

**INFORMATION SOCIETY TECHNOLOGIES (IST)
PROGRAMME**



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**Compendium of relevant standards and impact on
OASIS work**

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GLOSSARY

BSN	Body Sensor Network
CEN	Centre Europeé de Normalization
CERN	European Organization for Nuclear Research
DARPA	Defense Advanced Research Projects Agency
DICOM	Digital Imaging and Communication in Medicine
ERCIM	European Research Consortium for Informatics and Mathematics
FCC	Federal Communications Commission
FIPA	Foundation of Intelligent Physical Agents
HL7	Health Level 7
HTML	HyperText Markup Language
IEC	International Electronic Commission
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
INRIA	Institut national de recherche en informatique et en automatique
JCP	Java Community Process
KNX	Konnex
LIF	Location Interoperability Forum
LOINC	Logical Observation Identifiers Names and Codes
MIT	Massachusetts Institute of Technology
OASIS	Organization for the Advancement of Structured Information Standards
OGC	Open GIS Consortium
OpenEHR	Open Electronic Health Record
OSGI	Open Services Gateway initiative
PAN	Personal Area Network
SNOMED	Systematized Nomenclature of Medicine
W3C	World Wide Web Consortium
WHO	World Health Organization

Executive Summary

This deliverable is the first one of WP5.6 (Standardisation and Policy Issues) of the OASIS project. It is comprised of a review of existing relevant standards to OASIS technological and development areas, as well as those under development. In order to gather the required input for this deliverable, two templates have been created, namely the template for standards gathering and the template for standards compliance. However, the input from the developers mainly regarding the compliance issue that is presented in this Deliverable is considered preliminary. It will be finalised when all the technological developments will be ready and after the pilot results.

This deliverable aims at identifying the key standards to which the OASIS work should comply, as well as to define the gaps and inconsistencies in existing standards. Accordingly, the WP ultimately aims to provide recommendations to relevant standards bodies and policy makers on updates of existing standards required or the need for new standards.

The first task of this WP was to provide an exhaustive list of standards that relate to the broad areas covered by the OASIS project. These standards were initially grouped according to the standards body through which they were developed.

The second task was to identify key relevant standards, to which OASIS partners will refer and with which they will comply. These standards are categorised according to the OASIS application area to which they apply.

The final task, which will be ongoing throughout the OASIS project, is to identify gaps in current standards and legislation, and accordingly to provide recommendations to standards developers.

Chapter 2 describes the methodology followed for the gathering of standards and examining the compliance of OASIS developers to these. The main standardisation bodies (national and international) are presented in Chapter 3. The collected standards are categorised per technological area in Chapter 4. Chapter 5 describes a first attempt towards the formulation of specific standards proposals, as part of the next activities of OASIS in this area.

1. Introduction

There are many generic definitions of standards currently available, but none officially recognised. The importance for a correct definition is the clear provision of its scope and all the work that it implies.

The current ISO definition of international standardisation is given below:

‘When the large majority of products or services in a particular business or industry sector conform to International Standards, a state of industry-wide standardization can be said to exist. This is achieved through consensus agreements between national delegations representing all the economic stakeholders concerned - suppliers, users, government regulators and other interest groups, such as consumers. They agree on specifications and criteria to be applied consistently in the classification of materials, in the manufacture and supply of products, in testing and analysis, in terminology and in the provision of services. In this way, International Standards provide a reference framework, or a common technological language, between suppliers and their customers - which facilitates trade and the transfer of technology’.

The definition of a standard for the computers world (which is highly relevant to OASIS), defines that a standard is (1):

“A definition or format that has been approved by a recognized standards organization or is accepted as a de facto standard by the industry”.

Standards exist for programming languages, operating systems, data formats, communications protocols, and products interfaces.

The aim of this deliverable is to compile, to conduct a review of and to ensure that project development is in line with existing relevant standards and guidelines. The OASIS Integrated Project covers a very large range of subject areas, during which a variety of standards will be referred to. Although there is some degree of overlap between the different subject areas, each key relevant standard has been categorised under one of the following areas:

- Wireless Connectivity for short range Body-Sensors-Network (BSN) and Personal-Area-Network (PAN)
- Interoperability standards for the interchange of medical data
- Interoperability of applications and services
- Public Transport management and information
- Automotive/Intelligent Transport Systems
- Privacy and Security
- User Interface
- Ambient Intelligence
- Localization and Navigation

- Web service
- Meta-ontologies
- Domotics

In this Deliverable, formal and de-facto standards, as well as guidelines and mandatory recommendations are included:

- With respect to formal standards there are three main groups of standards organizations: *International Standards*, *Regional Standards (Europe and Americas)* and *National Standards*.
- De-facto standards are defined as: “format, language, or protocol that has become a standard not because it has been approved by a standards organization but because it is widely used and recognized by the industry as being standard” (<http://www.webopedia.com>).
- Finally a few guidelines are included, which are relevant to the OASIS project

2. Methodology

A survey of existing standards and legislation which are relevant to the areas covered by the OASIS project was carried out. A “Template for Standards Gathering” was initially distributed to all OASIS partners and completed templates were used to develop an exhaustive list of relevant standards and guidelines.

A second template, “Template for Standards Compliance”, was then distributed to partners, in order to identify whether their system will comply with the identified standards in this area.

2.1. *Template for Standards Gathering*

The “Standards Gathering Template” consists of 4 fields (Annex A), i.e. the name of the standard, the relevant body, the relevant WP and the description of the relevance of this standard to this WP. It was sent to all WP leaders of SP1, SP2 and SP3, in order to gather standards and guidelines that refer not only to the development part of the project but also to the content itself. Currently, “X” standards have been gathered, covering all the main areas of OASIS.

