monic@ system to the CRRS in a web and mobile client environment (for control and inspection operations).	Both apps (CRRS and Monic@) are existing client apps developed by the Genova Municipality. These integration is not related to any GSC foreseen activity	UC-GSCP07-02, UC-GSCP07-03	Application specific	Functional Requirement	Data / Metadata
46	Underground	Genova	Client features	The client should have a number of features -legend and layer switcher (including a number of wms/wfs datasets of underground networks, base layers and Environmental Hazard layers) -layers transparency -measuring tools -others to be defined		All	Generic	Functional Requirement	Hardware / Software
47	Underground	Genova	Optimisation for tablets	The mobile client application should be optimized for 10inches tablets.		UC-GSCP07-02, UC-GSCP07-03	Application specific	Functional Requirement	Hardware / Software
48	Underground	Genova	Connection to GNSS Surveying System	The mobile client should be connected to a GNSS device (Trimble Geo 7 series centimetre accuracy) to provide automatic access to collected data and precise positioning of the user.		UC-GSCP07-03	Application specific	Functional Requirement	Hardware / Software
49	Underground	Genova	Intersection between Underground Network and Environmental Hazard	The SYSTEM should feature a service to intersect Underground Utility Network layers and Environmental Hazard layers. Intersections between hazard zones and presence of networks are highlighted, in case with a buffer zone. The result should be a map of the sections of networks affected.		UC-GSCP07-04	Application specific	Functional Requirement	Services
50	Underground	South Moravian region	Crowd sourcing	Take a picture, determine local position, user comment and send it to appropriate service.		UC-GSCP09-01	Generic	Functional Requirement	Services
51	Underground	South Moravian region	AR	Read data from dedicated WFS and display them in AR environment.	Optionally, instead of forms we could provide for each attribute some pictures to make it more user intuitive (for example when they select number of inhabitants, they could select between pictures of 1-2-3 etc. people)	UC-GSCP09-01	Application specific	Functional Requirement	Data / Metadata
52	Green Energy	Maroussi	Data query and edition	The client should permit polygon selection and attributes viewing for that polygon. The client should feature forms to add attributes. The forms are needed both in the web and mobile clients to fill in the attributes needed.					
53	Green Energy	Maroussi	Multi language	The client interface should be available in english and greek.	Moreover, if you think it is possible, we could make available an action for using				
54									

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Excel table for requirements

Requirements analysis per Pilot

	A	B	C	D	E
	Scenario	Pilot	Requirement name	Requirement description	Comments
42	Underground	Genova	GPS Position	The mobile client should feature GPS positioning	
43	Underground	Genova	Augmented Reality	The mobile client application should feature an Augmented reality module able to represent lines and 3D objects (pipes) in depth	
44	Underground	Genova	From 2D to AR	The User should be able to switch from 2D map representation to AR visualisation and viceversa by tapping a button in both visualisation modes. In the map view, if no AR view is available in the surroundings of the user, the button will not be activated. (Sort of Peoman in G. Street view)	
45	Underground	Genova	Depth of pipes	Underground network data should have data related to the depth of the pipes for a 3D representation.	
46	Underground	Genova	Connection of the Monic@ system to the CRRS	Connection of the Monic@ system to the CRRS in a web and mobile client environment (for control and inspection operations).	Both apps (CRRS and Monic@) are existing client apps developed by the Genova Municipality. These integration not related to any GSC foreseen activity
47	Underground	Genova	Client features	The client should have a number of features -legend and layer switcher (including a number of wms/wfs datasets of underground networks, base layers and Environmental Hazard layers) -layers transparency -measuring tools -others to be defined	
48	Underground	Genova	Optimisation for tablets	The mobile client application should be optimized for 10inches tablets.	
49	Underground	Genova	Connection to GNSS Surveying System	The mobile client should be connected to a GNSS device (Trimble Geo 7 series centimetre accuracy) to provide automatic access to collected data and precise positioning of the user.	
50	Underground	Genova	Intersection between Underground Network and Environmental Hazard	The SYSTEM should feature a service to intersect Underground Utility Network layers and Environmental Hazard layers. Intersections between hazard zones and presence of networks are highlighted, in case with a buffer zone. The result should be a map of the sections of networks affected.	
51	Underground	South Moravian region	Crowd sourcing	Take a picture, determine local position, user comment and send it to appropriate service.	
52	Underground	South Moravian region	AR	Read data from dedicated WFS and display them in AR environment.	Optionally, instead of forms we could provide for each attribute some picture make it more user intuitive (for example when they select number of inhabitants, they could select between pictures of 1-2-3 etc. people)
53	Green Energy	Maroussi	Data query and edition	The client should permit polygon selection and attributes viewing for that polygon. The client should feature forms to add attributes. The forms are needed both in the web and mobile clients to fill in the attributes needed.	
54	Green Energy	Maroussi	Multi language	The client interface should be available in english and greek.	Moreover, if you think it is possible, we could make available an action for using

