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Publishable Executive Summary

**Description of project objectives**

ASK-IT integrated project aims to establish Ambient Intelligence (AmI) in semantic web enabled services, to support and promote the mobility of Mobility Impaired people, enabling the provision of personalised, self-configurable, intuitive and context-related applications and services and facilitating knowledge and content organisation and processing. In order to satisfy this aim, the work in ASK-IT is organised in 5 SubProjects (SPs). Each of the SPs 1-4 deal with research technological development and pilot applications. The fifth SP encompasses a number of horizontal activities, including the consortium management.

**Consortium**

The ASK-IT Consortium consists of 42 partners, covering the following research areas: MI user needs, telecommunication, ambient intelligence, intelligent user interfaces, telematics, etc. A full list of the Consortium members follows in the table below:

<table>
<thead>
<tr>
<th>Participant name</th>
<th>Participant short name</th>
<th>Country</th>
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<tr>
<td>SIEMENS S.A.</td>
<td>SIEMENS</td>
<td>Spain</td>
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<tr>
<td>Centre for Research and Technology Hellas</td>
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<td>SC ATC ROM SRL</td>
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<td>Universidad Politécnica de Madrid</td>
<td>UPM</td>
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<tr>
<td>Promotion of Operational links with Integrated Services</td>
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<td>Centre of Applied Technologies in neuroscience</td>
<td>COAT</td>
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<tr>
<td>Groupe des Ecoles des Télécommunications - Institut National des Télécommunications</td>
<td>INT</td>
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<td>Royal National Institute of the Blind</td>
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<td>Information Society Open To ImpairmentS</td>
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<td>ComArch SA</td>
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<tr>
<td>HaCon Ingenieurgesellschaft mbH</td>
<td>HACON</td>
<td>Germany</td>
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<td>Singular Integrator SA</td>
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<tr>
<td>Network Models R&amp;D Ltd.</td>
<td>NM</td>
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<tr>
<td>Europaeisches Microsoft Innovations Centre GmbH</td>
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<td>Panhellenic Union of the Deaf</td>
<td>PEK</td>
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<tr>
<td>SOLINET GmbH TELECOMMUNICATIONS</td>
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<td>Germany</td>
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<tr>
<td>Technical University of Lisbon / Faculty of Human Movement</td>
<td>UTL</td>
<td>Portugal</td>
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<tr>
<td>DOMOLOGIC Home Automation GmbH</td>
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<tr>
<td>NETSMART S.A.</td>
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Coordinator contact details

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Summary of work performed and Achievements

Sub-project 1: Content for all

The user group classification, which is one of the main objectives of WP1.1 is ready and applied broadly. D1.1.1 Scientific Glossary and Definitions is ready as draft and will be constantly updated during the project. An overview is being made of relevant services available. For the expert consultation and observations, currently various interviews are being carried out, in order to validate the choices and prioritizations in the user requirements.

The User behaviour modeling activity has resulted in a Theoretical Approach that is being fundamental to the development of “Content Requirements” activities and “Use Cases” activities, and integrated with the content modeling guidelines for the last workpackage in SP1. This has resulted in a joint internal report, in which contemporary and well validated theory and models on action theory and activity theory are applied. This has also formed the basis for the Use Cases, which are available as draft. The ASK-IT Use Cases model is comprised of two complementary parts: Use Cases descriptions and UML Use Cases diagrams.

A survey on existing tools and services is realized, identifying the user needs. User modeling is in progress, following an approach from behavior models to content models. A methodology for Use Cases extraction has been developed. Negotiations with possible content providers and maintainers of relevant e-services are established, towards the building of a network of content providers.

Content requirements are being drawn up by all partners and are partly dependent on the survey mentioned above. A report on standards and guidelines review is available. User requirements matrices are designed, including the content for the matrices. For several applications, content information is ready, following a common approach for matrix structure. The link with the modelling activities, the required quality of the matrices developed earlier is reliably approved for transformation into (XML).