2.2. *Standards Compliance Template*

In order to provide a record of standards compliance during the course of the OASIS project, all partners dealing with the design/development of services were asked to complete the “Standards Compliance Template”. This template consists of 4 fields (Annex B), i.e. the standard, the relevant body, the relevant WP (defined in the previous template) and the compliance of OASIS to the current standard. The aim of this template is to produce a list of **key relevant** standards to which they refer during work, related to OASIS. This list could consist of formal standards, de-facto standards, guidelines and/or mandatory recommendations. The completion of this template is finalised at this stage of the project. However, after the end of the development parts of the project and the pilot tests, the compliance template will be updated accordingly by all the key developers, which will also provide specific reasons in case their system will not finally comply with the identified standards. Furthermore, compliance to further standards that were not identified in this stage, is expected to be reported.

2.3. Standard Proposal Template

During life-time project some gaps in the standards could be detected due to development of activities. Those gaps that was no identified at the beginning usually should be filled by a standard proposed. Once a gap is detected, the responsible of the activity involved will have to propose how to fill this gap. There are three options, to adopt one of the existing in the industry, not to be covered by standard or else to develop a standardization initiative. This third option is covered by the template that will contain the work package involved, the domain of the standard to be proposed and finally the reason to accomplish the standardization.

3. Main key actors in the field

3.1. *Relevant international and national standardisation bodies*

Within this section, a list of national as well as international bodies or organisations is included. These organisations and bodies work on the areas covered by the OASIS project, specific to accessibility, but also more general standards that influence the relevant technological areas. This list is composed by European and non-European standards organisations

More detailed contact info is available in Annex C.

- The Foundation of Intelligent Physical Agents (FIPA):
- World Wide Web Consortium (W3C)
- Comité Européen de Normalisation (CEN)
- Health Level Seven (HL7)
- Open Electronic health records (OpenEHR)
- Digital Imaging and Communication in Medicine (DICOM)
- Systematized Nomenclature of Medicine (SNOMED)
- Logical Observation Identifiers Names and Codes (LOINC)
- International Organization Standardization (ISO)
- World Health Organization (WHO)
- Internet Engineering Task Force (IETF)
- Organization for the Advancement of Structured Information Standards (OASIS)
- FCC
- IEEE
- IEC
- Bluetooth Special Interest Group
- ZigBee Alliance
- KNX Association
- Open GIS Consortium (OGC)
- Location Interoperability Forum (LIF)
- Open Mobile Alliance (OMA)
- Java Community Process (JCP)
- OSGi Alliance

3.2. List of existing legislation

Details of the above bodies, are provided below. Furthermore

The Foundation of Intelligent Physical Agents (FIPA):

FIPA is an IEEE Computer Society standards organization that promotes agent-based technology and the interoperability of its standards with other technologies. FIPA, the standards organization for agents and multi-agent systems was officially accepted by the IEEE as its eleventh standards committee on 8 June 2005. FIPA was originally formed as a Swiss based organization in 1996 to produce software standards specifications for heterogeneous and interacting agents and agent based systems. Since its foundations, FIPA has played a crucial role in the development of agent's standards and has promoted a number of initiatives and events that contributed to the development and uptake of agent technology. Furthermore, many of the ideas originated and developed in FIPA are now coming into sharp focus in new generations of Web/Internet technology and related specifications.

In March 2005, the FIPA Board of Directors presented this opportunity to the entire FIPA membership, who unanimously voted to join the IEEE computer Society. Now, it is time to move standards for agents and agent-based systems into the wider context of software development. In short, agent technology needs to work and integrate with non-agent technologies. To this end, the IEEE Computer Society has formally accepted FIPA to become part of its family of standards committees.

FIPA specifications represent a collection of standards which are intended to promote the interoperation of heterogeneous agents and the services that they can represent.

In 2002, FIPA completed a process of standardising a sub-set of all its specifications. The sub-set of 25 specifications that made it to standardisation stage is found here.

The complete set of specifications including the ones that did not or have not yet made it to standardisation can be viewed in terms of different categories: agent communication, agent transport, agent management, abstract architecture and applications. Of these categories, agent communication is the core category at the heart of the FIPA multi-agent system model.

World Wide Web Consortium (W3C):

The World Wide Web Consortium (W3C) was founded by Tim Berners-Lee after he left the European Organization for Nuclear Research (CERN) in October, 1994. It was founded at the Massachusetts Institute of Technology Laboratory for Computer

Science (MIT/LCS) with support from the Defense Advanced Research Projects Agency (DARPA) -- which had pioneered the Internet -- and the European Commission.

W3C was created to ensure compatibility and agreement among industry members in the adoption of new standards. Prior to its creation, incompatible versions of HTML were offered by different vendors, increasing the potential for inconsistency between web pages. The consortium was created to get all those vendors to agree on a set of core principles and components which would be supported by everyone.

It was originally intended that CERN host the European branch of W3C; however, CERN wished to focus on particle physics, not information technology. In April 1995 the *Institut national de recherche en informatique et en automatique* (INRIA) became the European host of W3C, with Keio University becoming the Japanese branch in September 1996. Starting in 1997, W3C created regional offices around the world; as of October 2007 it has sixteen World Offices covering Australia, the Benelux countries (the Netherlands, Luxemburg, and Belgium), China, Finland, Germany and Austria, Greece, Hungary, India, Ireland, Israel, Italy, Japan, South Korea, Korea, Morocco, South Africa, Spain, Sweden, and the United Kingdom.

In January 2003, the European host was transferred from INRIA to the European Research Consortium for Informatics and Mathematics (ERCIM), an organization that represents European national computer science laboratories.

W3C/IETF Standards (over Internet protocol suite):

- CSS
- CGI
- DOM
- GRDDL
- HTML
- OWL
- RDF
- SVG
- SISR
- SOAP
- SMIL
- SRGS
- SSML
- VoiceXML
- XHTML+Voice
- WSDL
- XACML
- XHTML
- XML
- XML Events
- XForms
- XML Information Set
- XML Schema
- XPath
- XQuery
- XSLT

Comité Européen de Normalisation (CEN) :

CEN, the European Committee for Standardization, was founded in 1961 by the national standards bodies in the European Economic Community and EFTA countries.

