PROJECT INTERIM REPORT

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1. Work Progress and Achievements during the Period

1.1. Overview of the Progress of the Work

This document serves to report the work performed during the first six months (M01-M06, December 1, 2012 – May 30, 2013) of the GeoKnow project. The following WPs and tasks started during this period: WP1 (Tasks 1.1, 1.2 and 1.3), WP2 (Tasks 2.1, 2.2, 2.3), WP3 (Tasks 3.1, 3.2), WP4 (Task 4.1), WP 5 (Tasks 5.1, 5.5) WP6 (Task 6.1, 6.2), WP7 (Task 7.1, 7.3, 7.4, 7.5), and WP8.

Collaboration and interaction between WPs was established and performed during this period. Likewise, a state-of-the-art survey was carried out in many work packages and development resources were collected. Work on the GeoKnow Generator (the integration platform of GeoKnow) started, requirements from the use case scenarios were gathered and first solutions were proposed.

Furthermore, several meetings took place among GeoKnow members and data was collected for the use cases. Overall the project is progressing very well and according to schedule with enhanced communication in terms of plenary meetings, bilateral meetings and regular phone conferences.

Dissemination activities have already started. The GeoKnow website has been online since the start of the project in December, 2012. General dissemination material such as leaflets, stickers and posters was produced for the project.

Four deliverables have already been submitted. The following deliverables will be submitted until month 6:

- D1.1.1 Initial Common Requirements specification
- D2.1.1 Market and Research Overview
- D7.1.1 Project Fact Sheet and Press Release
- D7.1.2 Project Website
- D8.4.1 Online Collaboration Platform

Six deliverables that will be delivered within the next three months are in progress. These are:

- D2.2.1 Integration of External Geospatial Databases
- D6.1.1 Report on Customer Data Selection and Retrieval
- D8.2.1 Intermediate Project Report
- D7.3.1 First Standardization Report
- D3.1.1 Development of First Prototype for Spatially Interlinking Data Sets
- D5.1.1 RDF Representation of RFID Information

A kick-off meeting was organized in Leipzig and the total work effort was 55.29 person month (3.58 PM for project management and 51.71 for RTD work).

1.2. Description of Work Progress for each Work Package

Work Package No.	**WP 1**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**Ontos**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Work Package Title	Requirements, Design, Benchmarking, Component Integration				
Activity Type	Research Activities (RTD)				
Participant Involved	**Ontos, InfAI, Athena, Unister, OpenLink, Brox**				
Work Package Summary of Progress Towards Objectives					
User requirements from use cases were identified and delivered in D1.1.1 *Initial Common Requirements Specifications*. This analysis was carried out for the GeoKnow Generator architecture and system design. The initial GeoKnow Generator architecture was outlined. Component integration that is going to follow the architecture was proposed by the LOD2 project because it has similar objectives. Moreover, a unified linked data technology stack is to be designed. Finally, an initial benchmarking system has been set up by OpenLink, and will be reported in D.1.2.1 due in M6 with two weeks delay.					

Task No.	**Task 1.1**	**Plan-Start:**	**M01**	**Plan-End:**	**M04**
Lead Participant	**Unister**	**Actual-Start:**	**M02**	**Actual-End:**	**M04**
Task Title	Common Requirements Specification				
Activity Type	Research Activities (RTD)				
Participant Involved	**Unister, InfAI, BROX, Ontos**				
Progress of Work					
The deliverable D1.1.1 *Initial Common Requirements Specification* was completed and submitted. For this deliverable, we identified appropriate requirement elicitation methods and conducted several of them as defined in the task description. We executed one-to-one meetings, group meetings, and created a survey for finding use cases and requirements. The findings were documented in the deliverable. According to the task description, the structured requirement specification focused on the end users in the project. We have currently been monitoring the development of use cases in WP 5 and the requirements analysis in the WPs 2-4 with regards to additional user-centric or technical requirements that should be defined. For ongoing requirement management and development, we have also worked on installing a JIRA server.					

Task No.	**Task 1.2**	**Plan-Start:**	**M01**	**Plan-End:**	**M18**
Lead Participant	**Athena**	**Actual-Start:**	**M01**	**Actual-End:**	**M18**
Task Title	GeoKnow Architecture & System Design				
Activity Type	Research Activities (RTD)				
Participant involved	**Athena, InfAI, Ontos, Unister**				
Progress of Work					
In this task, we have discussed and sketched a high-level overview of the GeoKnow Generator architecture identified during the kick-off meeting. Furthermore, two high-level objectives regarding the architecture have been adopted by the consortium. First, the GeoKnow Generator will be complementary to the LOD2 software stack, and thus follow similar architectural conventions and patterns. In this manner, (a) we will be able to repurpose/extend components of LOD2 (where applicable/appropriate), and (b) the GeoKnow Generator will complement and extend the LOD2 software stack with geospatial capabilities, thus reaching a mature community					

and a greater number of potential users. Second, the GeoKnow Generator will adopt a loosely coupled architecture: (a) components shall provide web services (RESTful APIs where appropriate), and (b) the integration point of said web services will be the common RDF store (Virtuoso). Based on the above principles, a number of iterations of the proposed architecture has been drafted, taking into account: (a) feedback from our collaboration with the LOD2 project (through *ad hoc* meetings and telcos), and (b) input on the user requirements from T1.1, which is analyzed and assessed regarding its impact on the system architecture. Finally, we have prepared a collection of software frameworks/tools/libraries that can be used in each component of the architecture, as well as other related tools that can be integrated. The architecture will constantly evolve during the following year, integrating feedback and progress from the design and development activities of the partners in tasks that will deliver core components of the GeoKnow Generator.

Task No.	**Task 1.3**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**OpenLink**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Task Title	Performance Benchmarking and Evaluation				
Activity Type	Research Activities (RTD)				
Participant Involved	**OpenLink, Athena**				
Progress of Work					
Initial benchmark comparisons for PostGIS (SQL) and Virtuoso (SQL & SPARQL) with a snapshot of the OpenStreetMap datasets have been completed by OpenLink and form the core of the deliverable D1.3.1 *Design and Setup of Initial Benchmarking System*, which is due in M6, although a two-week extension is requested for completing and reviewing the deliverable document. The geospatial benchmark built in the LOD2 FP7 project has been adopted and enhanced for use as an initial geospatial benchmarking tool for geo-capable databases. The benchmarking server can be accessed from hostname "benchmark.openlinksw.com" where users (mainly OpenLink, Athena and InfAI) make a formal request for an account to be created to enable and specify work to be performed so that it does not affect and possibly skew results produced by other users of the system. Athena has provided Virtual Machines snapshots of the other SPARQL geo-capable databases (uSeekM, Virtuoso, OWLIM-SE, ParliamentKB, Strabon, AllegroGraph) they set up for D2.1 *Market and Research Overview* (due M6) so that these can be set up on the benchmark server for use by others who may want to perform some testing on these systems. Finally, Athena provided a first set of guidelines for evaluating geospatially enabled RDF Stores. Specifically, we defined a series of geospatial RDF query types to be used as test queries, as well as quantities to be measured: (a) data insertion time, (b) spatial indexing cost (if available) and (c) evaluation time for typical SPARQL queries.					

Task No.	**Task 1.4**	**Plan-Start:**	**M07**	**Plan-End:**	**M36**
Lead Participant	**Ontos**	**Actual-Start:**	**M07**	**Actual-End:**	**M36**
Task Title	Component Integration and GeoKnow Generator				
Activity Type	Research Activities (RTD)				
Participant Involved	**Ontos, all partners**				
Progress of Work					
This task is about to start.					

Table 1 - Work Progress Description of Work Package WP1

Work package No.	**WP 2**	**Plan-Start:**	**M01**	**Plan-End:**	**M35**
Lead Participant	**OpenLink**	**Actual-Start:**	**M01**	**Actual-End:**	**M35**
Work Package Title	Semantics-Based Geospatial Information Management				
Activity Type	Research Activities (RTD)				
Participant Involved	**OpenLink, Athena, InfAI, BROX**				

Work Package Summary of Progress Towards Objectives

Significant progress in achieving the objectives of this work package has been made over this reporting period. Athena has led and completed Task 2.1 on the state of the art in geospatial and semantic data management. It also produced deliverable D2.1.1 on the market research survey and testing of geospatial-capable Data Stores, which was reviewed and submitted to SVN.