Sub-project 2: Tools for all
SP2 currently provides input to SP1, in order to facilitate the specification and content gathering process. The work performed up to now in SP2 includes:

A common questionnaire with WP1.1 was used for the literature survey of existing accessible tools. Based on the feedback provided by the partners as well as tools and content providers, an internal report was prepared with the results. Also, a questionnaire was prepared and sent out to all partners for interviews with developers and users. The questionnaire has been distributed among developing companies and end users representatives and the results are reported in an Internal Report.

An online multimedia database has been built in MySQL, in order to store relevant data on technologies, modules and services. It contains fields about tool information, producer details, guidelines, references, etc., while the user is able to search the database by keyword, by user group concerned and by type of technological field.

Furthermore, several internal reports have been prepared, dealing with existing and future localisation technologies, an overview of Galileo services and the inclusion of EALM within the ASK-IT environment in terms of its requirements, its use as a backend module and as a client software on the mobile device.

An exchange of technical documents regarding navigation and inter-modal routing applications was performed. Contacts where established with the WebPed, POMPEI, LIAISON and MAPPED projects for clustering purposes. Analysis of 7 existing systems for domotic demonstrators was performed based on a specific template and reported in an Internal Report. The demonstrators for automated home environment for the project will be/are established in Germany, France, Greece and Spain.

An internal report has been prepared, presenting the elderly and disabled drivers needs for in-vehicle ADAS/IVICS and the systems to be considered in the project. Relevant ADAS/IVICS functionalities to be supported in the Greek and Italian site were specified in an Internal Report.

The approach for the development of the eCommerce module was finalised with an Internal Deliverable (ID2.4.1) on new credit functionalities for MI users, describing the functionalities which will be included in the e-Commerce portal, considering the special needs of MI users. In addition, an Internal Report dealt with the E-commerce module and structure and design, as well as the application of the E-commerce module within a Shopping Assistant for visually impaired and blind. First drafts of layout for HMI have been developed, based on the use case of the shopping assistant.

Existing health and emergency management applications are reviewed and reported.

The work continued with the analysis of existing computer accessibility devices, included in ID2.8.1. An overview on assistive devices and modes of operations for mobility impaired people currently on the market is included in ID2.9.1, including principle ways of interaction between users and devices, human dysfunction in the control of devices, a mapping of operating elements to MI user groups, etc.

Finally, an internal report was prepared with a SoA analysis of UI principles for MI users, identification of existing gaps and new principles on designing UI for MI users (WP2.10).

**Sub-project 3: Ambient Intelligence Framework**

Work-plans and development methodologies for the whole sub-project have been established and initiated. Some inter-SP dependencies were detected along this period, proposing several coordination activities to clarify scopes and responsibilities (e.g. WP3.5 and WP1.7 for ontologies and semantics; WP2.10 and WP3.2 for user interface design; etc.). Special emphasis has been given to the ASK-IT privacy and security policy, as it has become an essential matter for the real success of the project. The work carried out during the first 12 months includes:
- The agent platform architecture has been specified and designed, initially based on the JADE/LEAP framework. Further developments in other frameworks (i.e., .NET) are still under discussion, taking into account key interoperability issues (WP3.1).
- User interface configuration parameters have been defined, according to user groups, content requirements, assistive devices and environments of use (WP3.2).
- The current market of mobile terminals has been analysed, considering suitable user interface devices, mobile OS, integration platforms and communication networks (WP3.3).
- Thorough discussions have been established to define the different layers of the ASK-IT network architecture, which will provide ubiquitous support to users (BAN, PAN, LAN, WAN) (WP3.4).
- Knowledge management is being faced by applying ontologies and semantics to ASK-IT content and services, widely revising up-to-date knowledge representation techniques (WP3.5).
- Trust and security issues are being deeply studied, providing a common access and security policy for the ASK-IT framework (WP3.6).