Now CEN is contributing to the objectives of the European Union and European Economic Area with voluntary technical standards which promote free trade, the safety of workers and consumers, interoperability of networks, environmental protection, exploitation of research and development programmes, and public procurement.

CEN is a non-profit making technical organization set up under Belgian law.

Health Level Seven (HL7):

HL7 was founded in 1987 to produce a standard for hospital information systems. HL7, Inc. is a standards organization that is accredited by the American National Standards Institute (ANSI); it became accredited in 1994.

- HL7 affiliate organizations, not-for-profit organizations incorporated in local jurisdictions, exist in over 40 countries. The first affiliate organization was created in Germany in 1993.

Originally HL7 is one of several American National Standards Institute (ANSI) - accredited Standards Developing Organizations (SDOs) operating in the healthcare arena. Most SDOs produce standards (sometimes called specifications or protocols) for a particular healthcare domain such as pharmacy, medical devices, imaging or insurance (claims processing) transactions. Health Level Seven's domain is clinical and administrative data.

Today, HL7 has been adopted by several national Standards Developing Organizations outside U.S. and hence not being accredited by ANSI. However, HL7 is now adopted by ISO as a centre of gravity in international standardization and accredited as a partnering organization for mutual issuing of standards. The first mutually published standard is ISO/HL7 21731:2006 Health informatics -- HL7 version 3 -- Reference information model -- Release 1.

Open Electronic health records (OpenEHR):

OpenEHR was founded in 1998. The *openEHR* Foundation is an international, on-line community whose aim is to promote and facilitate progress towards electronic healthcare records of high quality, to support the needs of patients and clinicians everywhere. It will publish the theoretical foundations and evaluations of its work in the public domain and make available relevant EHR source programs and datasets under an OpenSource license. This continues the tradition of the GEHR project, from which *openEHR* has emerged, of placing results in the public domain. We recognise that there is a certain initiative fatigue in the field and we would not propose a new initiative were we not sure that something radically different is now essential. So

many systems describe themselves as electronic healthcare records and yet share little common concept of what such an entity is and what it is for.

OpenEHR directs its efforts towards:

- well-formulated clinical requirements, offered as a contribution towards international consensus
- rigorous development, implementation and evaluation methodology for systems
- common information model for the record, where clinical requirements dictate that this is necessary and where the relationship between model and requirements is made explicit
- diversity of information models and implementations, where these will enrich experience of a variety of approaches and systems and thereby promote the evolution towards high quality and cost-effective EHR solutions offered
- empirical evaluation of systems performance against clinical requirements

Digital Imaging and Communication in Medicine (DICOM):

DICOM is the third version of a standard developed by American College of Radiology (ACR) and National Electrical Manufacturers Association (NEMA).

In 1992 the third version of the standard was released. Its name was then changed to DICOM so as to improve the possibility of international acceptance as a standard. New service classes were defined, network support added and the Conformance Statement was introduced. Officially, the latest version of the standard is still 3.0, however, it has been constantly updated and extended since 1992. Instead of using the version number the standard is often version-numbered using the release year, like "the 2007 version of DICOM".

While the DICOM standard has achieved a near universal level of acceptance amongst medical imaging equipment vendors and healthcare IT organizations, the standard has its limitations. DICOM is a standard directed at addressing technical interoperability issues in medical imaging. It is not a framework or architecture for achieving a useful clinical workflow. RSNA's Integrating the Healthcare Enterprise (IHE) initiative layered on top of DICOM (and HL-7) provides this final piece of the medical imaging interoperability puzzle.

Systematized Nomenclature of Medicine (SNOMED):

SNOMED CT (Systematized Nomenclature of Medicine--Clinical Terms) is a comprehensive clinical terminology, originally created by the College of American Pathologists (CAP) and, as of April 2007, owned, maintained, and distributed by the International Health Terminology Standards Development Organisation (IHTSDO), a non-for-profit association in Denmark. The CAP continues to support SNOMED CT operations under contract to the IHTSDO and provides SNOMED-related products and services as a licensee of the terminology.

The NLM is the U.S. Member of the IHTSDO and, as such, distributes SNOMED CT at no cost in accordance with the Member rights and responsibilities outlined in the IHTSDO's Articles. The IHTSDO's uniform international license terms for SNOMED CT will replace the U.S.-wide license terms NLM negotiated with the CAP in 2003, giving U.S. users broader rights to distribute derivative products internationally. The new license terms have been incorporated into the License for Use of the UMLS Metathesaurus.

Licensees of the UMLS Metathesaurus have access to SNOMED CT (both English and Spanish versions) in multiple formats - as part of the UMLS Metathesaurus, where it is linked to many other biomedical terminologies and natural language processing tools. Additionally UMLS licensees will now have free access to SNOMED CT in its native file formats downloaded directly from the UMLSKS. The IHTSDO license terms for SNOMED CT cover use and distribution worldwide, but fees may be applicable outside IHTSDO Member countries. A list of current member countries and information on becoming a member country is available on the IHTSDO website.

SNOMED CT is one of a suite of designated standards for use in U.S. Federal Government systems for the electronic exchange of clinical health information and is also a required standard in interoperability specifications of the U.S. Healthcare Information Technology Standards Panel. SNOMED CT is also being implemented internationally as a standard within other IHTSDO Member countries.

Logical Observation Identifiers Names and Codes (LOINC) :

LOINC is one of a suite of designated standards for use in U.S. Federal Government systems for the electronic exchange of clinical health information. LOINC is likely to become a HIPAA standard for some segments of the Claims Attachment transaction. In 1999, it was identified by the HL7 Standards Development Organization as a preferred code set for laboratory test names in transactions between health care facilities, laboratories, laboratory testing devices, and public health authorities.

The purpose of LOINC® is to facilitate the exchange and pooling of clinical results for clinical care, outcomes management, and research by providing a set of universal codes and names to identify laboratory and other clinical observations.

