



HOPS

Project presentation

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



Project description



HOPS is a three-year project focused on the deployment of advanced ICT enabled “voice-enabled front-end public platforms” in Europe permitting access for European citizens to their nearest Public Administration.



Project Objectives



To address the mass-scale deployment of new online public services supported and accessible by voice channels (basically phone, both fixed and mobile), the most accessible and easiest communication means used by all European Citizens.

This will only be possible by the addition of new fully functional advanced technologies enabling to deliver automated services without losing quality and further enhancing the current functionalities.



Programme' Strategic Objectives



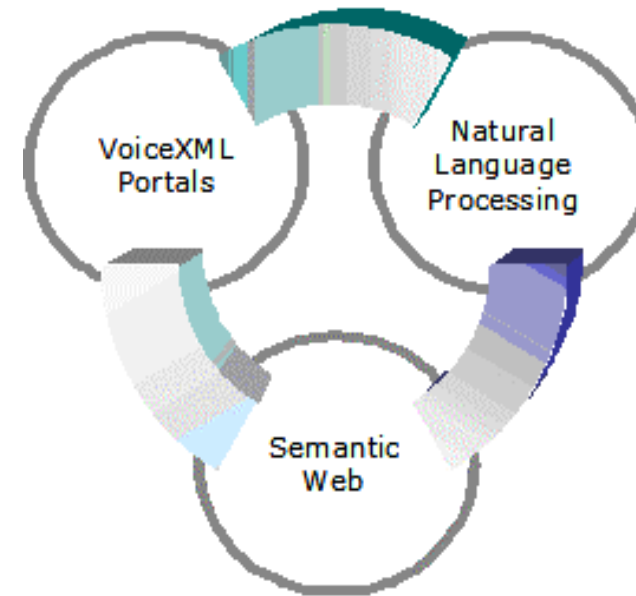
- *2.3.1.9 Networked businesses and governments,*
“Open, secure, interoperable and re-configurable e-government platforms, applications and multi-modal services. They should be based on European standards, support national, regional and local initiatives and deploy as much as possible open source software solutions for all aspects of inter- and intra-government operations including electronic democracy systems, interaction with citizens and businesses, governmental process re-engineering and knowledge management”.
- *2.3.1.7 Semantic-enabled systems and services,*
“Facilitating multimedia content mining on the Web and across distributed computing platforms. They should be self-organising, robust and scaleable and enable better mastery of complex information spaces through improved analysis, interpretation and visualisation of high-dimensional objects and content”.