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Requirement module

Class

☐ Generic

☐ Application specific

Scenario

Pilot

Use Case

Requirement name

Category

Requirement Type

Non-functional

Client

Priority

Requirement description

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 Pilot03 Oeiras
 Pilot04 Turku
 Pilot05 Girona
 Pilot06 Comarca de Pamplona
 Pilot07 Genova
 Pilot08 Oeiras
 Pilot09 Flanders region
 Pilot10 South Moravian Region
 Pilot11 Ruda Slaska (Katowice)

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Scenario	Pilot	Requirement name	Requirement description	Comments
Underground	Genova	GPS Position	The mobile client should feature GPS positioning	
Underground	Genova	Augmented Reality	The mobile client application should feature an Augmented reality module able to represent lines and 3D objects (pipes) in depth	
Underground	Genova	From 2D to AR	The User should be able to switch from 2D map representation to AR visualisation	
Underground	Genova	Depth of pipes	Underground network data should be 3D representation.	
Underground	Genova	Connection of the Monic@ system to the CRRS	Connection of the Monic@ system environment (for control and inspection)	
Underground	Genova	Client features	The client should have a number of features: -legend and layer switcher (including underground networks, base layer) -layers transparency -measuring tools -others to be defined	
Underground	Genova	Optimisation for tablets	The mobile client application should be optimised for tablets	
Underground	Genova	Connection to GNSS Surveying System	The mobile client should be connected to a GNSS (centimetre accuracy) to provide autonomous positioning of the user.	
Underground	Genova	Intersection between Underground Network and Environmental Hazard	The SYSTEM should feature a set of layers and Environmental Hazard layers. The presence of networks are highlighted by a map of the sections of network.	
Underground	South Moravian region	Crowd sourcing	Take a picture, determine local position, service.	
Underground	South Moravian region	AR	Read data from dedicated WFS and display it in AR	
Green Energy	Maroussi	Data query and edition	The client should permit polygon selection and editing. The client should feature forms to edit data on web and mobile clients to fill in the data.	
Green Energy	Maroussi	Multi language	The client interface should be available in multiple languages	

Author

Requirement module

☐ Generic
 ☐ Application specific

Scenario

Pilot

GeoSmartCity User Requirements Analysis

Draft structure for analysis of user requirements

The process of user requirements collection is complicated by the fact that business users express themselves in the terminology of their own domain and in the context of their own day-to-day activities. Interviews and questionnaires therefore often contains unresolved assumptions of prior knowledge on the part of the technical personnel as well as very specific business requirements that must be translated into generic solutions. The below headlines are a proposed structure for sorting the requirements we are able to derive from the user requirements collection.

I. Data input requirements

File formats
(i.e. ESRI Shapefiles, CSV text-files)

Protocols/interfaces
(i.e. WMS, GeoSPARQL)

Manually entered data
(i.e. web forms)

Character encodings
(i.e. UTF-8, cp1252, ISO-8859-x)

II. Storage requirements

Volume of data
(i.e. number of records, gigabytes)

Update frequency
(i.e. live, hourly, daily, weekly, etc.)

Security concerns
(encryption)

III. Data processing requirements

Search/indexing

Status

- 6 pilot sites in EU
- 12 Use cases
- 61 User/System Requirements

Commonalities

- The improvement of the efficiency of the underground network management (mainly in terms of integration of resources from different actors)
- The citizen involvement (crowdsourcing mobile apps)



Use cases:

- Consulting real-time data of the water supply and sanitation systems in a GIS viewer.
- Check smart sensor values or incidents in networks

General Objectives:

- They want to improve the water and sewage GIS existing platform:
- Integrating **real-time information** provided by smart sensors through a SCADA system (a computer system for gathering and analyzing real time data)
- Consult a map with values from sensors or incidents from SCADA

Main requirements:

- The SCADA system should be linked to the GIS through standardized protocols
- An interface should enable the user to communicate with the SCADA system to consult the real-time data
- The platform should enable the user to generate thematic maps (geoprocessing)



Use cases:

- Underground Cadastre
- Excavation procedure
- Field works
- Underground networks and environmental hazards



General Objectives:

- Integrate different underground information layers from different actors (mainly Municipality and Multi-utilities)
- Include INSPIRE compliant data in the city underground data management workflow (Harmonisation of gas, water and sewer datasets)
- Use of mobile client for data management
- Use of advanced visualization techniques such as Augmented Reality
- Use of a high precision positioning (GNSS) device integrated with mobile client for field works
- Intersection between Underground Network and Environmental Hazard information

Use cases:

- Underground Event Management

General Objectives:

- As in the case of the Oeiras Pilot in the Green Energy scenario, the Municipality wants to implement an event management platform.
- This platform will take shape in a mobile **crowdsourcing** app for characterization and location of **ruptures in water network**.
- The System shall serve as a Metadata and Open Data provider through Web Services (WMS, WCS, ...).

Main requirements:

- An authenticated user must approve the crowdsourcing inputs to appear on the map.
- The web client should ensure different authentication levels depending on user roles.
- Open data: All information must be available to be used by applications from other stakeholders.



Use cases:

- Mobile application

General Objectives:

- Focus the provision or **volunteered geographic information** (VGI) through a mobile app to report a problem on the public underground infrastructure.
- Use of mobile clients by municipalities and companies technicians (equipped with innovative visualization features such as **Augmented Reality**) to support the management and update of existing data on the field.

Main requirements:

- Take a picture, determine local position, user comment and send it to appropriate service.
- Read data from dedicated WFS and display them in AR environment.



Use cases:

- An integrated WebGIS platform giving the ability to verify/update basic information on the underground networks and to share the data in order to clarify the ownership issues.

General Objectives:

- Similar to the Genova case, this pilot also focuses on the **integration and harmonization of the underground network** data coming from the municipality and the Utility companies.
- Data and specialized services will be integrated in existing GIS platform supporting an integrated approach on the management and maintenance of the networks.

Main requirements:

- Mobile and web clients
- Authenticated access to information and permission roles



Pilot in Flanders Region (Belgium)

Use cases:

- Mobile application for the management of the sewage database
- Crowd-sourcing tool