International Organisation for Standardisation (ISO):

ISO is a network of the national standards institutes of 156 countries, on the basis of one member per country. It is a non-governmental organisation and was established in 1947. The mission of ISO is to promote the development of standardisation in the world to develop co-operation in the spheres of intellectual, scientific, technological and economic activity. The results of ISO work are published as International Standards.

World Health Organization (WHO):

In 1945, three physicians, Drs. Szeming Sze of China, Karl Evang of Norway, and Geraldo de Paula Souza of Brazil, proposed the formulation of a single health organization that would address the health needs of the world's people. Their joint declaration to establish an international health organization was approved when the constitution of the WHO was adopted in 1946.

The preamble to the constitution defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." The initial priorities for world health care included initiatives to address **malaria**, maternal and child health, **tuberculosis**, venereal diseases, **nutrition** and environmental sanitation, public health administration, **parasitic** diseases, **viral diseases**, mental health, and other activities.

The WHO provides preventive health and improvement of nutritional status through programs that address:

1. Health education
2. Food, food safety, and nutrition
3. Safe water and basic sanitation
4. Immunizations
5. Prevention and control of local endemic diseases
6. Treatment of common diseases and injuries
7. Provision of essential **drugs**.

Internet Engineering Task Force (IETF):

The first IETF meeting was on January 16, 1986, consisting of 21 U.S.-government-funded researchers. Initially, it met quarterly, but from 1991, it has been meeting 3 times a year. Representatives from non-governmental entities were invited starting with the fourth IETF meeting, in October of that year. Since that time all IETF meetings have been open to the public. The majority of the IETF's work is done on mailing lists, and meeting attendance is not required for contributors.

Organization for the Advancement of Structured Information Standards (OASIS):

OASIS was first formed as **SGML Open** in 1993 as a trade association of SGML tool vendors to cooperatively promote the adoption of SGML through mainly educational activities, though some amount of technical activity was also pursued including an update of the CALS Table Model specification and specifications for fragment interchange and entity management.

In 1998, with the movement of the high tech industry to XML, SGML Open changed its emphasis from SGML to XML, and changed its name to OASIS Open to be inclusive of XML and any future structured information standards. The focus of the consortium's activities also moved from promoting adoption (as XML was getting lots of attention on its own) to developing technical specifications. In July 2000 a new technical committee process was approved. With the adoption of the process the manner in which technical committees were created, operated, and progressed their work was regularized. At the adoption of the process there were five technical committees; by 2004 there were nearly 70.

During 1999 OASIS was approached by UN/CEFACT, the committee of the United Nations dealing with standards for business, to jointly develop a new set of specifications for electronic business. The joint initiative, called "ebXML" and which first met in November 1999, was chartered for a three year period. At the final meeting under the original charter, in Vienna, UN/CEFACT and OASIS agreed to divide the remaining work between the two organizations and to coordinate the completion of the work through a coordinating committee. In 2004 OASIS submitted its completed ebXML specifications to ISO TC154 where they were approved as *ISO 15000*.

FCC

The Federal Communications Commission (FCC) is an independent United States government agency. It is regulating interstate and international communications by radio, television, wire, satellite and cable.

Inside FCC the Wireless Telecommunications Bureau (WTB) handles nearly all FCC domestic wireless telecommunications programs, policies, and outreach initiatives.

Among the other standardization activities, FCC defined a standard to regulate industrial, scientific and medical equipment (ISM) that emits electromagnetic energy on frequencies within the radio frequency spectrum in order to prevent harmful interference to authorized radio communication services.

Furthermore some years ago FCC proposed the Medical Implant Communication System Standard (MICS) as an ultra-low power, unlicensed, mobile radio service for transmitting data in support of diagnostic or therapeutic functions associated with implanted medical devices. The MICS permits individuals and medical practitioners to utilize ultra-low power medical implant devices, such as cardiac pacemakers and defibrillators, without causing interference to other users of the electromagnetic radio spectrum.

No licensing is required, but MICS equipment must only be operated by a duly authorized health care professional.

IEEE

IEEE is a non-profit organization and is the world's leading professional association for the advancement of technology. The IEEE name was originally an acronym for the Institute of Electrical and Electronics Engineers, Inc. Today, the organization's scope of interest has expanded into many other related fields (from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics among others).

Currently IEEE has more than 375,000 members in more than 160 countries.

Nearly 1,300 standards have been published and other projects are under development

IEC

The IEC is the world's leading organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

These serve as a basis for national standardization. The IEC promotes international cooperation on all questions of electrotechnical standardization and related matters, such as the assessment of conformity to standards, in the fields of electricity, electronics and related technologies.

The IEC charter embraces all electrotechnologies including electronics, magnetics and electromagnetics, electroacoustics, multimedia, telecommunication, and energy production and distribution, as well as associated general disciplines such as terminology and symbols, electromagnetic compatibility, measurement and performance, dependability, design and development, safety and the environment.

IEC standards are at the core of the Code of Good Practice for the Preparation, Adoption and Application of Standards presented in Annex 3 to the World Trade Organization's (WTO) Agreement on Technical Barriers to Trade (TBT) and accepted and signed by the other International Standardization Bodies.

IEC standards provide industry and users with the framework for economies of design, greater product and service quality, more inter-operability, and better production and delivery efficiency. At the same time, IEC's standards also encourage an improved quality of life by contributing to safety, human health and the protection of the environment.

Bluetooth Special Interest Group

The Bluetooth Special Interest Group (SIG) is a privately held, not-for-profit trade association founded in September 1998. The SIG member companies are leaders in the telecommunications, computing, automotive, music, apparel, industrial

automation, and network industries. SIG members drive development of *Bluetooth* wireless technology, and implement and market the technology in their products. The main tasks for the Bluetooth SIG are to publish *Bluetooth* specifications, administer the qualification program, protect the *Bluetooth* trademarks and evangelize *Bluetooth* wireless technology.

The Members support a number of working groups and committees that focus on specific areas, such as engineering, qualification, and marketing.