Technologies

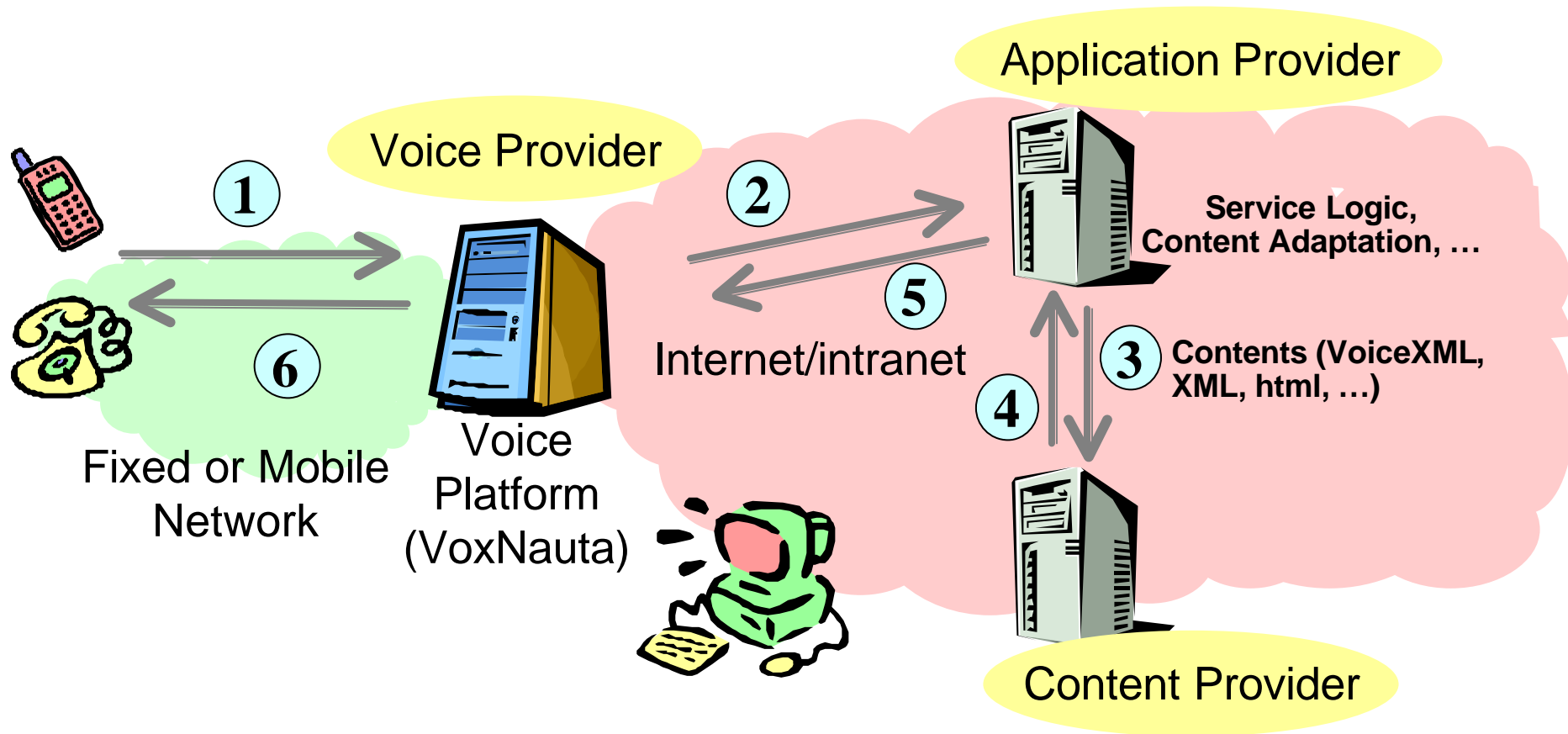


- Voice XML
- Voice Portals
- Natural Language Processing
- Semantic Web Technologies