In Task 2.2 Athena has enhanced their geography2rdf tool as a generic tool TripleGeo for transforming geospatial data from several sources for storage in the Virtuoso RDF Quad Store. The sparqlify tool for transforming SQL OSM data to SPARQL was also extended by InfAI so that arbitrary SQL functions can be made known to the rewriter, facilitating the automatic generation of new Linked Geo Data (LGD) datasets on a monthly basis.

Tasks 2.3 and 2.7 are the main tasks scheduled to commence in the next reporting period.

Task No.	**Task 2.1**	**Plan-Start:**	**M01**	**Plan-End:**	**M05**
Lead Participant	**Athena**	**Actual-Start:**	**M01**	**Actual-End:**	**M05**
Task Title	State of the Art in Geospatial and Semantic Data Management				
Activity Type	Research Activities (RTD)				
Participant Involved	**Athena**				

Progress of Work

In Task 2.1, a thorough market and research survey was performed on the current standards, technologies and methodologies in geospatial and semantic data management, as well as a first cut evaluation of some well-known RDF stores with geospatial support. Specifically, we outlined the current concepts and standards on geospatial data management as well as the respective semantic web standards and presented GeoSPARQL which is the prominent standard for geospatial RDF data management. Another strand of our survey presented the state of the art regarding geospatially-enabled semantic stores (Virtuoso, OWLIM, Parliament, uSeekM, and Strabon) providing detailed information regarding their architecture, approach towards indexing, geospatial support, deployment options and performance.

Finally, we reviewed the most prominent RDF and geospatial benchmarks and introduced a new, geospatial RDF benchmark in order to address the lack of purposeful benchmarks and procedures for evaluating geospatially-enabled RDF stores. Our approach built on generic-purpose methodologies, but catered to the emerging needs of accurately and objectively evaluating geospatially-enabled RDF stores. We described in detail the data, the query workload used and our experimental setup, as well as evaluation results on the aforementioned RDF stores, along with the discovered challenges and future directions.

The above described effort is reflected in deliverable D2.1.1, which was finalized by 27/05/2013 (initial submission deadline 30/04/2013). The delay of the deliverable preparation was due to the fact that we faced several issues in the process of installing the respective RDF stores, loading data and querying them, as well as to the long running times of some of the stores during the experimental evaluation.

Task No.	Task 2.2	Plan-Start:	M02	Plan-End:	M06
Lead Participant	Athena	Actual-Start:	M02	Actual-End:	M06
Task Title	Integration with External Geospatial Databases				
Activity Type	Research Activities (RTD)				
Participant Involved	Athena, InfAI				

Progress of Work

In Task 2.2, we built tools for integrating geospatial (RDF or conventional) data from several sources into Virtuoso as well as for exposing this data into GeoSPARQL compliant datasets.

Athena extended and enhanced the open-source utility 'geometry2rdf' [geo2rdf] into a generic purpose utility, TripleGeo. TripleGeo can take as input not only ESRI shapefiles, but may also access spatial tables hosted in Oracle or PostGIS databases. Further, it copes with most common spatial data types such as points, linestrings and multi-linestrings, polygons and multi-polygons. In addition, it may also make on-the-fly transformation of a given dataset into another projection system (e.g., data from a national reference system like GreekGrid87 to WGS84). Geometries can be exported in varying serialized formats, most typically in WKT as prescribed by the recent GeoSPARQL standard [OGC12]. However, there is also support for namespace pos: of the WGS84 GeoPositioning vocabulary [GeoPos84] and Virtuoso's namespace for custom-point geometries virtrdf:

The tool iterates through all features in the original dataset and emits a series of triples per record. Every geometric feature is turned into a properly formatted triple according to the specified vocabulary. Additional descriptive attributes such as identifiers, names, types etc. can also be extracted. For the time being, these attributes are exported as literals, without taking into account any underlying ontology. Results are written into a file in a standard format for triples such as RDF/XML, Turtle, N-triples, etc.

In the context of this task, InfAI continued its work on the open source projects Sparqlify and LinkedGeoData.

Sparqlify is a SPARQL-to-SQL rewriter which allows one to create view definitions on relational data that can be subsequently queried on-the-fly with SPARQL. LinkedGeoData (LGD) is the name of our effort of transforming OpenStreetMap (OSM) data to RDF, interlinking it with other knowledge bases and publishing the involved artifacts online. Sparqlify is a core component of LGD for the reason that the OSM tool chain uses the relational database management system PostgreSQL as the backend.

Specifically, the advances for Sparqlify are as follows: The architecture was extended to allow making arbitrary SQL functions known to the rewriter. Based on this improvement, we started with the integration of spatial functions of the SQL MM standard such as intersection and containment. Furthermore, there were several enhancements to the SQL optimizer such as improved self-join elimination. Another new feature was added with the introduction of the EXPLAIN keyword which allows one to inspect the rewritten queries and their runtime. This extension was seen as useful for debugging view definitions and detecting performance bottle necks.

LGD benefited directly from the improvements of Sparqlify. The greatest improvement, however, included that new RDF data sets are now generated automatically on a monthly basis and published for download.

InfAI's work on the task led to the following two publications:

"Optimizing SPARQL-to-SQL Rewriting by Jörg Unbehauen, Claus Stadler, and Sören Auer in Submitted to 7th IEEE International Conference on Semantic Computing, September 16-18, 2013, Irvine, California, USA"

"Accessing Relational Data on the Web with SparqlMap by Jörg Unbehauen, Claus Stadler, and Sören Auer in JIST 2012"

Future steps will extend Sparqlify's spatial function support and enriching the LGD dataset.

The above described effort is reflected in deliverable D2.2.1, which will be available in mid-June (initial submission deadline 31/05/2013). The slight delay of the deliverable was due to the described delays in D2.1.1, as well as due to the fact that there were conflicts with other submission deadlines for conferences around the same time.

[geo2rdf] Geo.LinkedData.es Team. geometry2rdf Utility. Available at: http://mayor2.dia.fi.upm.es/oeg-upm/index.php/en/technologies/151-geometry2rdf

[OGC12] Open Geospatial Consortium Inc. OGC GeoSPARQL standard - A geographic query language for RDF data. Version 1.0, 27/04/2012. Available at: https://portal.opengeospatial.org/files/?artifact_id=47664.

[GeoPos84] Basic Geo (WGS84 lat/long) Vocabulary. Available from: http://www.w3.org/2003/01/geo/

Task No.	**Task 2.3**	**Plan-Start:**	**M06**	**Plan-End:**	**M24**
Lead Participant	**OpenLink**	**Actual-Start:**	**M06**	**Actual-End:**	**M24**
Task Title	Geospatial Query Optimization				
Activity Type	Research Activities (RTD)				
Participant Involved	**OpenLink, Athena**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 2.4**	**Plan-Start:**	**M09**	**Plan-End:**	**M31**
Lead Participant	**OpenLink**	**Actual-Start:**	**M09**	**Actual-End:**	**M31**
Task Title	Geospatial Clustering				
Activity Type	Research Activities (RTD)				
Participant Involved	**OpenLink**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 2.5**	**Plan-Start:**	**M13**	**Plan-End:**	**M36**
Lead Participant	**OpenLink**	**Actual-Start:**	**M13**	**Actual-End:**	**M36**
Task Title	Distributed Geospatial Capabilities				
Activity Type	Research Activities (RTD)				
Participant involved	**OpenLink**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 2.6**	**Plan-Start:**	**M13**	**Plan-End:**	**M20**
Lead Participant	**OpenLink**	**Actual-Start:**	**M13**	**Actual-End:**	**M20**
Task Title	Geospatial Problem Solving				
Activity Type	Research Activities (RTD)				
Participant Involved	**OpenLink, BROX**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 2.7**	**Plan-Start:**	**M07**	**Plan-End:**	**M18**
Lead Participant	**Athena**	**Actual-Start:**	**M07**	**Actual-End:**	**M18**
Task Title	Exposing INSPIRE Data as Linked Data				
Activity Type	Research Activities (RTD)				
Participant involved	**Athena**				
Progress of Work					
Task has not started yet.					

