



UPSIDEDOWN WP3 Questionnaire

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This questionnaire has been prepared by Göran Rydberg, Argona AB, Sweden, and Franco Vico, Calogero Ravenna, Mauro Salvemini, AMFM GIS Italia, Italy, also with support of Enrico Boi, TST, Italy

WP3 objectives:

EU UPSIDEDOWN Project is implemented under the European Commission Directorate for Home Affairs and under the "Prevention, Preparedness and Consequence Management of Terrorism and other Security Related Risks" framework program.

In the context of the Project, Work Package 3 aims to achieve the following goals:

- to map existing spatial data about underground critical infrastructures in order to identify their accuracy, level of detail, production standards and accessibility;
- to build a framework of current legislation in all EU member states regarding security measures for under-ground infrastructures;
- to highlight how new technologies, in particular Georadar, can be used for improving the quality of underground infrastructures spatial data.

The Project focuses on drinking water and sewage infrastructures only.

WP3 main source of information: the "experts"

A far as WP3 is concerned, main source of information is from the "experts" (see WP2). Their profile is defined by the "*Terms of Reference for Experts*" provided by WP2. Experts are expected to have different backgrounds, being utility experts, ITC and GIS experts or security experts.

Experts will provide information required by WP3 filling detailed and articulated questionnaires dealing with different involved aspects, while they are attending their meetings and through some desk work. Experts are supposed to spend at least three work days in fulfilling their tasks. They are supposed to have already required information or to be able to acquire this information from the right people.

Experts have to fill in the Excel version of this questionnaire.

The questionnaire

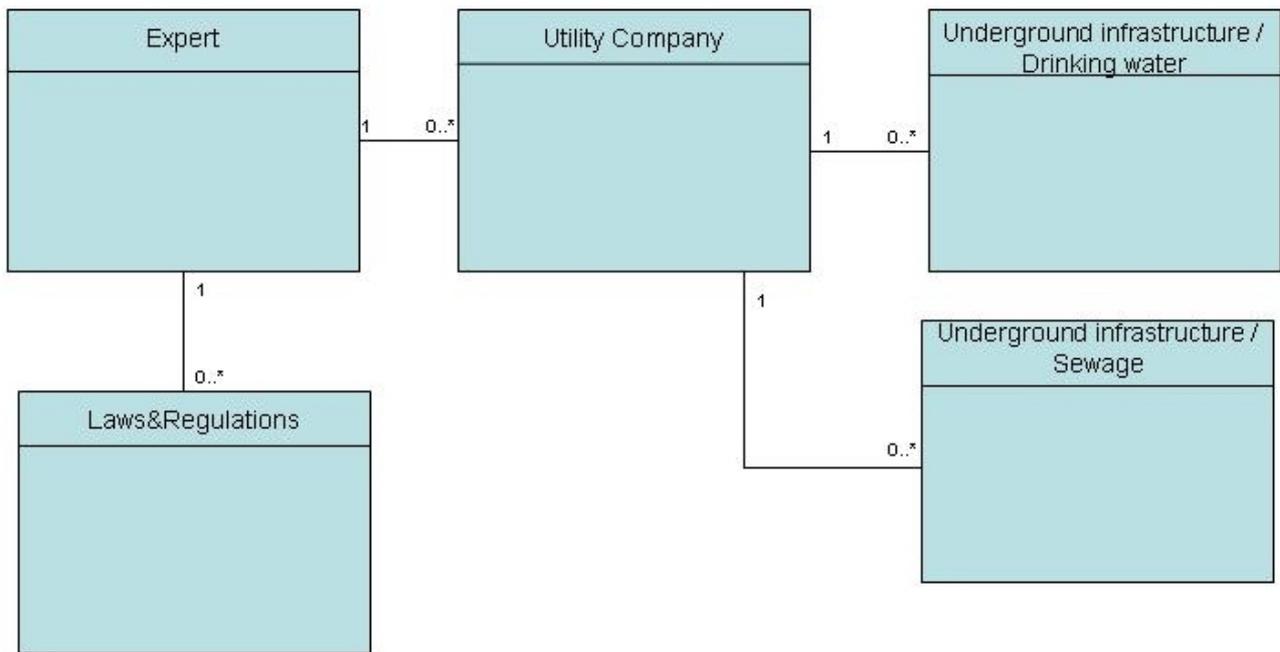
Upsidedown questionnaire includes a number of cards called Classes, that can be used in a flexible way.