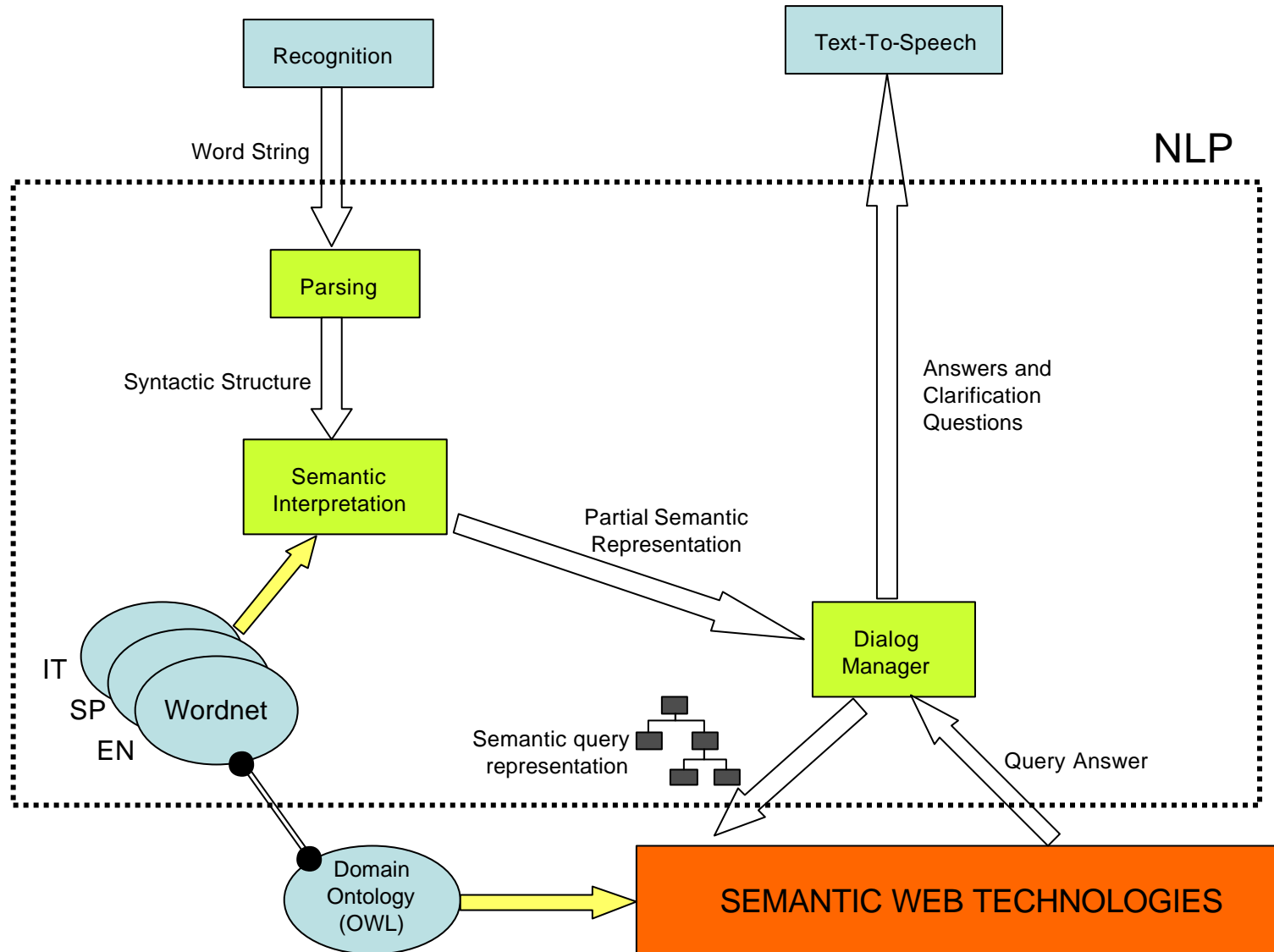


Voice XML portals



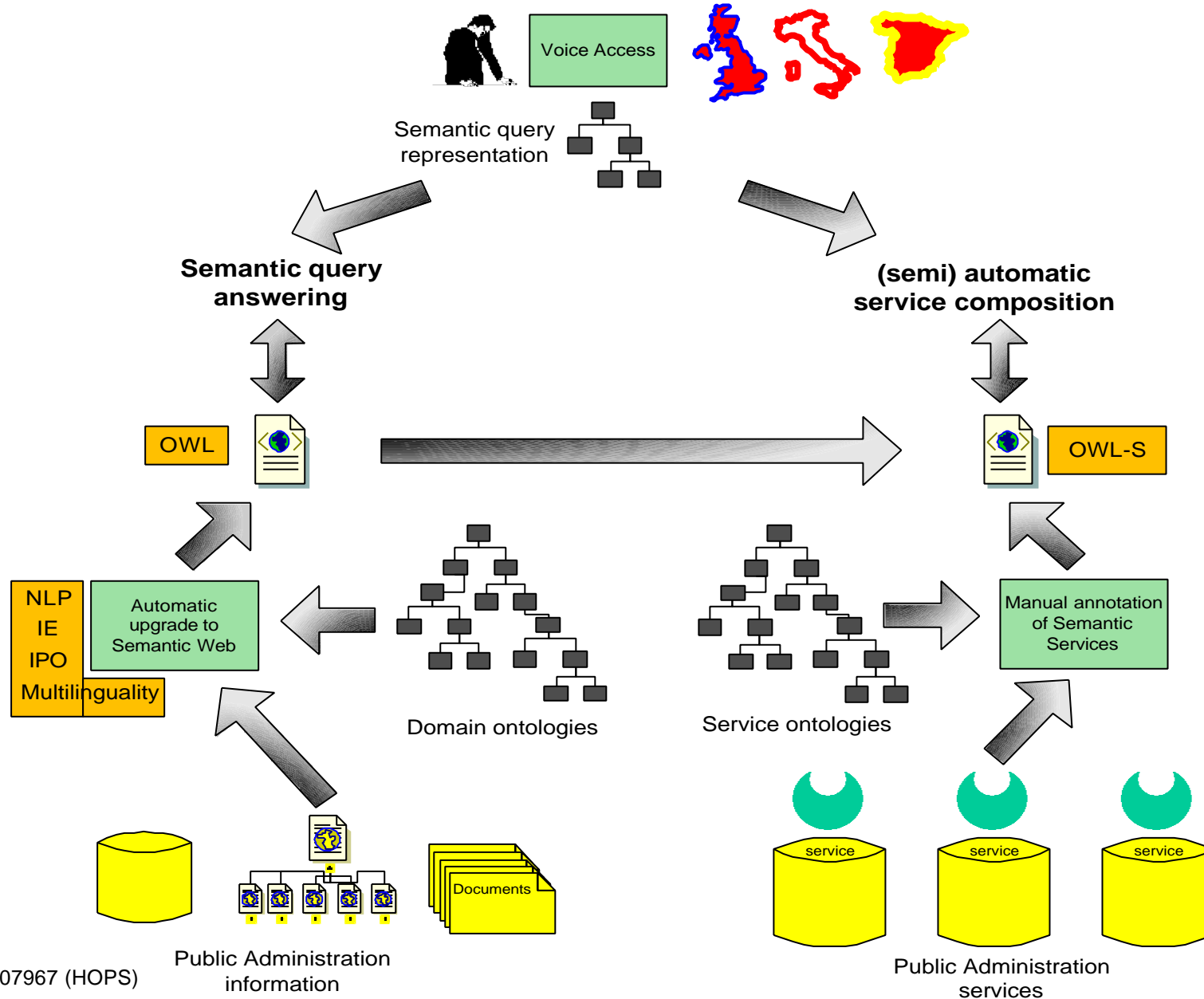


Natural Language Processing





Semantic Web Technologies





Integration



Technologies implied in HOPS project are different one from each other and our challenge is to make them work together.

The integration tasks are aimed to guarantee digital communication between systems designed independently, in order to provide an end-to-end perspective of the whole chain.

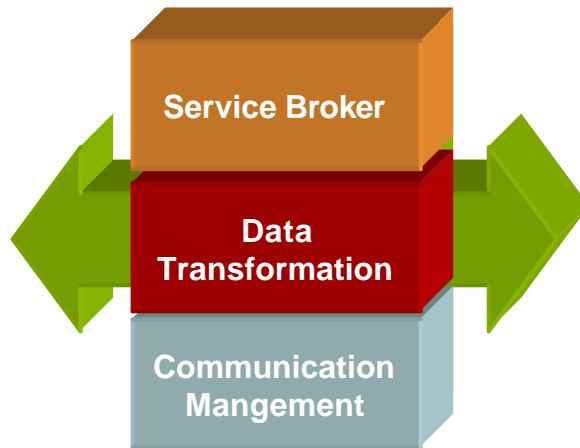


In order to achieve an integration standard implementation that enables communication between HOPS components, is necessary:

- To analyze different data models
- To identify platform dependencies
- To identify access mechanisms to retrieve data from back-end systems