The Bluetooth SIG includes Promoter member companies Ericsson, Intel, Lenovo, Microsoft, Motorola, Nokia, and Toshiba, and thousands of Associate and Adopter member companies.

ZigBee Alliance

The ZigBee Alliance is an association of companies working together to enable reliable, cost-effective, low-power, wirelessly networked, monitoring and control products based on an open global standard.

The goal of the ZigBee Alliance is “to provide the consumer with ultimate flexibility, mobility, and ease of use by building wireless intelligence and capabilities into everyday devices”. ZigBee technology will be embedded in a wide range of products and applications across consumer, commercial, industrial and government markets worldwide. Companies will have a standards-based wireless platform optimized for the unique needs of remote monitoring and control applications, including simplicity, reliability, low-cost and low-power.

Focus areas are:

- Defining the network, security and application software layers
- Providing interoperability and conformance testing specifications
- Promoting the ZigBee brand globally to build market awareness
- Managing the evolution of the technology

KNX Association

KNX Association is a group of leading companies active in many fields of home and building control. Currently, KNX Association has more than 100 members, accounting for more than 80% of the home and building control devices sold in Europe. As common goal, these companies promote the development of building installation systems in general and KNX as the world's only open STANDARD for home and building control. Worldwide KNX Association has partnership agreements with more than 21.000 installer companies in 70 countries, more than 50 technical universities as well as over 100 training centers.

The KNX standard is based upon more than 15 years of experience in the market, amongst others with predecessor systems to KNX: EIB, EHS and BatiBUS. Via the KNX medium to which all bus devices are connected (twisted pair, radio frequency, power line or IP/Ethernet), they are able to exchange information. Bus devices can either be sensors or actuators needed for the control of building management

equipment such as: lighting, blinds / shutters, security systems, energy management, heating, ventilation and air-conditioning systems, signaling and monitoring systems, interfaces to service and building control systems, remote control, metering, audio / video control, white goods, etc. All these functions can be controlled, monitored and signaled via a uniform system without the need for extra control centers.

KNX is approved as an International Standard (ISO/IEC 14543-3) as well as an European Standard (CENELEC EN 50090 and CEN EN 13321-1) and Chinese Standard (GB/Z 20965). KNX products made by different manufacturers can be combined and the KNX trademark logo guarantees their interworking and interoperability.

Open Geospatial Consortium (OGC)

The Open Geospatial Consortium, Inc (OGC) is an international industry consortium of companies, government agencies and universities participating in a consensus process to develop publicly available interface specifications. OpenGIS® Specifications support interoperable solutions that "geo-enable" the Web, wireless and location-based services, and mainstream IT. The specifications empower technology developers to make complex spatial information and services accessible and useful with all kinds of applications.

The OpenLS Initiative (www.openls.org), led by OGC, is devoted to the development of interface specifications for interoperable location-based application services that facilitate the use of "spatial" or "location" information in Internet-enabled mobile environments.

OGC introduced plans for harmonizing OpenLS specifications with other industry forums and standards organizations such as the Location Interoperability Forum (LIF).

Location Interoperability Forum (LIF) – Open Mobile Alliance (OMA)

The "Location Interoperability Forum" (LIF) has consolidated into the Open Mobile Alliance (OMA) and no longer exists as an independent organization.

OMA is the leading industry forum for developing market driven, interoperable mobile service enablers.

OMA was formed in June 2002 by nearly 200 companies including the world's leading mobile operators, device and network suppliers, information technology companies and content and service providers. OMA is aiming to consolidate into one organization all specification activities in the service enabler space.

OMA is the focal point for the development of mobile service enabler specifications, which support the creation of interoperable end-to-end mobile services. OMA drives service enabler architectures and open enabler interfaces that are independent of the underlying wireless networks and platforms. OMA has pioneered significant consolidation of mobile service enabler organizations with the integration of the WAP

Forum, Location Interoperability Forum (LIF), SyncML Initiative, MMS-IOP (Multimedia Messaging Interoperability Process), Wireless Village, Mobile Gaming Interoperability Forum (MGIF) and the Mobile Wireless Internet Forum (MWIF) into OMA. This consolidation promotes end-to-end interoperability across different devices, geographies, service providers, operators, and networks.

Java Community Process (JCP)

The JCP holds the responsibility for the development of Java technology. As an open, inclusive organization of active members and non-member public input, it primarily guides the development and approval of Java technical specifications.

Since its introduction in 1998 the Java Community Process (JCP) program has fostered the evolution of the Java platform in cooperation with the international Java developer community.

There are currently more than 90 Java technology specifications in development in the JCP program, including the next versions of Java™ Micro Edition (Java ME™), Java™ Platform Enterprise Edition (Java EE™), and Java™ Standard Edition (Java SE).

OSGi Alliance

OSGi Alliance is a worldwide consortium of technology innovators providing specifications, reference implementations, test suites and certification to assure interoperability and services based on its component integration platform. The Alliance – founded in March 1999 and formerly known as the Open Services Gateway initiative – have specified a Java-based service platform that can be remotely managed. The core part of the specifications is a framework that defines an application life cycle management model, a service registry, an Execution environment and Modules. Based on this framework, a large number of OSGi Layers, APIs and Service have been defined.

The OSGi Mobile Expert Group (MEG) is chartered to define the requirements and specifications to tailor and extend the OSGi Service Platform for mobile devices that are data-capable and also capable of connecting to wireless networks (digital mobile phones, smartphones, Personal Digital Assistants (PDAs), etc.). Development of the specifications and APIs entails the creation of supporting documentation, reference implementations and compatibility test suites. Technical areas addressed by the MEG will include the requirements, functional specifications, data formats, and communication protocols for the mobile Service Platform as well as defining new requirements for the base service platform. The MEG, through its members, may also cooperate with other specification bodies in the creation of data formats and communication protocols.

4. Relevant existing standards

4.1. Wireless Connectivity for short range Body-Sensors-Network (BSN) and Personal-Area-Network (PAN)

Medium-rate WPAN, Bluetooth, Zig Bee.