Table 2 - Work Progress Description of Work Package WP2

Work Package No.	WP 3	Plan-Start:	M02	Plan-End:	M34
Lead Participant	Athena	Actual-Start:	M02	Actual-End:	M34
Work Package Title	Spatial Knowledge Aggregation, Fusing &Quality Assessment				
Activity Type	Research Activities (RTD)				
Participant Involved	**Athena, InfAI, Unister, OpenLink**				

Work Package Summary of Progress Towards Objectives

In WP3 we focused on the problems of (a) recognizing implicit geographical references between datasets and (b) exploiting geospatial features to interlink RDF datasets. GeoLift [GeoLift] tool was developed to solve the first problem, while Limes [LIMES] was extended to discover links using geospatial information, addressing the second problem. The aforementioned works are presented in the following description of Task 3.1 and comprise the first important step to a system that integrates and homogenizes geospatial information from diverse data sources.

Along with the above, there has been close collaboration (through personal meetings and work package-specific telcos) for determining the integration between the several tools to be developed within the work package. InfAI provided background knowledge and technology (ALOE tool [ALOE]) to be utilized and extended in the context of spatial knowledge fusion (Task 3.2), while Athena started extending ALOE in order to incorporate spatial fusion capabilities, considering real-world, RDF or conventional spatial datasets. Finally, there has been cooperation between InfAI and OpenLink on the possibilities of applying query optimization techniques in the context of linked discovery (Limes).

The next steps involve the finalization and enhancement of the already implemented tools, GeoLift and LIMES: InfAI aims at implementing a graphical user interface on top of GeoLift to enable users to specify their workflows graphically, as well as at developing more measures for polygon similarity within Limes and evaluating them w.r.t. their robustness so as to provide guidelines for linking geospatial datasets. Athena aims at developing geospatial-specific processes and metrics to fuse datasets utilizing the spatial features of the respective entities. These processes will be assisted by graphical depictions of the data to be fused, as well as by rule-generation algorithms that will facilitate the automation of fusion.

[GeoLift] AKSW/GeoLift - GitHub. Available at https://github.com/AKSW/geolift

[LIMES] LIMES - Agile Knowledge Management and Semantic Web (AKSW). Available at http://aksw.org/Projects/LIMES.html

[ALOE] ALOE - Agile Knowledge Management and Semantic Web (AKSW). Available at http://aksw.org/Projects/ALOE.html

Task No.	Task 3.1	Plan-Start:	M02	Plan-End:	M30
Lead Participant	InfAI	Actual-Start:	M02	Actual-End:	M30
Task Title	Spatial Knowledge Mapping				
Activity Type	Research Activities (RTD)				
Participant Involved	**InfAI, OpenLink**				

Progress of Work

InfAI developed tools and methods (GeoLift and Orchid) for recognizing implicit geospatial information, as well as for interlinking RDF datasets utilizing geospatial features. In the following we give a short description of their functionality.

The goal of GeoLift is to lift implicit and explicit geographical references in RDF datasets. GeoLift assumes that geographical information can be mentioned in three different ways within Linked Data: (a) Through links: In some datasets, one can find owl:sameAs links to geospatial datasets. GeoLift uses the semantics of RDF to fetch geographical information from these datasets and

attach it to the resources in the non-geographical dataset. (b) Through linking: GeoLift uses the link discovery framework Limes to map resources in an input knowledge base to resources in a knowledge that contains explicit geographical information. Once having established the link between the two resources, GeoLift can then use the dereferencing approach defined above, (c) Through Natural Language Processing: In some cases, the geographic information is hidden in the objects of data-type properties. Here, GeoLift relies on the FOX [FOX] framework and takes advantage of the URIs it provides for the keywords and entities that it detects. Again, GeoLift can dereference the resources that were added.

Geospatial resources are often described as (ordered) sets of points or as polygons. This way of describing resources differs considerably from the approach followed for most Linked Data resources, which are commonly easiest identified by the means of a label. Consequently, not much attention has yet been paid to such descriptions in the field of link discovery (LD). We addressed this gap by developing Orchid, a module of Limes link discovery framework, which is a reduction-ratio-optimal approach for LD on geospatial data. Orchid implements the Hausdorff distance for mapping polygons and combines it with the orthodromic distance to achieve fast runtimes. So far, Orchid is up more than one order of magnitude faster than naive approaches.

The work performed in this task led to the following publication:

"A. C. N. Ngomo, L. Kolb, N. Heino, M. Hartung, S. Auer, E. Rahm: When to Reach for the Cloud: Using Parallel Hardware for Link Discovery. ESWC 2013: 275-289".

[FOX] FOX - Agile Knowledge Management and Semantic Web (AKSW). Available at http://aksw.org/Projects/FOX.html

Task No.	**Task 3.2**	**Plan-Start:**	**M05**	**Plan-End:**	**M31**
Lead Participant	**Athena**	**Actual-Start:**	**M05**	**Actual-End:**	**M31**
Task Title	Spatial Knowledge Fusing				
Activity Type	Research Activities (RTD)				
Participant Involved	**Athena**				
Progress of Work					
In Task 3.2, we reviewed the literature on methods and tools for fusing conventional RDF datasets and made a first step towards fusing geographic features of RDF data by (a) gathering and comparing several, both conventional and RDF, datasets containing geospatial features and (b) identifying the differences in geometry representations, reference systems, RDF properties used, etc. This preparatory work will facilitate the next steps in our work on the task that is defining rules and metrics for fusing different representations of geometry in RDF datasets.					

Task No.	**Task 3.3**	**Plan-Start:**	**M09**	**Plan-End:**	**M28**
Lead Participant	**Athena**	**Actual-Start:**	**M09**	**Actual-End:**	**M28**
Task Title	Quality Aware Spatial Knowledge Aggregation				
Activity Type	**Research Activities (RTD)**				
Participant Involved	**Athena, InfAI**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 3.4**	**Plan-Start:**	**M13**	**Plan-End:**	**M34**
Lead Participant	**InfAI**	**Actual-Start:**	**M13**	**Actual-End:**	**M34**
Task Title	Metrics for Volunteered Geographic Information				
Activity Type	Research Activities (RTD)				
Participant Involved	**InfAI**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 3.5**	**Plan-Start:**	**M12**	**Plan-End:**	**M32**
Lead Participant	**InfAI**	**Actual-Start:**	**M12**	**Actual-End:**	**M32**
Task Title	Spatial Knowledge Quality Assessment				
Activity Type	Research Activities (RTD)				
Participant Involved	**InfAI, Unister**				
Progress of Work					
Task has not started yet.					

Table 3 - Work Progress Description of Work Package WP3

Work Package No.	**WP 4**	**Plan-Start:**	**M02**	**Plan-End:**	**M34**
Lead Participant	**InfAI**	**Actual-Start:**	**M02**	**Actual-End:**	**M34**
Work Package Title	Spatial-Semantic Exploration, Visualization, Analysis & Authoring				
Activity Type	Research Activities (RTD)				
Participant Involved	**InfAI, Unister, Ontos, Brox**				

Work Package Summary of Progress Towards Objectives

In this work package only Task 4.1 has started yet with the first deliverable due in M12.

The goal of this task is to provide reusable components for visualizing and exploring spatial content. Thus, we focused on the development and implementation of powerful concepts for faceted filtering and browsing of spatial RDF data. A work-in-progress user interface enables users to perform easy filtering of arbitrarily nested facets, as well as the creation of data tables based on the properties of their facet selection. Next steps are related to improving the scalability of the system and to allow users to create customized and simplified views.