Integration



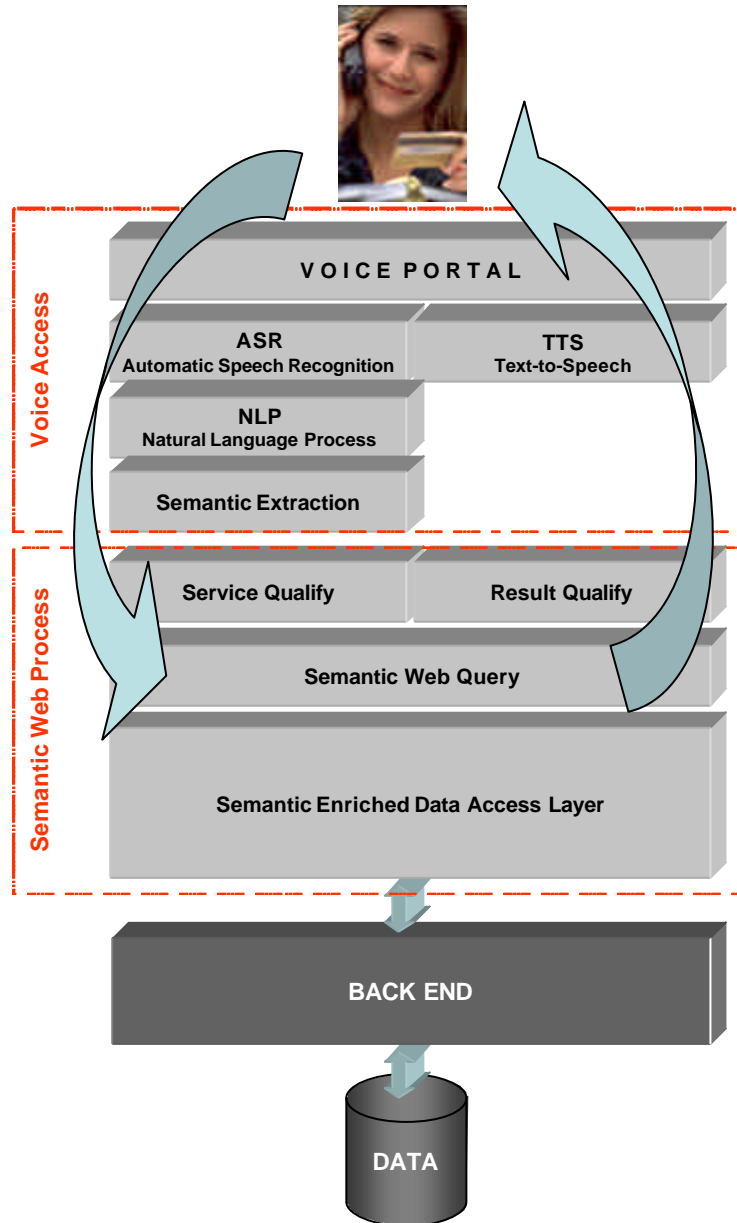
The main three layers in an integration system are:

- **Service Broker:** This layer is intended to manage external services of each component
- **Data Transformation:** The aim of this layer is to adapt different data formats to a common data model that enables component understanding.
- **Communication Management:** This layer guarantees data exchange between components.

SUN Microsystems Spain has a wide experience and knowledge in system integration and has carried out several integration projects not only in government sector but also in telcos, consumer package goods and financial sectors.