Classes are:

- *Expert*
- *Utility company*
- *Drinking water infrastructure/Spatial data*
- *Sewage infrastructure/Spatial data.*
- *Laws and Regulations*

Association relationships among classes are depicted in the following UML-like diagram, where the multiplicity (the number of objects that participate in the association) is shown: e.g. to each *Expert* can be

associated 0 or multiple *Utility Company*.



Class Expert

This section is a presentation of the expert.

Attribute	Description	Field type	Code list
A1	Expert's unique identifier: ISO 2-letter country code+"A"+3-digit number (e.g. SEA001)	text	To be filled by the national contact partner (or by DB manager)
A2	Expert's surname	text	
A3	Expert's name	text	
A4	Expert's home city	text	
A5	Expert's work country	text	
A6	Expert's e-mail address	e-mail	
A7	Expert's background (see Terms of Reference for Experts attending EUG Workshops)		<ul style="list-style-type: none"> - utility Company personnel = 1 - local authority engineering personnel = 2 - disaster response personnel from various levels of government = 3 - engineering associations/institutes = 4 - representatives of the body responsible for implementation of the INSPIRE Directive = 5 - security establishment personnel = 6 - private companies which supply technologies or services which can locate underground utilities = 7 - private companies which provide support for critical infrastructure = 8 - national mapping and cadastral agencies = 9 - other = 10
A8	Expert's type (see Terms of Reference for Experts attending EUG Workshops)		<ul style="list-style-type: none"> - utility experts = 1 - ITC and GIS expert = 2 - security expert = 3
A9	Expert's organization (see Terms of Reference for Experts attending EUG Workshops)		<ul style="list-style-type: none"> - public sector = 1 - private sector = 2 - private public owned company = 3
A10	Expert's organization level (see Terms of Reference for Experts attending EUG Workshops)		<ul style="list-style-type: none"> - local = 1 - regional = 2 - national = 3 - international = 4
A11	Expert's position (see Terms of Reference for Experts attending EUG Workshops)		<ul style="list-style-type: none"> - managerial = 1 - operational = 2 - consultant = 3
A12	Date of compiling	AAAA-MM-DD	

Class *Utility Company*

This section describes the utility companies that have been involved in this survey.

Attribute	Description	Field type	Code list
B1	Company's unique identifier: ISO 2-letter country code+ "B"+3-digit number (e.g. SEB001)	text	To be filled by the national contact partner (or by DB manager)
B2	Expert identifier (see Feature type <i>Expert</i> , A1)	text	To be filled by the national contact partner (or by DB manager)
B3	Company Name	text	
B4	Company's headquarters (main site) - city	text	
B5	Country	text	
B6	Company's web address		
B7	Fields of activity (more than one code is possible; they have to be separated by comma)		- drinking water = 1 - sewages = 2 - surface waste waters = 3 - other (electricity supply, gas, phone...) = 4
B8	Company's legal status		- public = 1 - private public owned = 2 - private = 3 - other = 4
B9	Extension of Company's served area		- municipality = 1 - district = 2 - province = 3 - region = 4 - national = 5
B10	Approximate extension of Company's served area (square km)		- <= 1.000 = 1 - 1.001-10.000 = 2 - 10.001-30.000 = 3 - 30.001-100.000 = 4 - > 100.000 = 5
B11	Inhabitants in the area served by the Company		- <= 100000 = 1 - 100001-250000 = 2 - 250001-500000 = 3 - 500001-1000000 = 4 - >1000000 = 5
B12	Company's employees		- <= 100 = 1 - 101-500 = 2 - 500-1000 = 3 - > 1000 = 4
B13	Company's major locations number (offices, warehouses, technical services...)		- 1 = 1 - 2-5 = 2 - 6-10 = 3 - >10 = 4
B14	There is a Customer Relationship Management (CRM) for managing company's interactions with current and future customers?		- yes = 1 - no = 2
B15	There is a Company's Enterprise Geographic Information System?		- yes = 1 - no = 2
B16	There is a Company's Work Force Management Systems?		- yes = 1 - no = 2
B17	Company's information systems include normalized fields in order to relate among themselves (e.g. street code and house number...)?		- all information systems = 1 - some of them = 2 - none of them = 3

