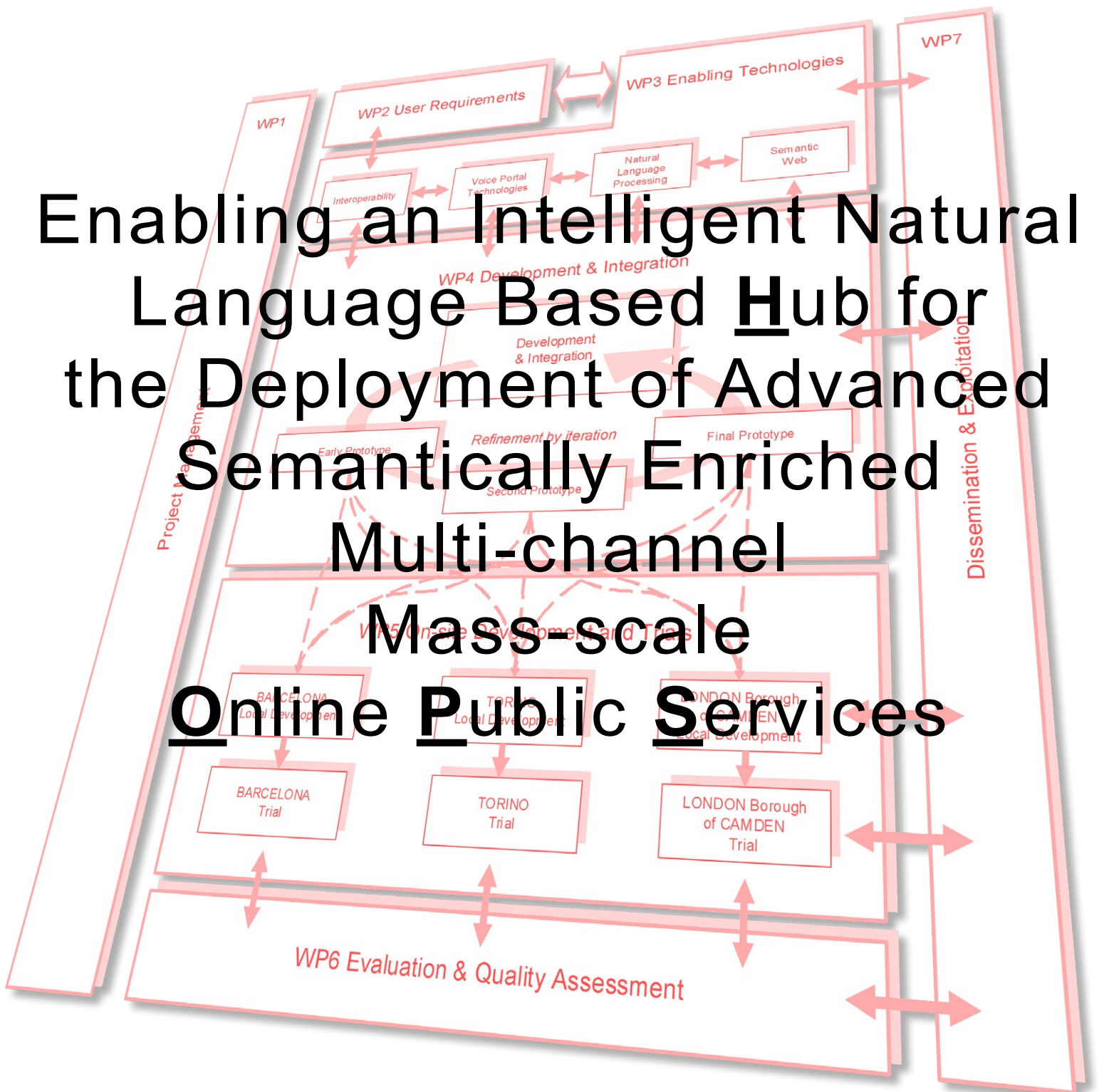