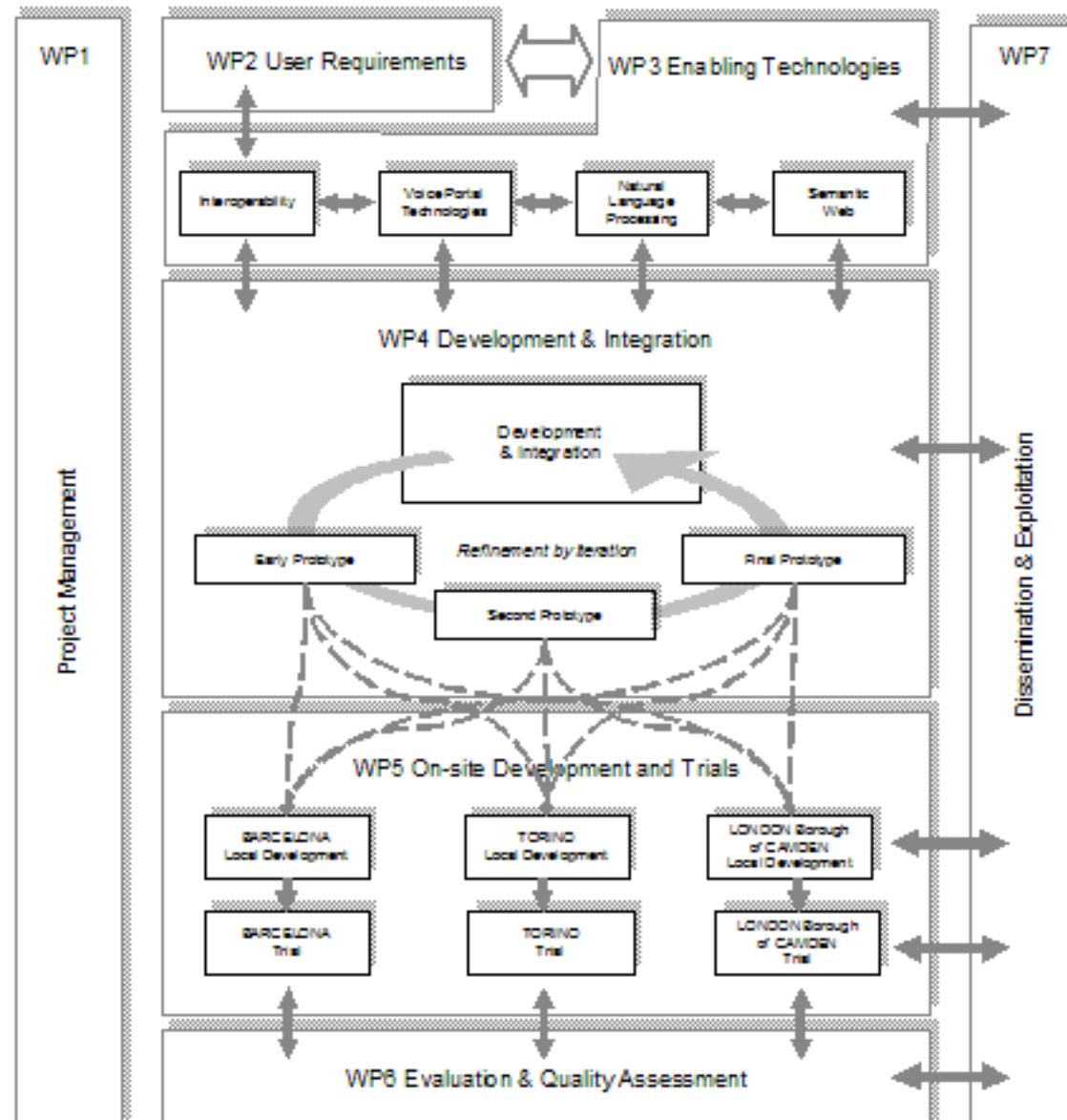


Modular approach



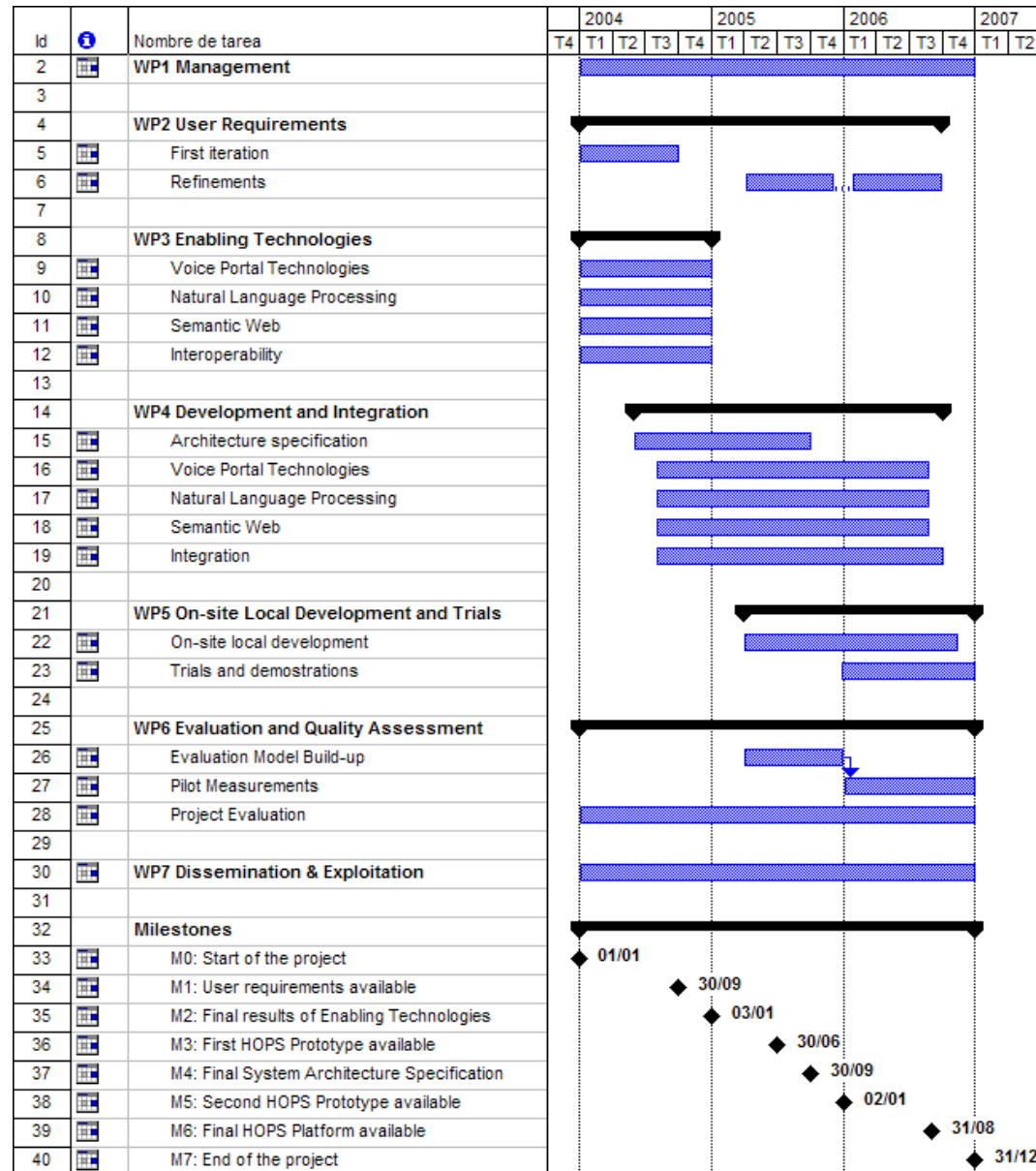


Project structure





Project GANTT





WP1 Management



Description

The objective of this work package is to ensure the overall management of the project and to efficiently coordinate the technical and financial project's dimensions. This workpackage will also aim to co-ordinate the evaluation and quality assessment of the project, the preparation of the exploitation plan and the dissemination of the results.

Tasks

WP1 will be responsible for the coordination of the production of all the periodic reports expected by the Commission, as defined in the Contract information

Deliverables

D10 Consortium Agreement

D11 First Annual Report

D12 Second Annual Report

D13 Third Annual Report

Partners: BCN plus all partners



WP 2 User Requirements



Description

The objective of this work package is to generate a solid and stable set of user requirements suitable to guide and set the basis for the further development and integration of operational prototypes. This workpackage will have a very close collaborative work with WP3, as the technological options to be considered will have to be aligned with the overall dimension of user requirements, and also the functionalities to be required should be ambitious in nature by realistic in practice.