B18	Company's information systems are linked (or linkable) with other public information systems (e.g. Civil Protection IS, Municipal Street Map...)?		- yes = 1 - no = 2
B19	The Company has drawn up a list of services (or minimum terms of quality and / or safety) in the supply contract to the final customer?		- yes = 1 - no = 2
B20	Date of Compiling	AAAA- MM- DD	

Class *Drinking water infrastructure / Spatial data*

This section describes the drinking water network and how information is processed by the utility company. This form should be filled in for each infrastructure managed by the utility company in question. Skipped attributes' numbers are intentional.

Attribute	Description	Field type	Code list
C1	Drinking water infrastructure's unique infrastructure's identifier: ISO 2-letter country code+"C"+3-digit number (e.g. SEC001)	text	To be filled by the national contact partner (or by DB manager)
C2	Expert identifier (see Feature type <i>Expert</i> , A1)	text	To be filled by the national contact partner (or by DB manager) DB manager)
C3	Utility Company identifier (see Feature type <i>Utility Company</i> , B1)	text	To be filled by the national contact partner (or by DB manager)
C4	Spatial data are managed and stored as		<ul style="list-style-type: none"> - paper maps = 1 - scanned paper maps = 2 - CAD data = 3 - GIS data (shp files...) = 4 - GIS database = 5
C5	Drinking water network's extension		<ul style="list-style-type: none"> - <= 100 km = 1 - 100-1000 km = 2 - 1001-3000 km = 3 - 3001-10000 km = 4 - > 10000 km = 5
C6	Number of contracts (customers) in total.		<ul style="list-style-type: none"> - <= 50.000 = 1 - 50.001-100.000 = 2 - 100.001-250.000 = 3 - 250.001-500.000 = 4 - 500.000 – 1.000.000 = 5 - 1.000.000-5.000.000 = 6 - 5.000.000 > = 7
C7	Number of people served		<ul style="list-style-type: none"> - <= 50.000 = 1 - 50.001-100.000 = 2 - 100.001-250.000 = 3 - 250.001-500.000 = 4 - 500.000 – 1.000.000 = 5 - 1.000.000 - 5.000.000 = 6 - 5.000.000 > = 7 - not available = 8
C8	Spatial data are modeled using normalized (standard) data considering specifications and models?		<ul style="list-style-type: none"> - no = 1 - yes defined at company level = 2 - yes with reference to local agreements, Memorandum of Understanding... = 3 - yes with reference to official regional regulation = 4 - yes with reference to official law and regulations = 5 - yes with reference to international specifications = 6
C9	If the answer to the previous question is 4 or 5, specify identifying details of data specifications in use (who issued the law or the regulation, official title, number, date...)	text	
C10	Reference base maps used are (more than one code is possible)		<ul style="list-style-type: none"> - produced by National Map Authorities or Agencies = 1 - produced by Local Authorities = 2 - produced by the Company itself (likely in outsourcing) = 3 - produced in partnership with other bodies for sharing cost = 4 - brought by private cartography producers = 5
C11	Reference base map is (more than one code is possible)		<ul style="list-style-type: none"> - technical base map in nominal scale >= 1:2000 = 1 - technical base map in nominal scale 1:2001-1:5000 = 2 - technical base map in nominal scale 1:5001 -1:10000 = 3 - technical base map in nominal scale < 1:10000 = 4 - cadastral maps = 5 - other = 6
C12	Networks' average positional accuracy is		<ul style="list-style-type: none"> - comparable with reference base map accuracy = 1 - on average lower than reference base map accuracy = 2 - highly variable = 3