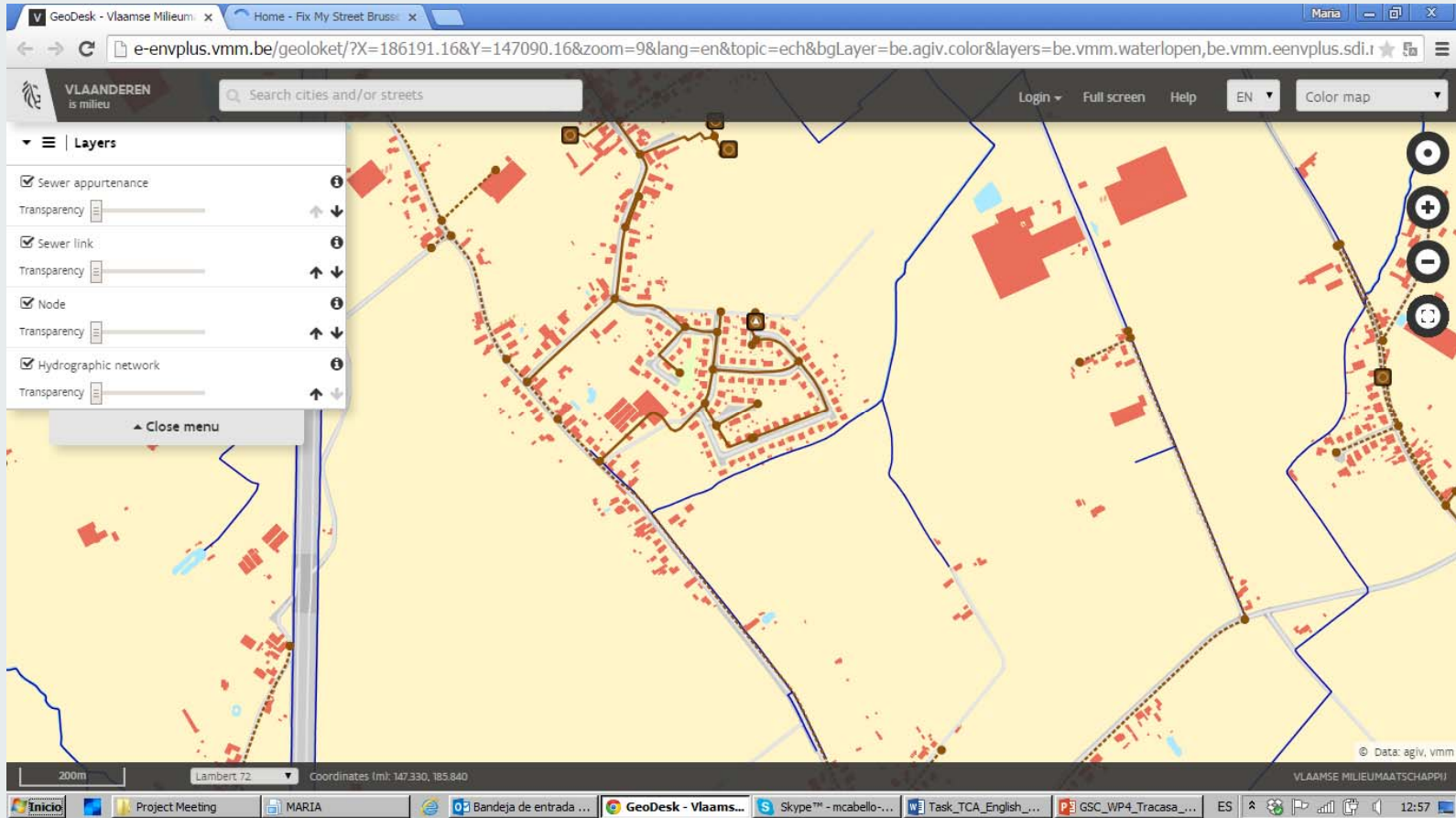


General Objectives:

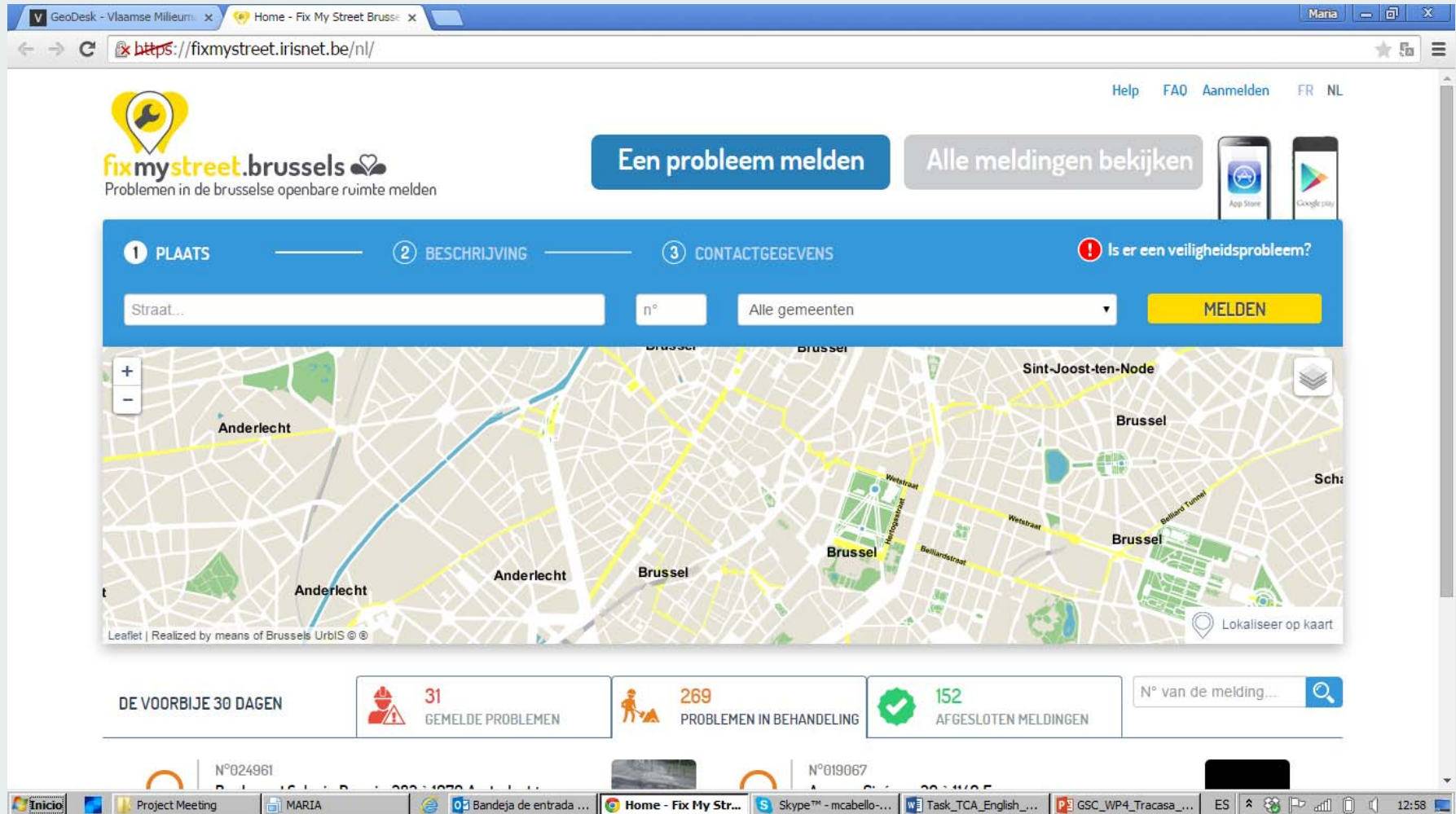
- Focus on the conformance of the Flanders sewer network data to **INSPIRE** specifications
- Manage sewage network from a **mobile/web client** application
- Integrate in the system a **crowdsourcing** component so the sewage database can be consulted by the public in order to report possible anomalies or remarks.