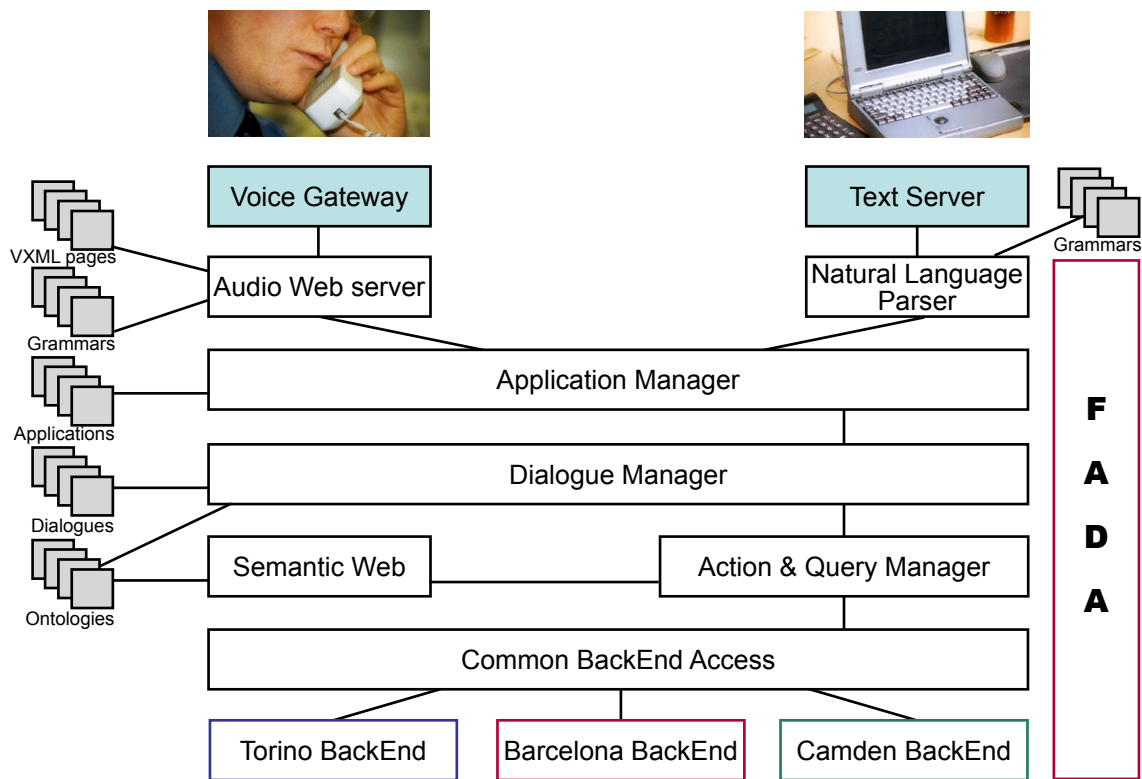