2a	The networks' positional accuracy is comparable with the positional accuracy of other networks operated by the company so that you can perform topological overlays among different networks?		- yes = 1 - only in part = 2 - no = 3
C13	Who produces networks' spatial data		- internal staff = 1 - external personnel = 2 - partly internal partly external personnel = 3
C14	Who deals with managing and updating spatial data		- internal staff = 1 - external personnel = 2 - partly internal partly external personnel = 3
C14a	Are metadata (data on data) produced and maintained?		- metadata are not produced = 1 - metadata (at least for new or extensively updated datasets) are produced compliant to international standards = 2 - metadata (at least for new or extensively updated datasets) are produced but they are not compliant to international standards = 3
C15	Software solutions in use for managing and storing spatial data		- all open source = 1 - mainly open source = 2 - mainly proprietary = 3 - all proprietary = 4 - not applicable = 5
C16	How are networks' spatial data accessed?		- browsing paper archives = 1 - only from a limited number of internal workstations = 2 - accessible via webGIS only in Intranet = 3 - accessible via webGIS via Internet = 4
C17	Are spatial data accessible via mobile devices?		- yes = 1 - no = 2
C18	Who can access networks' spatial data?		- only Company's specifically authorized officers = 1 - all Company's personnel = 2 - other specifically authorized bodies = 3 - partly also general public = 4
C19	Who can download or export the information?		- no one = 1 - only Company's specifically authorized officers = 2 - all Company's personnel = 3 - other specifically authorized bodies, as images = 4 - other specifically authorized bodies, also as vector data = 5 - in part also general public, as images = 6 - in part also general public, as vector data = 7
C20	Is a registration needed for downloading information		- yes = 1 - no = 2
C21	Is part of this information encrypted? Do you need a key to unlock it?		- yes = 1 - no = 2
C22	Is the information that has been disclosed traceable?		- yes = 1 - no = 2
C23	What kind of instruments are used for detection, control, georeferencing of networks (more than one code is possible; they have to be separated by comma)		- GPS total station = 1 - Georadar = 2 - vehicles equipped for leaks detection = 3 - video inspection systems = 4 - others = 5
C24	Is a department/unit in charge in the company of controlling the quality and/or security of managed infrastructure?		- yes = 1 - no = 2
C25	Has the company an obligation to provide periodically data on quality and security management of the infrastructure to a specific authority?		- yes = 1 - no = 2
C26	How frequent are laboratory analyses performed ?		- no laboratory analyses are performed = 1 - laboratory analyses are performed without any regularity = 2 - monthly or less = 3 - every six months = 4 - annually = 5

C27	What kind of laboratory for analysis is used?		- internal laboratory = 1 - external in public bodies = 2 - external in private bodies = 3
C28	Are laboratory analyzes stored in an information system?		- yes = 1 - no = 2
C29	Is there a Remote Control System of drinking water infrastructure?		- yes = 1 - no = 2
C30	Are there specific quality procedures for managing overall security of drinking water infrastructure?		- yes = 1 - no = 2
C31	Is there a specific information system for managing security related issues?		- yes = 1 - no = 2
C32	Are there specific relationships with external bodies in charge of security issues and/or civil protection?		- yes = 1 - no = 2
C33	How do you estimate that the physical protection around accessing the water network for example via pump stations, manholes etc.		- very good = 1 - good = 2 - poor = 3 - very poor = 4
C33a	Are there plans / procedures to deal with vandalism and / or terrorism?		- yes = 1 - no = 2
C34	How critical communications with external bodies in charge of security issues and/or civil protection are dealt? (more than one code is possible; they have to be separated by comma)		- phone/FAX = 1 - e-mail/SMS = 2 - Internet = 3 - (wide) LAN = 4 - exclusive channel for emergencies = 5
C35	Does it exist an emergency response service for the drinking water infrastructure?		- yes = 1 - no = 2
C36	How are detected / captured / reported requests for action on incidents in infrastructure?		- reporting to the call center = 1 - reports from maintenance teams' inspections = 2 - remote controlled equipments = 3
C37	Indicate the average response time between the receipt of the request for urgent action and implementation of the action?		- within 2 hours = 1 - within 6 hours = 2 - within 12 hours = 3 - within 24 hours = 4 - more than 24 hours = 5
C38	In summary, strengths regarding as drinking water infrastructure's spatial data production and management	text	
C39	In summary, weaknesses regarding drinking water infrastructure's spatial data production and management	text	
C40	In summary, strengths regarding drinking water infrastructure's security	text	
C42	As far as spatial data and security are concerned and with reference to the national situation, the practice described in this card can be indicated as a best practice (a practice you can learn from)?		- yes = 1 - no = 2 - partly = 3
C43	Date of Compiling	AAAA-MM-DD	

Class Sewage infrastructure / Spatial data

This section describes the sewage water network and how information is treated by the utility company. This form should be filled in for each infrastructure managed by the utility company in question.