Main requirements:

- The application must give the opportunity to professionals to enter data, upload different files and to propose changes to geodata.
- The updates (by the users) are live but will only be implemented in the sewage database after validation.




<http://e-envplus.vmm.be/geoloket>




The screenshot shows the 'fixmystreet.brussels' website interface. At the top, there's a navigation bar with 'Help', 'FAQ', 'Aanmelden', and language options 'FR' and 'NL'. Below this is a header section with the 'fixmystreet.brussels' logo and the text 'Problemen in de brusselse openbare ruimte melden'. Two main buttons are present: 'Een probleem melden' (Report a problem) and 'Alle meldingen bekijken' (View all reports). To the right of these buttons are icons for the App Store and Google Play. Below the header is a form section with three steps: 1. PLAATS (Location), 2. BESCHRIJVING (Description), and 3. CONTACTGEGEVENS (Contact information). The 'PLAATS' step is active, showing a map of Brussels with labels for 'Anderlecht', 'Brussel', and 'Sint-Joost-ten-Node'. A search bar for 'Straat...' and a dropdown for 'Alle gemeenten' are visible. A yellow 'MELDEN' button is on the right. Below the map, there's a summary section titled 'DE VOORBIJE 30 DAGEN' (The last 30 days) with three boxes: '31 GEMELDE PROBLEMEN' (31 reported problems), '269 PROBLEMEN IN BEHANDELING' (269 problems in progress), and '152 AFGESLOTEN MELDINGEN' (152 closed reports). A search bar for 'N° van de melding...' is also present. The bottom of the image shows a Windows taskbar with various open applications like 'Project Meeting', 'MARIA', 'Bandeja de entrada...', 'Home - Fix My Str...', 'Skype™ - mcabello...', 'Task_TCA_English...', 'GSC_WP4_Tracasa...', and system icons for network, volume, and battery.


<https://fixmystreet.irisnet.be/nl/>



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Underground scenario



The ICT-PSP European project GeoSmartCity establishes a cross-platform, able to publish open GI and to provide specialized services based on open standards.

Pilot cases


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](#)

Virtual hub

For integration and publishing of local, web based, real-time sensor or user-generated open geo-information. [Learn more](#)

Innovative services

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



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Scenarios

Green energy and underground scenario


GeoSmartCity has its main objective in creating a framework in which Geo Open Data from the cities are exploited toward the Smart City paradigm allowing the development of various added value applications and new specialized services. GeoSmartCity aims at developing a first such a virtuous framework and a line of activity supporting the European Cities in their Smart process. To be effective, GeoSmartCity will implement with various pilot applications two very important strategic scenarios for a Smart City: Green Energy and Underground. It's clear that the added value of GeoSmartCity Hub can be easily extended to support different scenarios other than the two addressed by the project. The proposed approach makes the proposed solution extendable to other important Smart processes and scenarios like culture, geotourism, mobility, transport, urban planning, environment/health impact, etc.



Green energy




Underground scenario



The scenario follows "The Covenant of Mayors" movement to increase energy efficiency and use of renewable energy sources on their territories (14,400 signatories for over 160 million people).