Tasks

Task 2.1 User Requirements definition

Task 2.2 User Requirements refinement

Deliverables

D21 User Requirements

D22 Refined User Requirements

D23 Final User Requirements

Partners: BCN, COT, LBC, LOQ, ISOC, CSP, TALP, CSI, RUC, SUN, ITD, UOT



WP3 Enabling Technologies



Description

Definition of an information retrieval system combining NLP modules with Semantic Web technologies. Interaction with the final user will be provided using a voice system via automatic speech recognition and text to speech conversions. The main challenge is the definition of the integration of multi-lingual NLP modules with emerging Semantic Web technologies able of providing informational services to final users using voice portals and speech recognition

Tasks

- Task 3.1 Voice Portal
- Task 3.2 Natural Language Processing
- Task 3.3 Semantic Web Technologies
- Task 3.4 Interoperability

Deliverables

- D31 VUI design Guidelines for the European Public Administration Services
- D32 Natural Language Processing Technologies
- D33 Semantic Web Technologies
- D34 Interoperability Analysis and Definition

Partners: ISOC, TALP, LOQ, SUN, UOA, UOT, BCN, COT, LBC, RUC, ITD, CSI, CSP



WP4 Development and Integration



Description

The Development and Integration WP intends to develop a complete solution according to what has been defined in WP2 and WP3. This development is planned as a three-prototype-refinement approach in order to obtain results quickly and improve system efficiency with feedback received from every local city implementation (WP5).

Tasks

- Task 4.1 Architecture Specification
- Task 4.2 Voice Portal Development
- Task 4.3 Natural Language Processing Development
- Task 4.4 Semantic Web Development
- Task 4.5 Integration

Deliverables

- D41 HOPS Architecture Specification
- D42 Voice Portal Application Specification
- D43 Natural Language Processing Development
- D44 Semantic Web Development
- D45 Integration Model Development

Partners: SUN, TALP, ISOC, LOQ, CSI, RUC, ITD, BCN, CSP, LBC, UOT, UOA, COT



WP5 On-site Development



Description

This workpackage deals with the on-site development and implementation of the prototypes as produced by WP4. As the objective of the project is to provide Local Administrations with a platform that allows them to deploy mass-scale transactional and informational services, the platform will be integrated with the legacy systems in each of the cities. The fact that this on-site integration is carried up in three cities owning absolutely different systems assures that the HOPS platform is not linked with a special environment, but can be integrated into a wide variety of system architectures.

Tasks

Task 5.1 On-site Local Development

Task 5.2 Trials

Deliverables

D51 On-site Local Development

D52 Trials Description

Partners: CSI, RUC, ITD, BCN, LBC, COT, TALP, ISOC, CSP, LOQ, SUN, UOT



WP6 Evaluation and Quality Assurance



Description

The overall objective of WP6 is twofold: a) to determine and execute a methodology and a benchmarked method of evaluating the adequacy of the proposed solutions, and b) to enable the project to have an internal evaluation instrument in order to balance the contributions of the Public Administrations, Industrial and Academic dimensions with the technical and operational issues.

Tasks

Task 6.1 Evaluation Model Build-up

Task 6.2 Pilot Measurements

Task 6.3 Project Evaluation

Deliverables

D61 Evaluation Methodology

D62 Pilot Evaluation Results

D63 Final Project Evaluation

Partners: LBC, BCN, COT, TALP, ISOC, CSI, CSP, LOQ, RUC, SUN, ITD



WP7 Dissemination and Exploitation



Description

The overall objective of this workpackage is to act as a tool that will enable the project to reach new prospectors, by setting-up a network of research issues also involving public administration bodies. By publishing the HOPS findings in a research arena the project will further ensure that the main outcome and the overall work done can be transferred to the broadest audience, mainly through the European local Government instances.

Tasks

Task 7.1 Dissemination

Task 7.2 Exploitation

Deliverables

D71 Project web site (first release): continuously updated

D72 Dissemination and Exploitation Plan

D73 Final Guidelines

D74 Final Dissemination and Exploitation Report

Partners: COT, LOQ, BCN, LBC, UOT, UOA, TALP, ISOC, CSP, CSI, RUC, SUN, ITD