Attribute	Description	Field type	Code list
D1	Sewage infrastructure's unique infrastructure's identifier: ISO 2-letter country code+ "D"+3-digit number (e.g. SED001)	text	To be filled by the national contact partner (or by DB manager)
D2	Expert identifier (see Feature type <i>Expert</i> , A1)	text	To be filled by the national contact partner (or by DB manager)
D3	Utility Company identifier (see Feature type <i>Utility Company</i> , B1)	text	To be filled by the national contact partner (or by DB manager)
D4	Type of sewages exiting in the reference area		- separate sanitary sewage and superficial waste waters = 1 - mixed sanitary sewage and superficial waste waters = 2
D5	Types of sewages managed by the Utility Company (if more than one type of sewage is managed, more cards can be filled in, if useful)		- sanitary sewage only = 1 - both separated sewages (sanitary sewage and superficial waste waters) = 2 - mixed sanitary and superficial waste waters sewage = 3 - superficial waste waters sewage only = 4
D6	There are sewage treatment plants		- yes = 1 - no = 2
D7	There are discharge points in the environment (even in situations of critical flows)		- yes = 1 - no = 2
D8	Spatial data are managed and stored as		- paper maps = 1 - scanned paper maps = 2 - CAD data = 3 - GIS data (shp files...) = 4 - GIS database = 5
D9	Sewage network's extension		- <= 100 km = 1 - 100-1000 km = 2 - 1001-3000 km = 3 - 3001-10000 km = 4 - > 10000 km = 5
D10	Number of contracts (customers) in total.		- <= 50.000 = 1 - 50.001-100.000 = 2 - 100.001-250.000 = 3 - 250.001-500.000 = 4 - 500.000 – 1.000.000 = 5 - 1.000.000-5.000.000 = 6 - 5.000.000 > = 7 - not applicable = 8
D11	Number of people served		- <= 50.000 = 1 - 50.001-100.000 = 2 - 100.001-250.000 = 3 - 250.001-500.000 = 4 - 500.000 – 1.000.000 = 5 - 1.000.000-5.000.000 = 6 - 5.000.000 > = 7 - not applicable = 8
D12	Spatial data are modeled using normalized (standard) data specifications and models?		- no = 1 - yes defined at company level = 2 - yes with reference to local agreements, Memorandum of Understanding... = 3 - yes with reference to official regional specifications = 4 - yes with reference to official national specifications = 5 - yes with reference to international specifications = 6
D13	If the answer to the previous question is 4 or 5, specify identifying details of data specifications in use (who issued the law or the regulation, official title, number, date...)	text	