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

Unrelated information: buildings, environmental info, planning and infrastructure



Different infrastructure under the same area

Unrelated information for the management of utilities and systems (emergencies during maintenance activities)

Environmental → impact → infrastructure

Safety and security

Pilot cases

[IT](#) [ES](#) [GR](#) [PT](#) [FI](#)

[Reggio nell'Emilia](#) [Girona](#) [Maroussi](#) [Oeiras](#) [Turku](#)

[Objective](#)
[Impact](#)
[Stakeholders and Beneficiaries](#)

The objectives of the GeoSmartCity Green Energy scenario are:

- to develop services to assist the buildings energy manager (i.e. defining of model and services to monitor and analyze solar irradiation and other factors influencing energy production and consumption);
- to make available services to support the smart energy use for each stakeholder;
- to support public administrators and local authorities to define and adapt policy in order to identify the best use and the reduction of fossil fuels, and to increase local job opportunities adopting energy transition plans involving public and private players.

In this scenario open data (local geographic data and real or near real time generated data) and the related new enabling technologies (IoT, Big data, AI and Cloud), smart monitoring are key enablers of the green energy strategies.

Underground scenario

Pilot cases


[ES](#) [IT](#) [PT](#) [CZ](#) [PL](#) [BE](#)

[Comarca de Pamplona](#) [Girona](#) [Oeiras](#) [South Moravia Region](#) [Oeiras](#) [South Moravia Region](#) [Ruda Slaska](#) [Flanders region](#)

[Objective](#)
[Impact](#)
[Stakeholders and Beneficiaries](#)

Underground management is a key aspect for getting efficiency in the cities according public works duplication and citizens' annoyance. Specialized services will be designed based on requirements specified for underground scenarios and identified by related pilots. The benefits will be:

- Instant access to updated data, which will speed up the planning process, the development and the control of works
- Integration of environmental data with technical data to search for the machines installed to check on the machines
- Instant 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 pipelines located in risk zones (hydrogeologic, hydraulic, seismic...) and that need a specific monitoring
- Availability of Apps and Augmented Reality in the daily management of utility networks and to optimize emergency interventions
- Involvement of citizens which are asked to signal, through their smartphones, possible failures of the utility networks (crowd sourcing)



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Pilot cases

Operative pilot cases in the frame of underground and green energy scenarios


Together with the GI open data repository and the GeoSmartCity hub, it will be the availability of a set of 11 operative and re-usable pilot cases in the frame of Green Energy and Underground scenarios demonstrating the possibility to replicate the proposed pilot cases in different area and municipalities, guaranteeing the exploitability and the long term viability of the proposed solution. The pilot will build added value services based on the GeoSmartCity hub that will be locally exploited.

Overall 11 Cities/Regions (with centralized management of services for the cities in the region) are involved in the project. Each City will implement a pilot in the frame of one of the above scenarios.

That will allow to apply and validate the two scenarios in different National and urban and geographical context, as well as a comparison of the different experiences and the share of good practices and lessons in the different cities.

Reggio nell'Emilia	Maroussi	Turku	Girona	Oeiras
IT Green Energy	GR Green Energy	FI Green Energy	ES Green Energy	PT Green Energy and Underground
CRE	EPSILON INTERNATIONAL	TUAS	UdG	MUNICIPIA
SINERGIS s.r.l.	Read more	Read more	Read more	Read more
Read more				


Flanders region	Genova	Comarca de Pamplona	South Moravia	Ruda Slaska
BE Underground	IT Underground	ES Underground	CZ Underground	PL Underground
VMM	TICASS	TRACASA	INTERGRAPH CS	GEOBID
Read more	CDG	Read more	SRO	Read more
	GISIG		Read more	
	IREN Acqua Gas			
	Read more			


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Maroussi

Greece



Δήμος Αμαρουσίου




Objectives

The objective of the pilot is to enable citizens and SMEs to make valuable comments and enhance their energy consumption behavior.

The focus is on "energy performance of buildings" with use cases about data collection (crowd/mobile) and energy map processing.



The emphasis is related to the role of so-called "Neo-geographers", being citizens, students and other categories to be involved to collect new (or add value to existing) geodata. The processing of energy maps is also related to the goal of publishing open data about energy certificates, with a clear benefit for public administration that will have a detailed overview of energy performance at large scale.

Data providers are both public authorities (buildings footprints and some properties) as well as citizens in a crowdsourcing approach for enriching information.