Additionally, we performed initial investigation and planning of how the Adaptive Semantic Authoring component being developed in the LOD2 project can be applied to the GeoKnow T4.2. One consequence of this collaborative use is that the design of the spatial browsing user interface employs a portlet-like system so as to facilitate flexible extension with new widget types.

Task No.	**Task 4.1**	**Plan-Start:**	**M02**	**Plan-End:**	**M26**
Lead Participant	**InfAI**	**Actual-Start:**	**M02**	**Actual-End:**	**M26**
Task Title	Spatial-Semantic Visualization and Exploration				
Activity Type	Research Activities (RTD)				
Participant Involved	**InfAI**				

Progress of Work

The goal of this task is to provide reusable components for visualizing and exploring spatial content. Visualizations always require input of which data to display. For this reason, in a first step we focused on the design and implementation of a web application that offers user interface that facilitates faceted search and data table creation.

In this way we worked on achieving the following design goals:

1. The browsing component should allow the user to browse any web-accessible SPARQL endpoint.
2. Users should be able to browse SPARQL endpoints regardless of the amount of contained data.
3. It should be possible to show indirectly geo-related entities on a map such as pictures that are related to an event, while the event's address refers to a city, and only the city carries geo-coordinates.
4. Filtering should be possible by indirectly related entities, i.e. entities for which a path of properties need to be considered.

At present, our system fulfils points (1), (3) and (4). For point (2), we are currently working on the design and implementation of fallback strategies required to make the system work on large datasets.

Additionally, we intend to enable users to reduce the complexity of the user interface by introducing new elements for UI customization such as:

- allow users to bookmark facets important to them

- enable users to save and restore the session/application state
- allow users to browse (publicly) saved states created by other users. In this way a user could e.g. adapt the facet selection and the data table created by another user rather than having to start from scratch.

Task No.	**Task 4.2**	**Task 4.1**	**M07**	**Plan-End:**	**M30**
Lead Participant	**InfAI**	**Actual-Start:**	**M07**	**Actual-End:**	**M30**
Task Title	Adaptive Spatial-Semantic Authoring and Curation				
Activity Type	Research Activities (RTD)				
Participant Involved	**InfAI**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 4.3**	**Plan-Start:**	**M15**	**Plan-End:**	**M34**
Lead Participant	**Unister**	**Actual-Start:**	**M15**	**Actual-End:**	**M34**
Task Title	Public-Private Spatial Data Co-Evolution				
Activity Type	Research Activities (RTD)				
Participant Involved	**Unister**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 4.4**	**Plan-Start:**	**M13**	**Plan-End:**	**M34**
Lead Participant	**Ontos**	**Actual-Start:**	**M13**	**Actual-End:**	**M34**
Task Title	Spatial Social Networking				
Activity Type	Research Activities (RTD)				
Participant Involved	**Ontos, Brox**				
Progress of Work					
Task has not started yet.					

Table 4 - Work Progress Description of Work Package WP4

Work Package No.	**WP 5**	**Plan-Start:**	**M03**	**Plan-End:**	**M36**
Lead Participant	**Brox**	**Actual-Start:**	**M03**	**Actual-End:**	**M36**
Work Package Title	Spatial Linked Data in the Supply Chain				
Activity Type	Research Activities (RTD)				
Participant Involved	**Brox, InfAI, Athena, OpenLink, Ontos**				
Work Package Summary of Progress Towards Objectives					
Previous and current work focuses on generating an initial RDF supply chain data set.					

Task No.	**Task 5.1**	**Plan-Start:**	**M03**	**Plan-End:**	**M22**
Lead Participant	**Brox**	**Actual-Start:**	**M03**	**Actual-End:**	**M22**
Task Title	Connecting RFID Data to the Web of Data				
Activity Type	Research Activities (RTD)				
Participant Involved	**Brox, InfAI**				
Progress of Work					
An initial supply chain data set consisting of about 8000 records has been received from Schnellecke. The received data set contains 3 types of entries: - sales order entries for months May and June 2013. - address data for all referenced suppliers - invoice entries that have been prepared for Volkswagen Documentation concerning the employed data formats has been received separately. Current work focuses on developing parsers for all three data formats based on the received documentation. The result will be a set of parsers for transforming all records to RDF. The resulting RDF data set will be delivered in D5.1.1 (RDF representation of RFID information by M09.					

Task No.	**Task 5.2**	**Plan-Start:**	**M05**	**Plan-End:**	**M36**
Lead Participant	**Brox**	**Actual-Start:**	**M05**	**Actual-End:**	**M36**
Task Title	Supply Chain Geo Data Management Infrastructure				
Activity Type	Research Activities (RTD)				
Participant Involved	**Brox, OpenLink**				
Progress of Work					
Initial research into the requirements for building the GeoKnow Generator.					

Task No.	**Task 5.3**	**Plan-Start:**	**M13**	**Plan-End:**	**M31**
Lead Participant	**InfAI**	**Actual-Start:**	**M13**	**Actual-End:**	**M31**
Task Title	Consolidated Spatial View of the whole Supply Chain				
Activity Type	Research Activities (RTD)				
Participant Involved	**InfAI, Brox**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 5.4**	**Plan-Start:**	**M15**	**Plan-End:**	**M34**
Lead Participant	**Brox**	**Actual-Start:**	**M15**	**Actual-End:**	**M34**
Task Title	GeoKnow Background Knowledge for the Supply Chain				
Activity Type	Research Activities (RTD)				
Participant Involved	**Brox, Athena**				
Progress of Work					
Task has not started yet.					

Task No.	**Task 5.5**	**Plan-Start:**	**M07**	**Plan-End:**	**M36**
Lead Participant	**Brox**	**Actual-Start:**	**M07**	**Actual-End:**	**M36**
Task Title	Evaluation and Testing				
Activity Type	Research Activities (RTD)				
Participant Involved	**Brox**				
Progress of Work					
Task has not started yet.					

Table 5 - Work Progress Description of Work Package WP5

Work Package No.	WP 6	Plan-Start:	M03	Plan-End:	M36
Lead Participant	Unister	Actual-Start:	M03	Actual-End:	M36
Work Package Title	GeoKnow for E-Commerce				
Activity Type	Research Activities (RTD)				
Participant Involved	Unister, InfAI, Athena, OpenLink, Ontos				

Work Package Summary of Progress Towards Objectives

The focus during this reporting period was on the preparation (in particular implementing an anonymisation process) of data sets and preliminary analyses which will be the basis for the e-commerce use case. Relevant data sets of different Unister travel portals have been identified and assembled for the GeoKnow project. Prototypes have been implemented that transform parts of the given information into an RDF representation. From an e-commerce use case perspective, constant input is given to WP2 and WP3 tasks, with the next steps being the adaptation of components and results developed in these work packages to fuse and interlink information in Unister data sets with geospatial open linked data.

Task No.	Task 6.1	Plan-Start:	M02	Plan-End:	M12
Lead Participant	Unister	Actual-Start:	M02	Actual-End:	M12
Task Title	Customer Data Selection, Retrieval and Preparation				
Activity Type	Research Activities (RTD)				
Participant involved	Unister, InfAI				

Progress of Work

Three data sets from different Unister portals will be used for GeoKnow:

(a) data containing flight bookings of customers, among others including information about size of group, destination and departure airport, (b) hotel reservation data, among others indicating if a booking was done within an all-inclusive tour or an individually planned booking, (c) hotel review data giving users' opinions on a hotel booking including a travel constellation field (for example single, couple, family).

After preparation of these data sets, they have undergone a few initial transformations for extracting RDF-type information from the hotel review data (c), indicating which travel constellation a hotel seems suitable for. The work for this task is mainly on track, however deliverable D6.1.1 will only be submitted 3-4 weeks late due to some internal difficulties with one of the data sets.