They cover only the lower OSI layers (i.e. physical, datalink, network, transport layer) which provide reliable data transport.

To extend the standardization to the upper OSI layers by defining application profiles

Standard	IEEE 802.15.1
Relevant Body	IEEE
Relevant WP	WP4.2 and SP2
Relevance to this WP	It is part of the IEEE 802.15 family of standards related to Wireless Personal Area Network (WPAN); the IEEE 802.15.1 std refers to Bluetooth. It applies to applications with high data rate (1 Mbps) and continuous data transfer in real time. Drawback is the power demand.
Abiding to the standard	Yes

Standard	IEEE 802.15.4 in combination with ZigBee
Relevant Body	IEEE
Relevant WP	WP 4.2 and SP2
Relevance to this WP	It provides a standard with ultra low power consumption, cost and complexity for fixed or portable devices operating in a Low Rate (250kbps) Wireless Personal Area Network (LR-WPAN).
Abiding to the standard	Yes

Standard	IEEE 802.11
Relevant Body	IEEE
Relevant WP	4.2
Relevance to this WP	Related to Wireless Local Area Network (W-LAN)

Abiding to the standard	To be decided
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Standard	In preparation: Bluetooth SIG Medical Devices Working Group, established in 2006
Relevant Body	Bluetooth Special Interest Group
Relevant WP	4.2 2.6
Relevance to this WP	Definition of an Application Profile for Personal Health and Fitness Devices
Abiding to the standard	To be decided

Standard	In preparation: ZigBee Personal / Home Healthcare Study Group, established in 2006
Relevant Body	ZigBee Alliance
Relevant WP	4.2 2.6
Relevance to this WP	New application profile in the area of health monitoring to enable plug-and-play interoperability of wireless ZigBee enabled medical sensors and devices
Abiding to the standard	To be decided

Standard	In preparation: IEEE P1073.0.1.1
Relevant Body	
Relevant WP	SP2 SP3
Relevance to this WP	Working Group for the promotion of the use of off-the-shelf technologies (WiFi, Bluetooth, ZigBee) in a shared IT infrastructure where multiple devices and systems from diverse vendors can be integrated to provide safe and effective communication of medical data
Abiding to the standard	To be decided

Standard	In preparation: IEEE P1451.5
Relevant Body	IEEE
Relevant WP	WP 4.2, SP2 and SP3
Relevance to this WP	Wireless protocols and data formats for wireless transducers (sensors and actuators) based on the IEEE P1451 family of smart transducers interface standards. The standard will adopt the IEEE 802 family of wireless communication protocols.
Abiding to the standard	To be decided

Standard	In preparation: Bluetooth Low Energy Wireless Technology
Relevant Body	Jointly developed by WiBree Forum, promoted by Nokia, and Bluetooth SIG
Relevant WP	4.2
Relevance to this WP	Ultra low power wireless technology developed by Nokia, now merged with the Bluetooth SIG. Wibree Specs will be part of the Bluetooth specs as ultra low power Bluetooth technology for WPAN. Target application areas are: sport, healthcare, watches, PC, home, portable video players.
Abiding to the standard	To be decided

Standard	ISO/IEC 18092
Relevant Body	
Relevant WP	SP2 SP3
Relevance to this WP	Exchange of data between two Near Field Communication (NFC) devices (peer-to-peer mode)
Abiding to the standard	To be decided

Standard	ISO/IEC 14443
Relevant Body	
Relevant WP	SP2 SP3
Relevance to this WP	Contactless smart card standard using NFC and RFID
Abiding to the standard	To be decided

Standard	ISO 11073 / IEEE 1073
Relevant Body	2.6 4.2
Relevant WP	
Relevance to this WP	Family of standards intended to enable medical devices to interconnect and interoperate with other medical devices
Abiding to the standard	Yes

4.2. Interoperability standards for the interchange of medical data

Interoperability standard for the electronic interchange of clinical, financial and administrative information among independent health care oriented computer systems; level “seven” refers to the highest level of the ISO communication model for Open Systems Interconnection (OSI), the application layer.

Extension for personalized / non-clinical applications with specific regard to autonomous wearable sensor units and related data
(HL7 Healthcare Devices Special Interest Group)

The standards that apply in this domain are as follows:

Standard	CEN - EN13606
Relevant Body	CEN
Relevant WP	WP4.1
Relevance to this WP	The European standard for the communication of information from EHR systems, and HISA, a services standard for inter-system communication in a clinical information environment. Standardize transfers for electronic medical records HCEs (or portions thereof) so semantically interoperable. It can apply to activities 4.1.1 Definition of innovative HCI concepts and modules for elderly users (FhG/IAO) and 4.1.2 Integrated interface modules for elderly users (FHG/IAO), concerning the exchange of medical data applied to the HCE
Abiding to the standard	It is a standard that applies to the domain of exchanging medical data like HCE, but must be reviewed if applied directly to the project

Standard	CEN-TC 251
Relevant Body	CEN
Relevant WP	WP2.1
Relevance to this WP	CEN/TC 251 establishes priorities based on healthcare market priorities. It also

	<p>identifies both publicly available specifications and outputs from R&D programmes (e.g. AIM, Advanced Informatics in Medicine / Health Telematics, DG XIII-C4) which are suitable for rapid transformation into standards. When the market is not providing appropriate solutions, CEN/TC 251 generates suitable standards through consensus-building. The major objectives of CEN/TC 251 are reflected in the structure of its working groups and in its project teams' activities.</p> <p>It can serve as a support for A2.1.1</p>
Abiding to the standard	To be decided by the Consortium