D14	Reference base maps used are		<ul style="list-style-type: none"> - produced by National Map Authorities or Agencies = 1 - produced by Local Authorities = 2 - produced by the Company itself (likely in outsourcing) = 3 - produced in partnership with other bodies for sharing cost = 4 - brought by private cartography producers = 5
D15	Reference base map is		<ul style="list-style-type: none"> - technical base map in nominal scale $\geq 1:2000$ = 1 - technical base map in nominal scale 1:2001-1:5000 = 2 - technical base map in nominal scale 1:5001 -1:10000 = 3 - technical base map in nominal scale $< 1:10000$ = 4 - cadastral maps = 5 - other = 6
D16	Networks' average positional accuracy is		<ul style="list-style-type: none"> - comparable with reference base map accuracy = 1 - on average lower than reference base map accuracy = 2 - highly variable = 3
D17	Fluid flow height is measured		<ul style="list-style-type: none"> - yes = 1 - no = 2
D18	Heights' accuracy		<ul style="list-style-type: none"> - ≤ 1 cm = 1 - 1- 5 cm = 2 - > 5 cm = 3
D19	Who produces networks' spatial data		<ul style="list-style-type: none"> - internal staff = 1 - external personnel = 2 - partly internal partly external personnel = 3
D20	Who deals with managing and updating spatial data		<ul style="list-style-type: none"> - internal staff = 1 - external personnel = 2 - partly internal partly external personnel = 3
D21	Software solutions in use for managing and storing spatial data		<ul style="list-style-type: none"> - all open source = 1 - mainly open source = 2 - mainly proprietary = 3 - all proprietary = 4 - not applicable = 9
D22	How networks' spatial data are accessed?		<ul style="list-style-type: none"> - browsing paper archives = 1 - only from a limited number of internal workstations = 2 - accessible via webGIS only in Intranet = 3 - accessible via webGIS via Internet = 4
D23	Are spatial data accessible via mobile devices?		<ul style="list-style-type: none"> - yes = 1 - no = 2
D24	Who can access networks' spatial data?		<ul style="list-style-type: none"> - only Company's specifically authorized officers = 1 - all Company's personnel = 2 - other specifically authorized bodies = 3 - partly also general public = 4
D25	Who can download or export the information?		<ul style="list-style-type: none"> - no one = 1 - only Company's specifically authorized officers = 2 - all Company's personnel = 3 - other specifically authorized bodies, as images = 4 - other specifically authorized bodies, also as vector data = 5 - in part also general public, as images = 6 - in part also general public, as vector data = 7
D26	A registration is needed for downloading information		<ul style="list-style-type: none"> - yes = 1 - no = 2
D27	Is part of this information encrypted? Do you need a key to unlock it?		<ul style="list-style-type: none"> - yes = 1 - no = 2
D28	Is the information that has been disclosed traceable?		<ul style="list-style-type: none"> - yes = 1 - no = 2
D29	Instruments for detection, control, georeferencing of networks (more than one code is possible)		<ul style="list-style-type: none"> - GPS total station = 1 - Georadar = 2 - vehicles equipped for leaks detection = 3 - video inspection systems = 4 - others = 5
D30	In the company a department or area in charge of controlling quality and/or security of managed infrastructure exists?		<ul style="list-style-type: none"> - yes = 1 - no = 2
D31	In summary, strengths regarding as sewage infrastructure's spatial data production and management	text	

D32	In summary, weaknesses regarding sewage infrastructure's spatial data production and management	text	
D33	In summary, strengths regarding sewage infrastructure's security	text	
D34	In summary, weaknesses regarding sewage infrastructure's security	text	
D35	As far as spatial data and security are concerned and with reference to the national situation, the practice described in this card can be indicated as a best practice (a practice you can learn from)?		- yes = 1 - no = 2 - partly = 3
D36	Date of Compiling	AAAA- MM- DD	

Class Laws and regulations

This section describes the existing legislation about geospatial information on underground infrastructures. More than one report has normally to be completed although depending of number of regulations applicable.

Attribute	Description	Field type	Code list
Z1	Unique law/regulation's identifier: ISO 2-letter country code+"Z"+3-digit number (e.g. SEZ001)	text	To be filled by the national contact partner (or by DB manager)
Z2	Expert identifier (see Feature type <i>Expert</i> , A1)	text	To be filled by the national contact partner (or by DB manager)
Z3	Official law or regulation title	text	
Z4	Official law or regulation references (type, number, date...)	text	
Z5	Who issued the law or the regulation		<ul style="list-style-type: none"> - State = 1 - Region = 2 - other Local Authority = 3 - specific Agency or Body = 4 - other = 5
Z6	Law or regulation key contents (as far as spatial data on underground infrastructures, their security... are concerned)	text	
Z7	List of articles, paragraphs... dealing with spatial data on underground infrastructures, their security... (each item has to be separated by comma)	text	
Z8	Keywords		See the code list (at this stage this keywords list is still being defined)
Z9	Link to full text of the law or regulation (in original language or in English)	www.	
Z10	Date	AAAA-MM-DD	