Task No.	Task 6.2	Plan-Start:	M03	Plan-End:	M12
Lead Participant	Unister	Actual-Start:	M03	Actual-End:	M12
Task Title	Design Integration Methods and Develop Prototype to Utilize RTD Results				
Activity Type	Research Activities (RTD)				
Participant Involved	Unister, Athena				

Progress of Work

In the scope of this task, work is in progress to design and implement a component model for using Unister data sets and easily integrating them with geospatial open linked data using algorithms and outcomes of WP2 and WP3.

Task No.	Task 6.3	Plan-Start:	M13	Plan-End:	M36
Lead Participant	Unister	Actual-Start:	M13	Actual-End:	M36
Task Title	Motive and Topic-Based Search Infrastructure and UI Interfaces				
Activity Type	Research Activities (RTD)				
Participant Involved	Unister, OpenLink				
Progress of Work					
Task has not started yet.					

Task No.	Task 6.4	Plan-Start:	M13	Plan-End:	M36
Lead Participant	Unister	Actual-Start:	M13	Actual-End:	M36
Task Title	Evaluation and Testing of the Search Prototype				
Activity Type	Research Activities (RTD)				
Participant Involved	Unister, Ontos				
Progress of Work					
Task has not started yet.					

Table 6 - Work Progress Description of Work Package WP6

Work Package No.	WP 7	Plan-Start:	M01	Plan-End:	M36
Lead Participant	Ontos	Actual-Start:	M01	Actual-End:	M36
Work Package Title	Dissemination, Community Building, Exploitation & Standards				
Activity Type	Research Activities (RTD)				
Participant Involved	**Ontos, Athena, InfAI, Unister, Brox, OpenLink**				

Work Package Summary of Progress Towards Objectives

The tasks of this WP included the following activities:

- Developing and maintaining communication channels for the project including GeoKnow website, social network presence and community building which has also been useful for other WPs.
- Contributing to standards through the development of tools that integrate R2RML and SML standards.
- Stabilizing contact with other EU projects for collaboration, however a first version of the GeoKnow Generator will open up orchestration opportunities in the following months.
- setting the infrastructure and guidelines for publication activities.

Task No.	Task 7.1	Plan-Start:	M02	Plan-End:	M36
Lead Participant	Ontos	Actual-Start:	M01	Actual-End:	M36
Task Title	Dissemination, Community Building and Cross-Fertilization				
Activity Type	Research Activities (RTD)				
Participant Involved	**Ontos, all partners**				

Progress of Work

In this task we produced the fact sheet (D7.1.1), the project website (D7.1.2), available at http://geoknow.eu and one press release announcing the project start. The GeoKnow website has been created by using the OntoWiki platform that integrates website capabilities which allow for a well-structured and semantically enabled website. This website presents the GeoKnow project, its results, dissemination material, participation in events, and links to the different social networks we are present. During this period we have also maintained a blog where we have published 8 posts describing project activities and participation in events. The community building efforts performed in this WP were extremely important for the call to participate in the survey carried out in WP1. Finally, in this task there is a continuous effort to communicate results and activities through social networks.

Task No.	Task 7.2	Plan-Start:	M09	Plan-End:	M36
Lead Participant	Unister	Actual-Start:	M09	Actual-End:	M36
Task Title	Exploitation				
Activity Type	Research Activities (RTD)				
Participant Involved	**Unister, all partners**				

Progress of Work

This task has not started

Task No.	Task 7.3	Plan-Start:	M05	Plan-End:	M32

Lead Participant	InfAI	Actual-Start:	M05	Actual-End:	M32
Task Title	Standardisation				
Activity Type	Research Activities (RTD)				
Participant Involved	InfAI, OpenLink, Ontos				
Progress of Work					
At the beginning of the project an important goal was to establish a W3C community group [1] in the geospatial semantic web. This group was not only created as a dissemination activity, but also to offer a platform for a specialized community to discuss, for instance, topics around standards. Besides, InfAI worked on support of the recently (September 2012) W3C-standardised mapping language R2RML for mapping relational databases to RDF. In particular, we started the implementation of converters for the Sparqlify tool, which is developed at InfAI as part of GeoKnow and one of the main technologies behind the LinkedGeoData project. Sparqlify uses the SML mapping language and now supports a preliminary conversion to R2RML and vice versa. [1] http://www.w3.org/community/geosemweb/					

Task No.	Task 7.4	Plan-Start:	M01	Plan-End:	M26
Lead Participant	Athena	Actual-Start:	M01	Actual-End:	M26
Task Title	Orchestration with Other Projects				
Activity Type	Research Activities (RTD)				
Participant Involved	Athena				
Progress of Work					
Orchestration with other projects has focused on establishing communication pathways, exploring possible collaborations/synergies, and collecting input which can be applied in the development of GeoKnow. In this context, GeoKnow members have had contacts with researchers from the following projects: EarthServer (EU FP7), DIACHRON (EU FP7), LATC (EU FP7), MODAP (EU FP7). Orchestration activities focused on facilitating the uptake of the project's technology, which will begin after the first integrated version of the GeoKnow Generator is available and are planned to heighten around EDF2014, which will be co-organized in Spring 2014 by IMIS/Athena.					

Task No.	Task 7.5	Plan-Start:	M01	Plan-End:	M36
Lead Participant	Ontos	Actual-Start:	M01	Actual-End:	M36
Task Title	Publishing Directives				
Activity Type	Research Activities (RTD)				
Participant Involved	Ontos, all partners				
Progress of Work					
In this task Ontos has created and administrates an account on the Bibsonomy website to collect publications generated by the consortium. We continuously remind to the partners the guidelines to report publications settled in the wiki [1]. This way of reporting is used to be able to expose all publication in the porject's website with the integration of an API to access bibsonomy. Finally, a project account has being created in github to group GeoKnow[2] components that are developed within the project. Those repositories are public accessible with their respective licences.					

[1] http://wiki.geoknow.eu/Internal:Infrastructure/Publications
[2] https://github.com/GeoKnow

Table 7 - Work Progress Description of Work Package WP7

Work Package No.	**WP 8**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**InfAI**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Work Package Title	**Project Management**				
Activity Type	Management				
Participant Involved	**InfAI, all partners**				

Work Package Summary of Progress Towards Objectives

The project management of the GeoKnow project revolved around administrative, legal and financial issues. This work was substantially supported by the use of the GeoKnow MediaWiki, the general Geoknow mailing list and the subversion repository. Especially, the project reporting was performed through the MediaWiki and SVN. Both tools supported the documentation of resources and work progress for the entire consortium. Other functionalities include file and document uploading as well as sharing.

Administration covered the following tasks:

- communication with the EU, including the submission of deliverables,
- provision of guidelines on quality management and report writing, including the provision of various templates,
- organization of regular conference calls for all partners and provision of minutes,
- regular updates of the project's website,
- provision of new or updated PR material,
- updates of the GeoKnow weblog, etc.

Legal and financial tasks covered the following:

- management of contractual issues and timely distribution of corresponding documents and relevant information to partners (e.g. regarding grant agreement and consortium agreement),
- communication between consortium partners and the EU on project- and funding-related questions,
- management of budget and distribution of payments to partners, etc.

Task No.	**Task 8.1**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**InfAI**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Task Title	Management of the Consortium				
Activity Type	Management				
Participant Involved	**InfAI**				

Progress of Work

The Management Board was formed and presently executes the role of the ultimate decision-making body of the GeoKnow consortium. Based on the Consortium Agreement, its mission is to define the project strategy, to assess progress and to propose corrections if needed. It is composed of one representative of each party, which includes the following members:

Dr. Jens Lehmann (InfAI), Giorgos Giannopoulos (Athena), Hugh Williams (OpenLink), Daniel Hladky (Ontos), Dr. Andreas Booth (Unister), Hans-Christian Brockmann (Brox)

Otherwise no major activity is to be reported for the current period with regard to the work of the Management Board of the GeoKnow consortium.

Currently, the W3C GeoSemWeb group which was launched in December 2012 as a public forum for discussion on the geospatial Semantic Web (see also

http://www.w3.org/community/geosemweb/) is considered to function also as GeoKnow's international advisory board. Including experts from diverse professional backgrounds with a major focus on the project's topics and research fields, this group has the potential to fulfill the tasks of an advisory board for GeoKnow. The consortium is presently examining this option and its benefits for the project.