Maroussi


[View maroussi.gy](#)


 9 Vas. Sofias &
 Dim. Mousa
 GR-15124 Maroussi
 Greece

 38° 3' 7.43" N, 23° 48' 31.8044" E


Scenario

 Green Energy

Responsible partners



Epsilon
Microsoft ES




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- News
- Contact

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Maroussi

Greece




Objectives

The objective of the pilot is to enhance comments and enhance their use.


The focus is on "energy performance collection (crowd/mobile) and analysis".

The emphasis is related to the role of citizens, students and other categories of value to existing geodata. The project goal of publishing open data about public administration that will have a large scale.

Data providers are both public authorities (properties) as well as citizens in a information.



Poster (336kb)




- Project
- Applications
- Training
- Publications
- News
- Contact

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Girona

Spain




Objectives

The pilot will demonstrate how to create an integrated system from pre-existing and disconnected data in a context easily transferable to other cities.

Open data about "bike" (sharing, racks, lanes, shops/repairers, ...) will be made available to GSC hub and Open Street Map.

Real-time information to bikers about pollution and "healthy" paths will be provided. Data providers are mainly local transportation companies and bike sharing manager.



Poster (1.263kb)

Girona

www.sagie.sagie.edu

Pi Ferrater Mora, 1

27071 Girona


Spain


43° 53' 06.94" N, 2° 49' 39.84" E

Scenario

Green Energy

Responsible partners






Project Applications Training Publications News Contact

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Maroussi

Greece





Objectives


The objective of the pilot is to enhance comments and enhance their energy performance.

The focus is on "energy performance collection (crowd/mobile) and analysis".

The emphasis is related to the role of citizens, students and other categories of value to existing geodata. The pilot goal of publishing open data about public administration that will have an impact at large scale.

Data providers are both public authorities (properties) as well as citizens in a network.




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Girona

Spain






Objectives

The pilot will enhance comments and enhance their energy performance.

Open data will be available to citizens.

Real-time information provided. Data sharing mechanism.




Project Applications Training Publications News Contact

Home / Pilot cases / Comarca of Pamplona - Spain

Comarca of Pamplona

Spain




Objectives

The Pilot main aim is the efficiency increase in the management of groundwater information, including access to real time information on water and sewage network data.

A first use case wants to improve the existing GIS platform for integrating on it real-time data provided by smart sensors.

The second use case is based on alerting on anomalous values on the sensor monitored network.



Comarca of Pamplona

Comarca de Pamplona

Spain

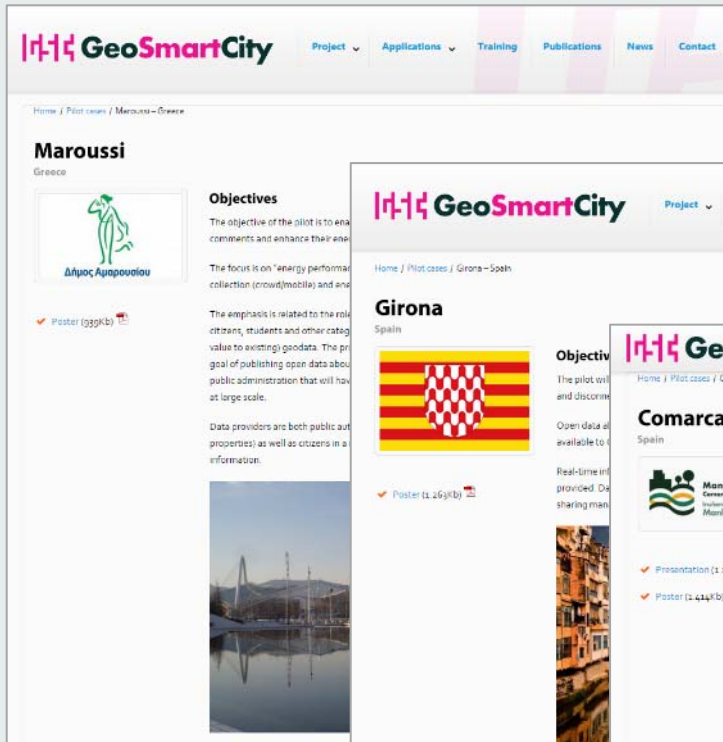
44° 48' 54.3" N, 1° 2' 35' 50.3" W

Scenario

Underground

Responsible partners

tracasa




GeoSmartCity Project Applications Training Publications News Contact

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Maroussi

Greece



Objectives

The objective of the pilot is to enable citizens and enhance their engagement with the city.

The focus is on "energy performance" collection (crowd/mobile) and analysis.

