

<In a nutshell, ...>

... the mission of Knowledge Web is to strengthen the European industry and service providers in one of the most important areas of current computer technology: Semantic Web enabled e-work and e-commerce. **The project concentrates its efforts around frontline research to "realize the Semantic Web"**. To ensure the durability of research achievements and their industrial acceptance, the network has the mission to promote semantic technology at large through a comprehensive educational program and various industry outreach activities targeting promising applications areas of semantic systems and services in both commercial and non-profit fields.

<Summary of Activities>

Knowledge Web continues to be at the core of some of the most important initiatives in the European Semantic Web community.

The researchers of Knowledge Web are leading **key activities in standardization**, notably the OWL 1.1 activity and the W3C Data Access (DAWG), Rule Interchange Format (RIF) and Semantic Web Deployment (SWD) Working Groups. Worth being mentioned are also the role of Knowledge Web in the development of benchmarks for Semantic Web tools and in the establishment of the international **Ontology Alignment Evaluation Initiative (OAEI)**. Knowledge Web is also keen to support new activities, such as the **Semantic Web Services Challenge**, which foster comparison and deployment of Semantic Web techniques.

This solid research portfolio is complemented by a comparable educational and technology transfer program. The network has set up a **foundation for Semantic Web education** and implemented a **shared European Master program**. Also, the network supports **deployment in specific application areas** in cooperation with potential user organizations, focusing on the life-science and human-resource management domains. The network is now preparing to conclude its activities in its fourth and final year by completing a **road map for Semantic Web deployment**.

<Important Work Areas>

Industry

The main point of focus in the Industry Area activity in Knowledge Web was to foster the take-up of semantic technology for the sake of competitiveness of European Industry. To reach this goal, we have worked closely with representative Industry

partners (an Industry Board of more than 50 members) to align the Semantic Web research with identified industry requirements, and demonstrate the industrial application of state-of-the-art research results through 'real world' business scenarios.

To sustain these efforts beyond Knowledge Web, two complementary organizations have been founded early 2007. The Semantic Technology Institute International (www.sti2.org) aims to establish semantics as a core pillar of modern computer engineering. The Ontology Outreach Advisory (www.ontology-advisory.org) develops strategies for ontology recommendations and standardization in industry. Together these organizations will spearhead the ongoing efforts to bring semantics to industry.

Knowledge Web has been:

- analyzing the current technology and organizational roadblocks,
- benchmarking available tools, methodologies, and resources,
- proposing a Semantic Web framework to execute business scenarios
- recommending Ontology Contents through our Ontology Outreach Advisory (OOA),
- providing an Ontology Repository (OYSTER: <http://oyster.ontoware.org>) to ease ontology reuse,
- designing a Semantic Web technology roadmap,
- designing a Human Resources semantic practice roadmap,
- proposing a collection of Best Practices to deploy applications (in conjunction with W3C)
- and (co)organizing many industry related events (about 10 in 2006 and 2007) to ease the transfer of the state of the art to industry, including the first European Semantic Technologies Conference (ESTC).

In 2007, the final year of the Knowledge Web network, we have demonstrated some of these results in industry events (workshops/demos) such as the ESTC 2007, the Human Capital and Social Innovation Technology Summit in Maastricht, and at the International and Asian Semantic Web Conference (ISWC+ASWC) 2007. Industry-oriented research was presented at the OnToContent workshop, part of the OnTheMove federated conference in Vilamoura.

Research

Research Activities

The network performs work in key areas required to make the Semantic Web a reality: addressing the scalability issues in the Semantic Web up; dealing with heterogeneity; and embracing the dynamic nature of the web. Particular areas targeted include ontology alignment, modularisation, the dynamics of the ontology lifecycle and scalable inference.

Standards

Knowledge Web actively pushes towards standardization of languages for the Semantic Web. A W3C Working Group developing an Extended Web Ontology Language (OWL 1.1) has been chartered and started work in October. The network also continues work in standardisation of thesauri, rule and query languages.

Engagement with Industry

Use cases and industrial scenarios such as the Health and Life Sciences and Human Resource management provide key inputs, ensuring that research undertaken in KnowledgeWeb is grounded in real world problems and requirements.

The research community

The (T-REX) program continues to build a virtual research community and enables long-term impact with high-quality exchanges. In some cases, exchanges led to permanent moves, helping to build and sustain the European research community.