**Sub-project 4: Accessible Europe**

Only WP4.1 and WP4.5 started before Month 13. In SP4, the work had started at the phase of the preparation of the proposal, with the analysis of a questionnaire that had then been distributed at the candidate sites. A new, more detailed questionnaire was disseminated to all interested pilot sites, to gather in more detail info on available content, infrastructure, equipment and number and types of users to be tested at each site. Furthermore, a concept paper has been created and distributed, including information on motivation and requirements (criteria) from a site to become an ASK-IT site, definition of 3 site types (namely, core, satellite and follower), and differences among them and an assessment scheme, based on which 7 core sites and one satellite site were selected (according to the information they provided at the questionnaire). The selected sites are:

- Madrid
- Genoa
- Athens
- Bucharest
- Nuremberg
- Helsinki
- Newcastle
- Den Haag (satellite)

Furthermore, a very strong User Forum has been established, encompassing of 250 contacts from 23 European countries. The 1st stakeholders UF meeting was held on 14 October 2005 and was devoted to the pilot sites selection. There were 42 participants, 19 of which were external (all selected pilot sites were represented).

**Sub-project 5: Horizontal activities**

All SP5 workpackages started on Month 1 of the project. Regarding the training tools, the work, business and education support services decomposition (e-learning and e-working) is performed and the e-Learning platform and course editor are identified. A template is prepared for gathering data about university courses related to design for all.

The deliverable on Market Analysis (D5.4.1) is ready. Also, the CEA and CBA methodology to be followed by the project, is defined. Ethical and legal issues are reported in D5.6.1 and D5.6.2 which are both updated according to the EC ethical reviewers’ suggestions, and the Ethics Advisory Board has been synthesised. The services platform is presented, including requirements and preliminary specifications in D5.7.1.
The pilot framework definition is defined and reported in D5.8.1, showing the available infomobility services and infrastructure for the pilot sites that have responded. D5.8.1 is modified according to the EC reviewers’ comments. D5.8.2 on tools to be used during pilots has been issued. A preliminary template for standards gathering is available (WP5.9).

The administrative management is proceeding without any problem. Quality review has been performed in 13 Deliverables so far. Technical management is successfully monitoring and guiding project activities and outcomes. According to the technical Annex, 13 deliverables were planned and submitted within the first year of the project. Management (WP5.1) and dissemination (WP5.3) issues are further analysed in Chapter 3 and Annex 1 (of this document) respectively.

**Expected results**

The expected results are provided below per SubProject:

- **Subproject 1** should gather information about content requirements for ASK-IT, both by literature reviews and by empirical data collection (interviews, limited surveys, group discussions, both with potential end users and key experts), in order to devise a list of use cases as well as operational recommendations for testing. The aim is to match the content requirements on the one hand with the available content and its format on the other hand. In order to structure the information, content models will be constructed as XML structures and content typologies. Furthermore, development of the data management module will take place, that will not be a static database, but an open, dynamic data interface scheme, based upon common data fields, ontologies and semantics web structure. Finally, the common data format is decided and related to the user model.

- **Subproject 2** includes a wide range of applications (localisation, navigation and route guidance, e-Commerce and e-Payment, domotic tools, ADAS and IVICS, health and social care, computer accessibility, e-Working and e-Learning, interfaces for assistive devices and intuitive user interfaces elements). All these developments are to be guided by an initial technological benchmarking. In general the pre-condition to develop these tools was a review of the already available systems and an investigation of their interfaces. Besides adaptation of existing systems and interfaces to the user needs and technical requirements, which are specified in SP1, new tools and interfaces will be also developed, as the envisaged target group needs were largely unaccounted for by previous developments. Stand alone tools will be developed to provide or interface single functionalities, affecting the mobility of MI users. After comprehensive investigation of specifications and development of tools and gateways to technologies, the relevant modules will be tested on their own and then integrated within SP3 and installed at the test sites in SP4.

- **Subproject 3** will contain applications and services to actively support mobility impaired people in achieving specific tasks using a variety of interaction devices and taking users’ preferences and profiles in account in relation to actual situations. Thus, ASK-IT system will be able to:
  - Interact with the user: using more natural interfaces like speech, touch and gestures.
  - Model the user behaviour: build users’ preferences from his/her past interactions and eventually abstract the user profile to more general community profiles.
  - Model the environment and sensors available to perceive it and to take care of the world model.
  - Control security aspects to ensure the privacy and security of the personal data and deal with authorisation, key and rights management.
  - Ensure the quality of services as perceived by the user.
  - Ensure service interoperability and ability to be provided through any mobile device of adequate technical characteristics.