The emphasis is related to the role of citizens, students and other categories of users in the collection of data. The goal is to publish open data about public administration that will have a large scale.

Data providers are both public authorities (properties) as well as citizens in a large scale.

✓ Poster (999kb)




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Girona

Spain



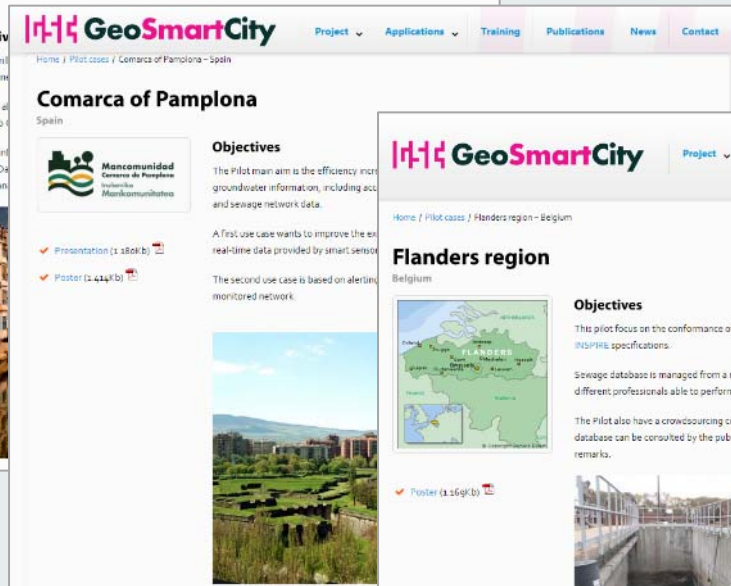
Objectives

The pilot will aim to improve the efficiency of the city's water supply and distribution network.

Open data will be available to the public.

Real-time information will be provided. Data sharing will be implemented.

✓ Poster (1.263kb)




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Comarca de Pamplona

Spain



Objectives

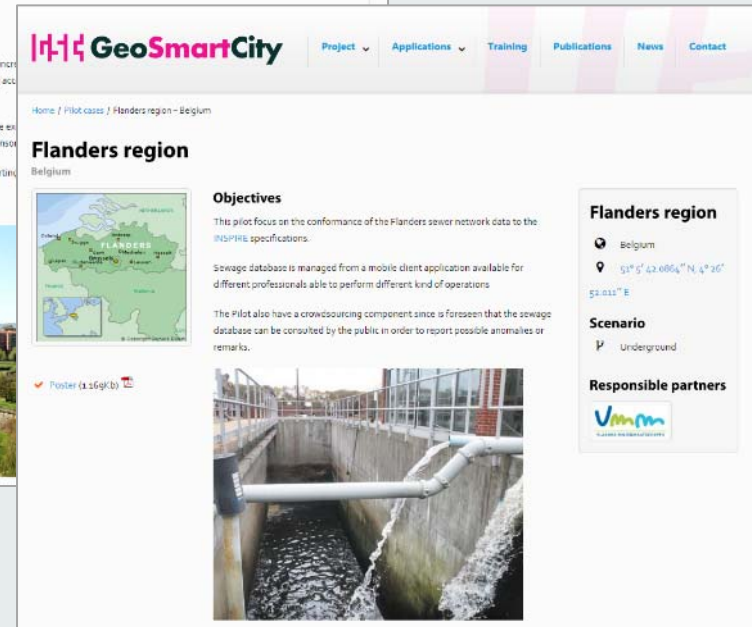
The Pilot main aim is the efficiency in the management of groundwater information, including access to the sewerage network data.

A first use case wants to improve the efficiency of the real-time data provided by smart sensors.

The second use case is based on alerting the monitored network.

✓ Presentation (1.180kb)

✓ Poster (1.414kb)




GeoSmartCity Project Applications Training Publications News Contact

Home / Pilot cases / Flanders region - Belgium

Flanders region

Belgium



Objectives

This pilot focuses on the conformance of the Flanders sewer network data to the INSPIRE specifications.

Sewage database is managed from a mobile client application available for different professionals able to perform different kind of operations.

The Pilot also have a crowdsourcing component since it is foreseen that the sewage database can be consulted by the public in order to report possible anomalies or remarks.

✓ Poster (1.169kb)

Flanders region

Belgium

51° 5' 42.0064" N, 4° 10' 52.011" E

Scenario

Underground

Responsible partners

Vmm

Thank you Dank u



UDMS and GeoSmartCity Workshop

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