# Enabling an Intelligent Natural Language Based Hub for the Deployment of Advanced Semantically Enriched Multi-channel Mass-scale Online Public Services





## Objectives of HOPS

HOPS is a three year project, cofinanced by EU IST FP6, focused on the deployment of advanced technologies in voice-enabled front platforms.

HOPS will set up an architecture that is able to deliver:

- **voice access to the city's services**, with semantic and natural language processing
- **text access to the city's services**, using free text queries.

This will be possible thanks to a **strong integration** between voice technologies (VoiceXML, ASR Automatic Speech Recognition, TTS Text-to-speech), natural language processing and semantic web technologies applied to Public Administration services.

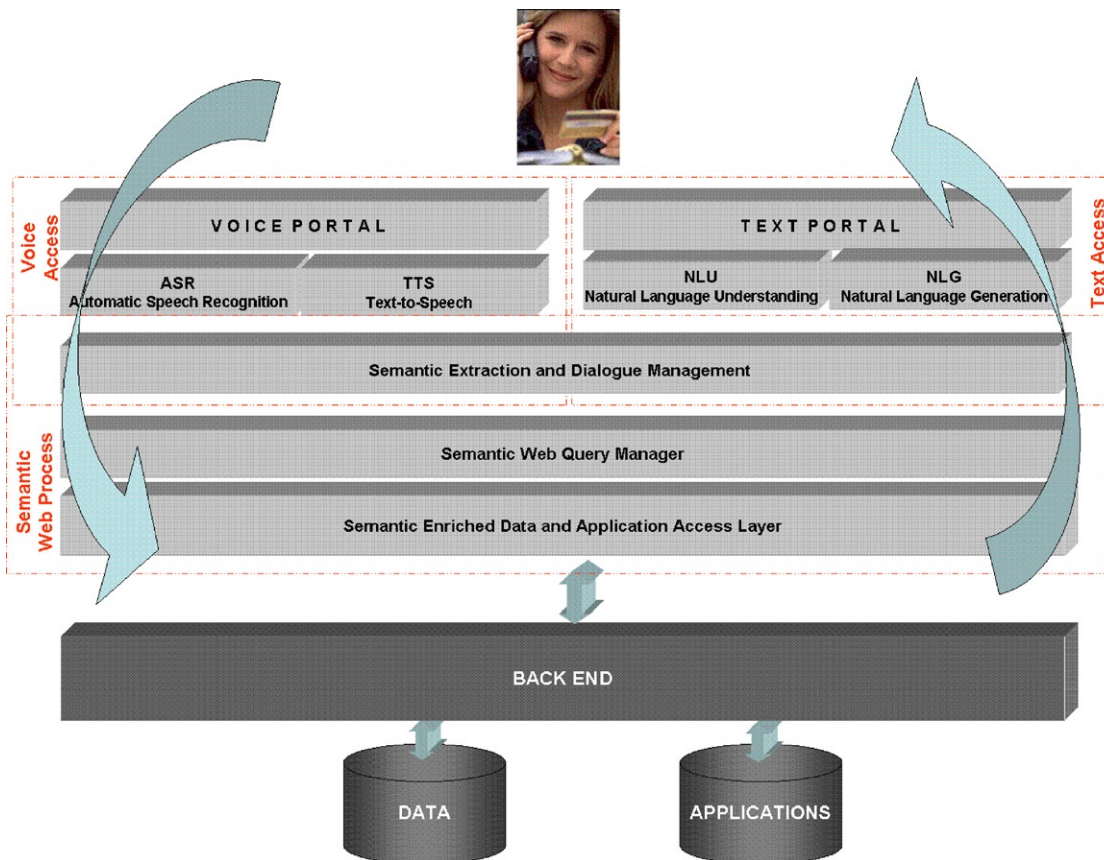
## Why HOPS?

The city's Public Administrations receive a high amount of telephone calls in **their manned call centres**.

Many of the calls are simple information queries that a computer operated system could handle. Citizens frequently ask for the same information using different words, hence only an **ontology-driven system**, with **natural language processing** capabilities, can reply correctly having fully understood the question.

HOPS will **merge today's technologies** to leverage them to a new level of service integrating web semantic, natural language processing and voice technology.

These technologies may act, together, as a tool to give the city's municipality a new way to **design and deliver new services** or to integrate the old ones.



## Benefits

**Users** will benefit from HOPS enabled services as:

- they will gain **easy** access to city services through the use of a widespread medium (the telephone) using their own **voice** and **language**;
- they may contact the city's information desks **24 hours a day**.

**Cities** will also benefit as:

- boring, repetitive tasks dispensing information delivered by human operators may be **answered automatically** in a 24-hour a day, non-stop service.
- use of HOPS service let **reallocate internal human resources** to more complex and motivated works, thus enhancing training processes;
- new interactive services may be designed to be accessible also by voice, including complex query and **transactional** services in a multichannel environment.

## Potential market

HOPS aims to replicate its architecture, in an easy and manageable way, to deliver multi channel, mass scale online public services.

This goal will be reached with a 'black box' architecture that can be easily connected to a municipality's database driven website, or applications, to deliver services immediately.

Only the ontology of specific services must be defined, if no similar ones already exist.

Using a mix of open source and commercial software, HOPS could be installed in easy or complex architectural scenarios, ready to deliver new voice enabled, semantically enriched, services.



## HOPS partners



**Ajuntament  
de Barcelona**

Barcelona is one of the major European metropolises, with more than a million and a half inhabitants. The Barcelona City Council is strongly involved in the e-government process using the Internet as an instrument to achieve three main strategic objectives: to improve internal management; improve commitments to the citizen; and develop a participatory strategy. More info at [www.bcn.es](http://www.bcn.es)



**CITTA' DI TORINO**

The City of Turin is the main town in the Piedmont Region, a high-developed area in the NW part of Italy. Turin municipal area counts over 0,9 million inhabitants settled on 130,17 Km<sup>2</sup>. The local PA, and in particular Turin Municipality is having a strong role in the town's redesigning process with a strong commitment in supporting the development of the digital economy. City website at [www.comune.torino.it](http://www.comune.torino.it)