- **Subproject 4** deals with the selection of the application sites. All the developed modules will be installed at each site, and any additional content required to provide holistic
service will be developed. Both urban and inter-urban scenarios will be tested with various MI user groups (over 100 MI people per site). An active Stakeholder's User Forum (its Members will participate in tests as observers, test subjects or technology platform providers) is established, to support the sites but also promote ASK-IT concept to other areas of Europe and beyond. The Pilot results will be thoroughly analysed, resulting in guidelines and recommendations for system improvements, extension and use.

- **Subproject 5** will gather a set of activities that are common to all four subprojects 1-4. This includes the Consortium Management, innovation-related activities: dissemination, exploitation, legal and organisational issues, user acceptance, gender issues, training activities, a common system architecture and evaluation framework, standards, guidelines and policies to be taken into account during project development phase and to further extend/promote through project findings. These activities are rather heterogeneous and have been gathered together for organisational rather than technical reasons and thus, each has own specific objectives.

**Intentions for use and impact**

The mid-Nineties have witnessed sweeping economic, political and social transformation in Europe. Against a background of profound structural change, most countries in the developed world have been reviewing their policies with regard to their public administrations at local, regional and national level. There is a demand for better quality service and cost rationalisation in the public sector. A new awareness of the relationship between economic competitiveness and efficient public administration are the key factors underpinning the “re-engineering” of the public sector. The intention is to improve the quality and efficiency of their services. The key issues impacting on this are:

i. quality of services, and consequent improvements in public-sector competitiveness;
ii. reorganisation of internal processes through unification, streamlining, elimination of duplication and inter-departmental integration;
iii. transparent procedures and cost rationalisation;
iv. retraining of staff, introduction of management control systems and market testing.

The Telematic infrastructure that is rapidly developing is already providing the basis for bringing about these objectives. There will be major changes in the way in which society operates, and individuals organise their time and social activities. ASK-IT will enhance the socio-economic integration of mobility impaired people, through information use, information availability, consumer interaction with Information Networks and organisation of People in the Information Age.

As a practical outcome, ASK-IT will help Mobility Impaired individuals and their representatives to facilitate new and novel methods of economic and social integration. Further, it would enable all sections of the community to increase their competitive ability and enhance the exercise of civil rights.

**Using and disseminating the knowledge**

**Project communication materials**

Several communications materials have been developed during the 1st year of the project life to disseminate the project concept and available results. More specifically:

- The Project Web Site has been established at early project stage. It can be visited at: www.ask-it.org
- Two Project Newsletters are issued (every 6 months) and are communicated to the User Forum members, available also at the ASK-IT web site as downloadable files (pdf).
- Project logo, leaflets and posters have been designed and printed to communicate the project concept, objectives and main results during European and International Conferences, Project Workshops and Events and other related dissemination actions.
• The ASK-IT User Forum has been established from the project start and currently includes 250 members, external to the Consortium members, that have interest to monitor ASK-IT developments to-date, through the issuing of the Project Newsletters and through their invitation to the Project Events (workshops, exhibitions, etc.).

• The first international conference was held on 13 October 2005 in Stuttgart, with 86 participants in total, 43 of which were external to the consortium.

• The recently published booklet “Making Life Easier” includes a reference to ASK-IT and has been distributed to 15,000 MI users and experts Europe-wide. Moreover, an article has been prepared on ASK-IT, and published on “Making Life Easier - How new telecommunication services can benefit people with disabilities” journal, that was published in February ’05, distributed to 12,000 subscribers. Finally, scientific papers have been presented in 7 conferences so far (2 more are planned in the near future).

Preliminary exploitation plans
The project exploitation activity starts on Month 18. However, the preliminary exploitation plans of ASK-IT target 21 potential products. A relevant exploitation agreement will be drafted by month 28 of the project, planned to be signed by all partners by month 38. This will be based on a detailed market, cost-benefit and cost-effectiveness analysis of all projects results, as well as on alternative business plans.