Task No.	**Task 8.2**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**InfAI**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Task Title	Communication with the EC				
Activity Type	Management				
Participant Involved	**InfAI**				
Progress of Work					

This task involved mainly the coordination and provision of information for the Grant Agreement and the Consortium Agreement as well as matters revolving around:

- the management of reporting to the EU, including the submission of reports and deliverables
- communication between consortium partners and the EU on project- and funding-related questions
    - reg. amendment for change of coordinator's address
    - management personnel budgeting at Ontos, change of internal person month distribution
    - distribution of pre-financing

Task No.	**Task 8.3**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**InfAI**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Task Title	Financial Management				
Activity Type	Management				
Participant Involved	**InfAI**				
Progress of Work					

InfAI received the pre-financing from the Commission which was distributed to the beneficiaries in conformity with the EC-GA and as required by the EC. Prior to the provision of funds an interest-bearing account dedicated solely to the project was opened and bank details were sent to the EC via the financial identification form. Means of controlling were established to ensure the proper administration of funds and enable the justification of costs throughout the project as required by the EC. Documents which were mandatory due to the requested contribution exceeding € 500.000 were prepared and ultimately provided by the start of the project. An external audit report was carried out and other financial documents for 2011 were gathered to allow the financial verification of InfAI.

In February 2013 the sponsorship by the GeoKnow consortium of the European Data Forum 2013 event was issued by the coordinator.

Task No.	**Task 8.4**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**InfAI**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Task Title	Internal Communication				

Activity Type	Management
Participant Involved	**InfAI, all partners**
Progress of Work	

During the first months of the project the establishment of various tools to be used for the organization of the project and communication among the partners was the central focus in this task. The GeoKnow collaboration tool suit comprises a mailing list, a GeoKnow Event Calendar, a MediaWiki as well as a subversion repository.

Email List

InfAI set up a mailing list (GeoKnow@lists.informatik.uni-leipzig.de) for internal communication among project partners which currently has 39 subscribers. This list was used frequently for:

- exchanging on issues regarding research and development in the GeoKnow project (e.g. coordinating collaborative work on deliverables; planning of activities such as poster presentations at the EDF2013 and presentation at Open Data on the Web; collaboration with LOD2 project reg. a GeoKnow extension to the LOD2 Stack and the integration of Virtuoso)
- coordinating joint efforts of dissemination and exploitation in the GeoKnow project (e.g. promotion of GeoKnow presence at EDF2013 and ESWC2013, distribution of dissemination material, distribution and promotion of press releases about the project start, information about updates on the project website, submission of an article to be published in scientific magazine “gis.BUSINESS”)
- organizing project management issues of the GeoKnow consortium (e.g. coordination of finalizing the Grant Agreement and Consortium Agreement, submission of reports and deliverables).
- promoting use of new project-related tools (i.e GitHub Repository)

Several other communication channels were used continuously (e.g., Twitter with 104 followers, Facebook with 57 Likes, Google+ and LinkedIn both with 39 members, the project website and weblog: http:// http://geoknow.eu, the GeoKnow W3C Community and Business Group, and slideshare). For instance, foreground such as deliverables, publications and presentations were made available at http://geoknow.eu/Results.html. A comprehensive project description was also included on the website, reflecting the project’s structure as well as giving brief information on the project scheme, its resources and budget. The partners were asked to provide short abstracts about their organizations and logos to represent the GeoKnow consortium on the website. Finally, initial dissemination material (such as leaflet, sticker, press releases) was made available and further PR documents will be collected and uploaded at http://geoknow.eu/Dissemination.html for a wider audience. The GeoKnow weblog served greatly as a platform for exchange and public dissemination. During the current reporting period 8 blogposts were published on various topics including:

- project milestones (e.g. a survey for Geospatial Data User for use case evaluation; set up of 5-pre-built Virtual Machines of geospatial RDF stores)
- project results (eg: results of the survey for Geospation Data User),
- meetings (e.g., Kick-Off meeting and project start),
- events (e.g. EDF2013, ESWC2013, Open data Workshop London, Greek Open Data Day)
- dissemination activities (e.g. promotion of project start)

Online Collaboration Platforms

In order to easily share and collaboratively edit information about work packages, tasks, deliverables, calls, meetings and management issues, the GeoKnow consortium decided to use a MediaWiki as collaboration platform. The MediaWiki was made available at http://wiki.geoknow.eu. In this reporting period the internal wiki was largely used for the

organization of individual WPs and the execution of specific tasks within the WPs. Minutes of meetings and audio conferences held between the GeoKnow members were also collected and shared in the wiki. Guidelines and detailed descriptions were made available on report writing including progress- and cost-related aspects, on the submission of deliverables and on the use and implementation of timesheets. Further information relevant to internal work processes and to the promotion of GeoKnow were gathered in the wiki to ease, for instance, the introduction of new employees and their integration into the work of GeoKnow. This information was also ultimately collected to assure the progress and success of the project within and beyond its academic context.

The GeoKnow subversion repository was used actively for creating and sharing documents including among others:

- contracts (e.g. grant agreement, consortium agreement, description of work),
- dissemination material (e.g. press releases and clippings) and
- collection of templates for the generation of various GeoKnow materials (e.g. presentations, deliverables, reports, timesheets etc.)

The project calendar provided by google allowed the coordination of the partners' dissemination and exploitation activities as well as the organisation of internal conference calls. It was regularly updated with detailed information about events in which the GeoKnow consortium was involved during the reporting period.

Conference Calls

A general telephone conference in which at least one representative of each partner was required to participate was organized every month. Partners participated in an active and reliable manner. Discussions were focusing on the following:

- to document the progress within each work package with a particular focus on due deliverables (e.g discussion on new prototypes for query optimization, discussion about delays and problems that occurred), papers to be submitted for conferences (e.g. Open Data Week in London),
- to report on recent and coming events attended by GeoKnow members (e.g. EDF2013, ESWC2013, Open data Workshop London, Greek Open Data Day)
- discuss dissemination efforts (e.g. press releases, articles to be published in scientific magazines)
- to discuss relevant management issues (e.g. the upcoming interim report, provision of necessary information, use of timesheets, organization of plenary meeting, coordination of finalizing the Grant Agreement and Consortium Agreement)
- to determine specific action items for a smooth progress of the GeoKnow project
- promoting use of new project-related tools (e.g. GitHub Repository)

Telephone and Skype conferences were also scheduled on a regular basis for almost all of the work packages. A list of these calls is given section 3.2. So far seven monthly telcos and ten specific WP- or task-related telcos were organized by the consortium members. One telephone call was especially dedicated to reporting issues.

Meetings

The first project meeting was held in Leipzig between January 16th and 17th, 2013. The kick-off meeting was organized by InfAI and gave the opportunity:

- to introduce partners of Geoknow
- to discuss the structure and organization of each work package and the partners' involvement
- to present major tools used within the project and

- to outline the project management

Agenda and minutes as well as other material such as presentations were distributed among the consortium beforehand via SVN, the mailing list and the MediaWiki

Several work package meetings took also place, for instance, for WP5, and WP 7; further WP meetings are already scheduled for the upcoming report period. The next project meeting will take place in Athens between July 24th and 26th, 2013 and will be organized by Athena.

Task No.	**Task 8.5**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**InfAI**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Task Title	Monitoring of Resource Expenditure				
Activity Type	Management				
Participant Involved	**InfAI**				
Progress of Work					
Timesheets were regularly updated and collected at InfAI. The partners were provided with a timesheet template for 2013, which was made available through SVN. Personnel planning was carried out at InfAI in close collaboration between project leader and project manager. The allocation of resources was regularly controlled and adapted, if necessary. In the current reporting period this included, for instance, the monitoring of parental leaves (e.g. organizing part-time backup, home office opportunities and return-to-work strategies). Furthermore, new personnel for RTD was planned especially in view of upcoming project work.					