**Camden**

The London Borough of Camden - Camden Council - is a local government authority employing around 6.000 people to provide a wide variety of services to 190.000 residents as well as large numbers of those visiting working or studying in the area. Camden also acts as a conduit for governmental services and supports a range of voluntary sector organisations providing specialist services. [www.camden.gov.uk](http://www.camden.gov.uk)



The TALP Research Center for technologies and applications in language and speech (TALP stands for Tecnologies i Aplicacions del Llenguatge i la Parla) is a Specific Research Center of the Universitat Politècnica de Catalunya (UPC), committed to technology and applications of the natural language processing techniques. Only the Natural Language Processing Group of TALP is involved in HOPS. The official company website url: [www.talp.upc.es](http://www.talp.upc.es)



The Università degli Studi di Torino was founded in 1404. It includes 14 Faculties and 55 Departments, covering all Humanities and scientific fields, for 60.000 students. The Dipartimento di Informatica was established in 1970. The Natural Language Processing Group has carried out research (since 1978) on Syntax, Parsing, Development of linguistic resources, Psycholinguistics models, Semantics, Dialogue, Agent modelling, Ontological models of agents, plans and normative behaviour. Web [www.di.unito.it](http://www.di.unito.it)



The group at the University of Amsterdam (UvA) is widely recognised as the leading group in the field of knowledge engineering. It has ample experience with libraries of reusable conceptual components, such as problem solving methods and ontologies, using and producing (meta-)descriptions of problem solving competences, wrapping of problem solving competences into agent architectures and the (dynamic) deployment of these reusable components in new applications. In addition UvA has chaired the development of the OWL language. Web: [www.uva.nl](http://www.uva.nl)



Since its inception in 1982, a singular vision -- "The Network Is The Computer" -- has propelled Sun Microsystems, Inc. (Nasdaq: SUNW) to its position as a leading provider of industrial-strength hardware, software and services that make the Net work. Sun can be found in more than 100 countries and on the World Wide Web at [www.sun.com](http://www.sun.com)



Leveraging 30 years of cutting-edge R&D, Loquendo provides everything necessary for the ultimate speech-interaction experience. Loquendo's patented technologies (TTS, ASR, Speech Suite, Speaker Verification) and platforms guarantee best-of-breed solutions in 16 languages/35 voices. With its headquarter in Italy, it has activities spanning Europe, U.S. & Latin-America. Further info: [www.loquendo.com](http://www.loquendo.com)



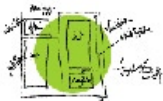
iSOCO (Intelligent Software Components S.A.) is a privately held company founded in 1999 as a spin-off of the Spanish Artificial Intelligence Research Institute. iSOCO is the leading Spanish company in Semantic Web technologies, evidenced by its participation in several large, ambitious (international) R&D and commercial projects in this area. Web: [www.isoco.com](http://www.isoco.com)



CSI Piemonte is the main body representing regional Public Administration in the field of information technology and telematics. It carries out research activities, develops technologically-advanced products and services, designs applications and information systems. Web: [www.csi.it](http://www.csi.it)



CSP is a non-profit ICT Research Centre, recognized by the Italian Ministry of Education, University and Scientific Research. Its shareholders include: local government, University and industrial organizations. CSP targets are technology transfer and the Information Society implementation through a strong synergy with academic institutions, private business and local government. Web: [www.csp.it](http://www.csp.it)



Runtime Collective has been integrating and supporting enterprise applications for clients in London since 2000. It works with open source tools in a way that enables to deliver robust solutions that adhere to industry standards. Using open source also ensures that our on-going relationships with clients are based on continual delivery of a quality service, rather than vendor lock in. Web: [www.runtime-collective.com](http://www.runtime-collective.com)



Grupo IT-Deusto was founded at the end of 1999 as a merger -of different independent ICT Spanish companies and it is one of the biggest independent IT companies in Spain. The company's main areas of activity are in the following sectors: Telco, Financials, Public Administration, Industrial, Utilities and Distribution, with an important portfolio of customers. Web: [www.itdeusto.com](http://www.itdeusto.com)

HOPS - Enabling an Intelligent Natural Language Based Hub for the Deployment of Advanced Semantically Enriched Multi-channel Mass-scale Online Public Services is a cofinanced project by EU IST FP6 (contract no. IST 2002-507957) Project started on 1/1/2004 and will end on 31/12/2006. More info about HOPS project can be found at official website [www.hops-fp6.org](http://www.hops-fp6.org)

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