Standard	HL7 V3
Relevant Body	HL7
Relevant WP	WP1.5, 1.6
Relevance to this WP	<p>Version 3 represents a significant departure from "business as usual" for HL7. Offering lots of optionality and thus flexibility, the V2.x series of messages were widely implemented and very successful. HL7's primary goal for Version 3 is to offer a standard that is definite and testable, and provide the ability to certify vendors' conformance. Version 3 uses an object-oriented development methodology and a Reference Information Model (RIM) to create messages. The RIM is an essential part of the HL7 Version 3 development methodology, as it provides an explicit representation of the semantic and lexical connections that exist between the information carried in the fields of HL7 messages.</p> <p>Mainly for A1.5.3 Definition of agent communication for Content of agent messages and Specification of message structure</p> <p>It can serve as a support for A1.6.1 for</p>

	<p>provide the overall system architecture and interoperability specifications of the OASIS system.</p> <p>Practically it can to support all packages of communication and integración.WP4.4.</p> <p>WP's from SP3</p>
Abiding to the standard	yes

Standard	openEHR
Relevant Body	openEHR
Relevant WP	WP4.1
Relevance to this WP	<p>Open standard that describes the management and storage, retrieval and exchange of health data in electronic health records (EHRs). In openEHR, all health data for a person is stored in an "one lifetime", vendor-independent, person-centred EHR. The primary focus of <i>openEHR</i> is NOT the exchange of data between EHR-systems. The primary focus of Message standards is exchange of data between EHR-systems.</p> <p>The openEHR specifications are maintained by the openEHR Foundation, a not for profit foundation supporting the open research, development, and implementation of openEHR EHRs. The openEHR specifications are based on a combination of 15 years of European and Australian research and development into EHRs and new paradigms, including what has become known as <i>two-level modelling</i>.</p> <p>The openEHR specifications include information and service models for the EHR, demographics, clinical workflow, archetypes, and are designed to be the basis of a medico-legally sound, distributed, versioned EHR infrastructure.</p> <p>It may be considered a good alternative to HL7 in exchanging medical data regarding</p>

	<p>the HCE</p> <p>A4.1.1 for Definition of innovative HCI concepts and modules for elderly users and A4.1.2 for Integrated interface modules for elderly users</p>
Abiding to the standard	It is a standard that applies to the domain of exchanging medical data, but must be reviewed if applied directly to the project

Standard	DICOM
Relevant Body	DICOM
Relevant WP	WP1.6
Relevance to this WP	<p>Globally recognized standard for exchanging medical imaging, designed for handling, storage, printing and transmitting medical images. It includes the definition of a file format and a communication protocol network. The communication protocol is a protocol for the application that uses TCP / IP for communication between systems. The DICOM files can be exchanged between two entities that are able to receive images and patient data in DICOM format.</p> <p>A1.6.1 System architecture and interoperability</p> <p>It can apply in some activities of this WP2.6 Health monitoring, but mainly in the exchange of medical radiology images</p>
Abiding to the standard	If within the project and will have functions within the domain of any exchange of medical images, this is the appropriate standard

Standard	SNOMED Systematized Nomenclature of Medicine
Relevant Body	ANSI/SNOMED
Relevant WP	WP1.5
Relevance to this WP	<p>It's a systematically organized computer processable collection of medical terminology covering most areas of clinical information such as diseases, findings, procedures, microorganisms, pharmaceuticals etc. It allows a consistent way to index, store, retrieve, and aggregate clinical data across specialties and sites of care. It also helps organizing the content of medical records, reducing the variability in the way data is captured, encoded and used for clinical care of patients and research.</p> <p>It is needed for the medical information. Can support in A1.5.6 agent in Content of messages in the medical field.</p> <p>It is one of the standards recommended by the IHE for classifying medical nomenclature</p>
Abiding to the standard	Yes

Standard	LOINC
Relevant Body	LOINC
Relevant WP	WP1.6
Relevance to this WP	<p>Is a database and universal standard for identifying laboratory observations. It was developed and is maintained by the Regenstrief Institute, Inc., an internationally-recognized non-profit medical research organization, in 1994. LOINC was created in response to the demand for an electronic database for clinical care and management and is publicly available at no cost. It is endorsed by the American Clinical Laboratory Association and the College of American Pathologist. Since its inception, the</p>

	<p>database has expanded to include not just medical and laboratory code names, but also: nursing diagnosis, nursing interventions, outcomes classification, and patient care data set.</p> <p>HL7 is now the preferred standard to electronically transfer results from different reporting systems to the appropriate healthcare networks. However, the health information enclosed is identified by a multiplicity of code values that may vary according to the entity producing those results.</p> <p>It is an alternative to SNOMED</p>
Abiding to the standard	To be decided by consortium

Standard	HL7 (CDA & RIM): Standard for the exchange, management and integration of electronic healthcare information
Relevant Body	ANSI/HL7
Relevant WP	WP1.6
Relevance to this WP	<p>Healthcare information is among the key issues in the health and emergency management module of Oasis.</p> <p>A1.6.1 System architecture and interoperability</p> <p>A1.6.2 Component and system specification</p>
Abiding to the standard	Yes

Standard	ISO/TS 17090-3 Public key infrastructure; Health informatics
Relevant Body	ISO/TS
Relevant WP	WP1.6
Relevance to this WP	<p>It identifies the principles needed in a healthcare security policy for cross-border communication and defines the minimum levels of security required, concentrating on aspects unique to healthcare. Also, it gives guidelines for certificate management issues involved in implementing and operating a healthcare</p>

	<p>public key infrastructure (PKI). It specifies a structure and minimum requirements for certificate policies, as well as a structure for associated certification practice statements.</p> <p>This is a standard applies to the security of exchange of medical information.</p> <p>In terms of security policy applies to the activity A1.6.3 Security platform</p>
Abiding to the standard	Yes

Standard	ISO/TR 16056-1 (and 2):2004 Interoperability of telecare systems and networks; Data interchange
Relevant Body	ISO/TS
Relevant WP	WP1.6
Relevance to this WP	<p>It gives a brief introduction to interoperability of telehealth systems and networks, along with definitions of telehealth and related terms.</p> <p>An informative annex describing the Telehealth Technical Reference Architecture has also been included to describe more clearly the various components of a telehealth system and the elements that need to be addressed in formulating a set of requirements for these various components.</p> <p>Apply directly to support the activity A1.6.1 System architecture and interoperability, and A1.6.2 Component and system specification</p>
Abiding to the standard	Yes