Education

The education area organized two major educational events: the second instance of the PhD symposium being part of the European Semantic Web Conference and the fifth instance of the well-established European Summer School on Ontological Engineering and the Semantic Web, the key educational event in the Semantic Web area. The European Academy for Semantic Web Education, our long-term effort to organize a joint European Master of Science degree in the area of Semantic Web, has come under the auspices of the ST12 initiative end of 2007 and has finished the initial steps to launch the Master programme finally. Taking the requirements of our industry partners into account, additional learning resources were added to REASE, the repository of Semantic Web learning resources, building on a new version of the REASE catalogue created in 2007. In fact, the wiki pages of the underlying Semantic Web Topic Hierarchy have now become the major hub for concatenating all different demonstrators and web pages to ensure a sustainable availability of these outcomes and an improved dissemination of the results. ASPL-2, the second version of the Advanced Semantic Platform for Learning using advanced Semantic Web technologies, was formally evaluated based on user feedback in 2007 and also more tightly integrated with existing demonstrators such as REASE or the wiki pages. EASE, the European Association for Semantic Web Education, will finally bundle all these activities beyond 2007.

<User Involvement, Promotion and Awareness>

The **Industry Board** of Knowledge Web currently consists of more than 50 highly dedicated members. Numerous meetings have been held and are planned for the future

to further strengthen the links between these members and the Knowledge Web consortium. In particular, we are working towards establishing one large and unified industry-oriented Semantic Web venue in Europe.

Among the very successful events which contribute to the high profile of Knowledge Web was again the **European Summer School on Ontological Engineering and the Semantic Web**, which was organized last summer by the consortium. This summer school, organized with the direct involvement of leading researchers in the field, continues the tradition of Semantic Web schools initiated in 2003 as part of the activities of the OntoWeb Network Consortium and held in 2004, 2005 and 2006 as part of the activities of our Network of Excellence. In November 2007 the consortium successfully organized the first school on the Semantic Web on the Asian continent in collaboration with the AsiaLink project EastWeb.

The participation of Knowledge Web members in various program committees, **W3C working groups** and in the **establishment of major scientific and industry-targeted events** contribute to the visibility of the network way beyond its European origins. Many specialized workshops have been supported by Knowledge Web partners. In particular, the Ontology Alignment Evaluation Initiative (OAEI) has a tangible impact, being the annual focal meeting point for all R&D projects in the field.

Since 01-March-2004, the public version of the **Knowledge Web portal** has been running at <http://knowledgeweb.semanticweb.org/>. The portal includes a public area available to external parties interested in knowledge technologies, and a restricted area to be used by Knowledge Web partners.

In 2007, the Knowledge Web consortium moved a step forward in its mission to establish semantics as a core building block of modern IT systems through the foundation of **STI International** <http://www.sti2.org/>. This initiative is a continuation of the European Semantic Systems Initiative <http://www.essi-cluster.org/> and is organized as a collaborative association of interested scientific, industrial and governmental parties of the world wide Semantic Web and Services community. STI International coordinates and actively contributes to major research and education activities in Europe and promotes greater awareness and faster take-up of semantic technology in full synergy with these activities.

Events and Projects with which the project co-operates/clusters closely

FP6 Projects

Data, Information, and Process Integration with Semantic Web Services (DIP)

FP6-507483

<http://dip.semanticweb.org/>

Semantically-Enabled Knowledge Technologies (SEKT)
FP6-506826
<http://sekt.semanticweb.org/>

Semantics Utilised for Process management within and between Enterprises (SUPER)
FP6-026850
<http://ip-super.org/>

TripCom
FP6-027324
<http://www.tripcom.org/>

Ontogrid
FP6-511513
<http://www.ontogrid.net/>

EastWeb
FP6-010111084
<http://latemar.science.unitn.it/EASTWEB>

FP6 Networks of Excellence
Agentlink III
FP6-002006
<http://www.agentlink.org/>

Rewerse
FP6-506779
<http://www.reverse.net/>

ProLearn
IST - 507310
<http://www.prolearn-project.org/>
FP6 Projects

Main Events

4th European Semantic Web Conference (ESWC07)
03-07 June 2007
Innsbruck, Austria
<http://www.eswc2007.org/>

5th European Summer School on Ontological Engineering and the Semantic Web (SSSW07)
08-14 July 2006
Cercedilla, Spain
<http://wiener.dia.fi.upm.es/sssw07/>

2nd Asian Semantic Web Conference (ASWC 2007)
11-15 November 2007
Busan, Korea
<http://iswc2007.semanticweb.org/main/default.asp>

6th International Semantic Web Conference (ISWC2007)
11-15 November 2007
Busan, Korea
<http://iswc2007.semanticweb.org/main/default.asp>

1st European Semantic Technology Conference (ESTC 2007)
31-May to 01-June-07
Vienna, Austria
<http://www.estc2007.com/>

1st Asian Autumn School on the Semantic Web (AASSW2007)
05-November to 10-November-07
Busan, Korea
<http://aassw2007.org/>

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