

# The Project at a glance

SEWASIE is a 36 months research project, started in May 2002. SEWASIE aims at implementing an advanced search engine, which will provide European SMEs with intelligent access to heterogeneous information on the Internet. Relying on an architecture that organises information based on its semantic values, the SEWASIE search engine will detect meaningful data complying with user preferences and requests. Integrating the search and negotiating facilities in user-friendly interfaces, SEWASIE will reduce transaction costs for SMEs, powerfully enhancing their access to key technologies and business opportunities.

## Consortium Members

- ▶ **Università degli Studi di Modena e Reggio Emilia (I, coordinator)**
- ▶ **CNA Servizi Modena S.c.a.r.l. (I)**
- ▶ **Università degli Studi di Roma "La Sapienza" (I)**
- ▶ **Rheinisch-Westfälischen Technischen Hochschule Aachen (D)**
- ▶ **Libera Università di Bolzano (I)**
- ▶ **Thinking Networks AG (D)**
- ▶ **IBM Italia S.p.A. (I)**
- ▶ **Fraunhofer Gesellschaft zur Förderung der angewandten Forschung eingetragener Verein (D)**



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METADATA METADATA METADATA

INTEGRATION

AGENT

QUERY

XMLDATA

EMERGENT MEANING

ONTOLOGY

IST-2001-34825



# sewasie

SEmantic Webs and AgentS in Integrated Economies

## Technology outlook and innovative features

SEWASIE will design and implement an advanced search engine that provides access via a machine-processable semantics of data overrunning current information retrieving tools. Multilingual ontologies will be the basis for the advanced search mechanisms; they will be created and maintained with an inference layer grounded in W3C standards (XML, XML Schema, RDF(S)). The system will be an open and distributed architecture based on intelligent agents (brokers, mediators and wrappers) and will support scalability and flexibility.

Special Query Agents will support users when querying heterogeneous web information sources. The query agent will move through SEWASIE information nodes and retrieve the information requested by the user. Information nodes are independent components that semantically enrich existing data sources by linking the data to ontologies and other metadata. The system will also be capable of real-life business evaluation of the results, developing tools which solve the problem in a usable, marketable way.

## User requirements and resulting product profile

Three kinds of utilisation were identified: "End users": simple searchers, either using fee-based or free searching services. The free scenario is feasible if the problem that requires a search activity does not need specific answers but only statistically reliable ones. In this case the system supplies answers containing little information. "Middle users": experts of a problem using SEWASIE to create a service. They create an ontology which has to be reliable and precise.

The created services are used by the end users. "SEWASIE as integrator of Information Systems in a middle-large enterprise": the user (directly or through a software company which sells SEWASIE) is able to face the problem completely managing the SEWASIE software. He knows how to create the necessary ontologies exploiting all the tools SEWASIE offers. This kind of user purchases the software and the know-how to manage it.

## Envisaged system architecture

The system architecture was designed as follows: A general framework will be responsible for the implementation of the semantic enrichment processes, leading to semantically-enriched virtual data stores (Information Nodes) accessible by the users. The created ontology must have a multilingual interface, based on a logical layer and coded using widespread W3C standards. A query agent will secure query management and information reconciliation, taking into account the Information Nodes. The Agent will detect commonalities among queries, determining the relevant nodes responsible for answering parts of the queries and it will split the queries accordingly. Finally, it will combine the sub-answers, providing the end-user with an overall answer to the original query.

An information-brokering component will include methods for collecting, contextualising and visualising semantically rich data. Intelligent information filtering and knowledge guidance services will be developed. Structured data will be linked to semi- or unstructured data via ontologies. The collected data will be visualised, showing search-related documents and result contexts.

A communication tool will enable structured negotiation support (ontology based) for human negotiators engaged in business-to-business electronic commerce and employing intelligent software agents for some routine communication task. Two end-user interfaces, one supporting the design, management and storage of the semantic information associated to the nodes, the other as a tool for end-user query management and intelligent navigation will be developed.