Task No.	**Task 8.6**	**Plan-Start:**	**M01**	**Plan-End:**	**M36**
Lead Participant	**InfAI**	**Actual-Start:**	**M01**	**Actual-End:**	**M36**
Task Title	Quality Assurance of Deliverables				
Activity Type	Management				
Participant Involved	**InfAI, all partners**				
Progress of Work					
In order to ensure the quality of deliverables, a clearly structured review process was established by the consortium and documented in the MediaWiki. Review activities were coordinated via the internal wiki and SVN. Each deliverable was peer-reviewed by one or two consortium members who were chosen from an organization other than the ones responsible for the deliverable and was given a final revision for style by the coordinator. The WP leader of the respective deliverable was responsible for its final approval. The submission of deliverables was monitored through SVN and the project website. Guidelines on how to prepare, write and submit deliverables were published in the GeoKnow Wiki. No deliverable was seriously delayed in this reporting period.					

Table 8 - Work Progress Description of Work Package WP8

2. Deliverables and Milestones Tables

2.1. Overview of Adherence to Plan of Deliverables

Del. No.	Deliverable Name	WP No.	Lead Beneficiary	Nature	Dissemination Level	Delivery date from Annex I	Status	Actual / Forecast delivery date	Comments
D7.1.1	Project Fact Sheet and Press Release	7	Ontos	R	PU	M01	Submitted	31.12.2012 (M01)	
D8.4.1	Online Collaboration Platform	8	InfAI	R	PU	M01	Submitted	31.12.2012 (M01)	
D7.1.2	Project Website	7	Ontos	R	PU	M03	Submitted	22.02.2013 (M03)	
D1.1.1	Initial Common Requirements Specification	1	Unister	R	CO	M04	Submitted	30.04.2013 (M05)	
D2.1.1	Market and Research Overview	2	Athena	R	PU	M05	Submitted	27.05.2013 (M06)	
D1.3.1	Design and Setup of Benchmarking System	1	OpenLink	R	CO	M06	Submitted	18.06.2013 (M07)	
D2.2.1	Integration of External Geospatial Databases	2	Athena	P	PU	M06	ongoing	31.05.2013 (M06)	
D6.1.1	Report on Customer Data Selection and Retrieval	6	Unister	R	PU	M06	ongoing	31.05.2013 (M06)	
D8.2.1	Intermediate Project Report	8	InfAI	R	CO	M06	ongoing	31.05.2013 (M06)	

Table 9 - Deliverable Table

2.2. Overview of Adherence to Plan of Milestones

Milestone No.	Milestone Name	WP No.	Lead Beneficiary	Delivery Date from Annex I	Status	Actual / Forecast Achievement Date	Comments
MS1	Requirements Specification and Benchmarking System	WP1	Ontos	M06	Achieved	M06	Other partners involved: Brox, Unister

Table 10 - Milestone Table

3. Internal and External Project Cooperation

3.1. Internal Meetings

Start Date	End Date	Description	Participants	Location
05.12.2012	05.12. 2012	GeoKnow dissemination and infrastructure	Ontos, InfAI	Leipzig, Germany
21.02.2013	21.02.2013	WP5 description, technical WP5 discussion	Brox, InfAI	Leipzig, Germany
22.03.2013	22.03.203	LOD2 Stack introduction	Ontos, InfAI	Leipzig, Germany
29.05.2013	29.05.2013	LOD2 Stack architecture	Ontos, InfAI	Leipzig, Germany

Table 11 - Internal Meetings

3.2. Conference Calls

Date	Description	Participants	Location
23.11.2012	Monthly Telco	all partners	Skype
17.12.2012	Monthly Telco	all partners	Skype
06.02.2013	Monthly Telco	all partners	Skype
08.02.2013	Telco: LOD2 Stack for Geoknow	Alejandra Garcia Rojas, Jon Jay Le Grange, Jens Lehmann, Claus Stadler, Bert van Nuffelen (Tenforce), Vadim Zaslawiski, Uros Milosevic	
20.02. 2013	WP2 Telco	Hugh Williams, Mirco Spasic, Orri Erling, Giorgos Giannopoulos, Kostas Patroumpas, Claus Stadler, Ivan Mikhailov	Skype
04.03.2013	WP1 Telco, reg D1.1.1,	Alejandra Garcia Rojas, Michael Martin, Jens Lehmann, Mirko Kaempf, Matthias Wauer, Daniel Hladky, Christiane Lemke	Skype
06.03.2013	Monthly Telco	All partners	Skype

12.03.2013	WP3 Telco	Axel Ngonga, Mohammed Sherif, Giorgos Giannopolous	
20.03.2013	Telco: GeoKnow Generator	Jens Lehmann, Jon Jay Le Grange, Alejandra Garcia Rojas, Vadim Zaslawski, Giorgos Giannopoulos	Skype
10.04.2013	Monthly Telco	All partners, Sandra Praetor apologized	Skype
12.04.2013	WP3 Telco	Mohammed Sherif, Axel Ngonga, Giorgos Giannopoulos, Dimitris Skoutas, Antonis Korkofigkas	Skype
22.04.2013	WP 1 Telco	Matthias Wauer, Jens Lehmann, Alejandra Garcia Rojas	Skype
15.05.2013	Monthly Telco	All partners	Skype
15.05.2013	Telco: Geoknow Generator	Alejandra Garcia Rojas, Jon Jay Le Grange, Vadim Zaslawski, Giorgos Giannopoulos, mathias Wauer, Uros Milosevic, Jens Lehmann, Claus Stadler	
03.06.2013	WP8 Telco	Nadine Jaenicke, Sandra Praetor, Alejandra Garcia Rojas, Hugh Williams, Christiane Lemke, Giorgos Giannopoulos	Skype
05.06.2013	Monthly Telco	All partners	Skype

Table 12 - Conference Calls

3.3. Conferences

Start Date	End Date	Description	Participants	Location
07.03.2013	08.03.2013	*EUROGI imagine conference* - Claus Stadler gave a presentation of the project and its plans; - discussion with GIS community	Claus Stadler (InfAI)	Dublin, Ireland
09.04.2013	10.04.2013	*European Data Forum (http://2013.data-forum.eu)* - Claus Stadler and Michael Martin presented a poster on GeoKnow; - Silver sponsorship of the EDF conference	Claus Stadler (InfAI), Michael Martin (InfAI)	Dublin, Ireland
23.04.2013	24.04.2013	Open Data on the Web - Jon Jay Le Grange gave presentation about GeoKnow - 120 attendees	Jon Jay Le Grange (Ontos)	London, UK

		- slides and paper are available on the website: http://www.w3.org/2013/04/odw/agenda - discussion with people who were specifically interested in the project and its aims after the presentation - distribution of dissemination material		

Table 13 - Conferences

3.4. Presentations

Start Date	End Date	Description	Participants	Location
23.02.2013	23.02.2013	Greek Open Data Day - organized by Athena - giving presentation on GeoKnow - presentation slides are available at: http://svn.aksw.org/projects/GeoKnow/Slides/General_Presentation/GeoKnow_GeneralPresentation_2013.pptx - approx. 160 participants from public and private sector	Athena	Athens, Greece
02.06.2013	05.06.013	SemTechBiz - Daniel Hladky gave a presentation in the Linked Data track about Linked Data for Cities and mentioned GeoKnow components in his presentation. - 30 attendees in the talk - More information at: http://semtechbizsf2013.semanticweb.com/programDetails.cfm?ptype=K&optionID=206&pgid=4	Daniel Hladky (Ontos)	San Francisco, USA

Table 14 - Presentations

3.5. Workshops

Start Date	End Date	Description	Participants	Location
12.03.2013	13.03.2013	Making the Multilingual Web Work Workshop - Daniel Hladky participated as a PC member in the workshop (approx. 100 attendees) and distributed some flyers during the poster session. - More information at: http://www.multilingualweb.eu/en/documents/rome-workshop/rome-cfp	Daniel Hladky (Ontos)	Rome, Italy
26.05.2013	30.05.2013	ESWC'13 - Jens Lehman organized a GeoKnow-related workshop with approx. 50 attendees and was mentor at the PhD symposium - further workshop details are available at: http://www.ke.tu-darmstadt.de/know-a-lod-2013/ - dissemination material was distributed	Jens Lehmann (InfAI)	Montpellier, France

Table 15 – Workshops

4. Foreground and Dissemination Activities during this Period

4.1.1. List of Publications

1. Nonga Ngomo, A.-C.; Kolb, L.; Heino, N.; Hartung, M.; Auer, S. and Rahm, E.: *When to Reach for the Cloud: Using Parallel Hardware for Link Discovery.* ESWC 2013: 275-289.
2. Garcia-Rojas, A.; Athanasiou, S.; Lehmann, J. and Hladky, D.: *GeoKnow: Leveraging Geospatial Data in the Web of Data*. In: Open Data on the Web Workshop.
3. Martin, M; Stadler, C.; Frischmuth, P. and Lehmann, J: *Increasing the Financial Transparency of European Commission Project Funding*. In: Semantic Web Journal.
4. Auer, S.; Lehmann, J.; Ngonga Ngomo, A.-C. and Zaveri, A.: *Introduction to Linked Data and Its Lifecycle on the Web*. In: Reasoning Web.
5. Zaveri, A.; Lehmann, J.; Auer, S.; Hassan, M. M.; Sherif, M. A. and Martin, M.: *Publishing and Interlinking the Global Health Observatory Dataset*. In: Semantic Web Journal.
6. Lyko, K.; Höffner, K.; Speck, R.; Ngonga Ngomo, A.-C. and Lehmann, J.: *SAIM - One Step Closer to Zero-Configuration Link Discovery.* In: Proc. of the Extended Semantic Web Conference Posters & Demos.
7. Ngonga Ngomo, A.-C.; Bühmann, L.; Unger, C.; Lehmann, J. and Gerber, D.: *SPARQL2NL - Verbalizing SPARQL Queries.* In: Proc. of WWW 2013 Demos.

4.1.2. List of Standardization Activities

No.	Date	Description	Status
1	December 2012	W3C GeoSemWeb group initiated as public forum for discussion on the geospatial Semantic Web and for potential standardisation activities in the future (http://www.w3.org/community/geosemweb/)	started

Table 16 - Standardization Activities

5. Explanation of the Use of the Resources

5.1.1. Overview of Actual Allocated Resources

Work Packages / Tasks	Type of Activtiy	Total	Reminds	Declared	Period M01-M06 (01.12.2012 - 31.05.2013)							
					P1 - InfAI	P2 - Athena	P3 - OpenLink	P4 - Ontos	P5 - Unister	P6 - Brox	Start-End (month)	
WP1	**RTD**	**109,00**	**84,86**	**24,14**	**6,90**	**1,00**	**3,10**	**3,14**	**8,00**	**2,00**	1	36
Task 1.1		17,00	2,85	14,15	4,00	--	--	1,15	7,00	2,00	1	4
Task 1.2		37,00	31,11	5,89	2,40	0,50	--	1,99	1,00	--	1	18
Task 1.3		13,00	9,40	3,60	--	0,50	3,10	--	--	--	1	36
Task 1.4		42,00	41,50	0,50	0,50	--	--	--	--	--	1	36
WP2	**RTD**	**59,00**	**50,80**	**8,20**	**2,00**	**6,10**	**0,10**	**--**	**--**	**--**	1	35
Task 2.1		4,00	--	4,00	--	4,00	--	--	--	--	1	5
Task 2.2		9,00	5,00	4,00	2,00	2,00	--	--	--	--	2	6
Task 2.3		15,00	14,80	0,20	--	0,10	0,10	--	--	--	6	24
Task 2.4		7,00	7,00	--	--	--	--	--	--	--	9	31
Task 2.5		7,00	7,00	--	--	--	--	--	--	--	13	36
Task 2.6		11,00	11,00	--	--	--	--	--	--	--	13	20
Task 2.7		6,00	6,00	--	--	--	--	--	--	--	7	18
WP3	**RTD**	**73,00**	**71,20**	**1,80**	**1,50**	**0,10**	**0,20**	**--**	**--**	**--**	2	34
Task 3.1		14,00	12,30	1,70	1,50	--	0,20	--	--	--	2	30
Task 3.2		14,00	13,90	0,10	--	0,10	--	--	--	--	5	31
Task 3.3		17,00	17,00	--	--	--	--	--	--	--	9	28
Task 3.4		7,00	7,00	--	--	--	--	--	--	--	13	34
Task 3.5		21,00	21,00	--	--	--	--	--	--	--	12	32
WP4	**RTD**	**67,00**	**64,50**	**2,50**	**2,50**	**--**	**--**	**--**	**--**	**--**	2	34
Task 4.1		17,00	14,50	2,50	2,50	--	--	--	--	--	2	26
Task 4.2		18,00	18,00	--	--	--	--	--	--	--	7	30

Task 4.3		20	20	--	--	--	--	--	--	--	15	34
Task 4.4		12,00	12,00	--	--	--	--	--	--	--	13	34
WP5	**RTD**	**59,00**	**55,20**	**3,80**	**0,40**	**--**	**--**	**--**	**--**	**3,40**	3	36
Task 5.1		11,00	8,40	2,60	0,40	--	--	--	--	2,20	3	22
Task 5.2		13,00	11,80	1,20	--	--	--	--	--	1,20	5	36
Task 5.3		14,00	14,00	--	--	--	--	--	--	--	13	31
Task 5.4		16,00	16,00	--	--	--	--	--	--	--	15	34
Task 5.5		5,00	5,00	--	--	--	--	--	--	--	7	36
WP6	**RTD**	**76,00**	**69,00**	**7,00**	**0,50**	**--**	**--**	**--**	**6,50**	**--**	3	36
Task 6.1		23,00	18,00	5,00	0,50	--	--	--	4,50	--	2	12
Task 6.2		20	18,00	2,00	--	--	--	--	2,00	--	3	12
Task 6.3		20	20	--	--	--	--	--	--	--	13	36
Task 6.4		13,00	13,00	--	--	--	--	--	--	--	13	36
WP7	**RTD**	**29,00**	**24,73**	**4,27**	**0,49**	**0,20**	**0,20**	**2,98**	**--**	**0,40**	1	36
Task 7.1		10,50	7,07	3,43	0,26	0,15	0,10	2,92	--	--	2	36
Task 7.2		7,00	7,00	--	--	--	--	--	--	--	9	36
Task 7.3		3,00	2,99	0,01	--	--	--	0,01	--	--	5	32
Task 7.4		2,00	1,45	0,55	--	0,05	0,10	--	--	0,40	1	26
Task 7.5		6,50	6,22	0,28	0,23	--	--	0,05	--	--	1	36
WP8	**MGT**	**23,00**	**19,42**	**3,58**	**2,59**	**0,10**	**0,50**	**0,11**	**--**	**0,28**	1	36
Task 8.1		3,00	2,55	0,45	0,45	--	--	--	--	--	1	36
Task 8.2		3,00	2,60	0,40	0,40	--	--	--	--	--	1	36
Task 8.3		3,00	2,56	0,44	0,44	--	--	--	--	--	1	36
Task 8.4		5,50	4,22	1,28	0,45	0,05	0,50	0,10	--	0,18	1	36
Task 8.5		3,00	2,70	0,30	0,30	--	--	--	--	--	1	36
Task 8.6		5,50	4,79	0,71	0,55	0,05	--	0,01	--	0,10	1	36
Total RTD (in person-month)		472,00	420,29	51,71	14,29	7,40	3,60	6,12	14,50	5,80		
Total MGT (in person-month)		23,00	19,42	3,58	2,59	0,10	0,50	0,11	0,00	0,28		
Total (in person-month)		**495,00**	**439,71**	**55,29**	**16,88**	**7,50**	**4,10**	**6,23**	**14,50**	**6,08**		

Table 17 – Actual Efforts per Activity Type per Beneficiary for the Period (in person-month)