Standard	ICD (International Statistical Classification of Diseases and Related Health Problems)
Relevant Body	WHO (World Health Organization)
Relevant WP	WP1.6
Relevance to this WP	<p>The ICD is revised periodically and is currently in its tenth edition. The ICD-10, as it is therefore known, was developed in 1992 to track mortality statistics. ICD-11 is planned for 2015 and will be revised using Web 2.0 principles. Annual minor updates and three-yearly major updates are published by WHO. The ICD is part of a "family" of guides that can be used to complement each other, including also the International Classification of Functioning, Disability and Health which focuses on the domains of functioning (disability) associated with health conditions, from both medical and social perspectives.</p> <p>This is a standard that can classify and codify certain medical information, for exchange of medical data.</p> <p>Supplementary for the exchange of medical information with HL7 in the activity A1.6.1.</p> <p>It could also be an alternative to SNOMED</p>
Abiding to the standard	To be decided by the Consortium

4.3. Interoperability of location-based applications and services

A multitude of standards organizations such as the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (WC3) have location and geo-spatial initiatives, but location is not their core focus. To offset this lack of “location focus” on both the wireless and Internet fronts, two organizations have emerged as the drivers of location interoperability: LIF (Location Interoperability Forum, currently integrated into the OMA (Open Mobile Alliance)) and OGC (Open GIS Consortium). In cooperation with other standard bodies these two organizations are promoting a cohesive set of wireless location interoperability. LIF primary focus is the convergence between location and wireless, while OGC is addressing mainly the convergence between location and Internet.

Java J2ME is the consolidated platform for mobile devices with limited resources and a lot of efforts are currently focused on the enhancement of the platform to allow the exploitation of new and advanced location-based services (LBS). The Java Community Process (JVC) is actively working in this direction and – after releasing the JSR 179 – is elaborating an extension of this optional package (the new JSR 293). In the same way new initiatives of OSGi are aiming at promoting a next generation architecture for the mobile space that will ensure that compelling applications and services – such as LBS – are available in the mobile Java environment.

Standard	Open GIS Location Service (OpenLS)
Relevant Body	OGC
Relevant WP	SP3
Relevance to this WP	The OpenGIS® Open Location Services Interface Standard (OpenLS) specifies interfaces that implement OpenLS services such as a Directory Service, Gateway Service, Geocoder Service, Presentation (Map Portrayal) Service and others. The standard facilitates the use of location data in the wireless Internet environment. OGC's Specs are harmonized with those from Telecom Standards connecting wireless and voice-based systems and Internet Groups such as Parlay, 3GPP, ETSI.
Abiding to the standard	To be decided by the involved Partners

Standard	GML (Geography Mark-up Language)
Relevant Body	OGC
Relevant WP	SP3
Relevance to this WP	GML (XML-based) is a mark-up language which can be potentially used for Location-based Services (LBS) for data interchange.
Abiding to the standard	To be decided by the involved Partners

Standard	Mobile Location Protocol (MLP)
Relevant Body	LIF (incorporated into OMA)
Relevant WP	SP3
Relevance to this WP	MPL is an application-level protocol interfacing between the location server of the network and the application (i.e. the location server client); it facilitates the exchange of location information . MLP allows location-based service (LBS) applications to interoperate with wireless networks regardless of their air interfaces (GSM, CDMA,...) and positioning methods. It includes info location security provisions (access of info only to authorized persons). OMA's Specs are harmonized with those from Telecom Standards connecting wireless and voice-based systems and Internet Groups such as Parlay, 3GPP, ETSI.
Abiding to the standard	To be decided by the involved Partners

Standard	WAP-LOCFW, WAP-LOCROT, WAP-LOCFORM
Relevant Body	OMA
Relevant WP	SP3
Relevance to this WP	The standards are part of the Wireless Application Protocol (WAP) and are addressing the needs of location-based services (LBS).
Abiding to the standard	To be decided by the involved Partners

Standard	JSR 179 v.2.1 – Location API for J2ME (Java Micro Edition) (final release 2 – march 2006)
Relevant Body	JCP
Relevant WP	SP3
Relevance to this WP	<p>JSR179 defines an Optional Package that enables developers to write mobile location-based applications for resource-limited devices. It provides a compact and generic API that produces information about the device's present physical location to Java applications. The API can be used with many J2ME Profiles; the minimum platform assumed is the J2ME Connected Limited Device Configuration (CLDC v.1.1) and CDC configurations. (NOTE: The CLDC 1.0 isn't adequate because it doesn't support floating point numbers, which the API uses to represent coordinates and other measurements).</p> <p>It works regardless of the positioning method (GPS, E-OTD, etc.)</p> <p>Privacy issues are out of the scope of the JSR but the MIDP 2.0 security model is suggested to establish the required security framework for the implementation of this API.</p>
Abiding to the standard	To be decided by the involved Partners

Standard	JSR 293 – Location API 2.0 (under preparation – Proposed final draft dated January 2008 and approved on July 2008)
Relevant Body	JCP
Relevant WP	SP3
Relevance to this WP	<p>It enables the development of new enhanced location-based features on the JAVA ME devices. It is an extension of the JSR 179 and it is fully backwards compatible with applications using JSR179. Compared to the JSR179, the JSR293 allows:</p> <ul style="list-style-type: none"> - to import and export landmarks with Java application (with this new feature the landmarks and points of interest can be shared between two devices); - to extend the localization support for the landmarks; - to specify a set of abstract landmark UI components for adding, editing and selecting landmarks;

	<ul style="list-style-type: none"> - to support geo-coding (i.e. assigning location coordinates for a landmark based on the given address), - to use maps in Java applications (to display maps and show landmarks and points of interest); - to access the navigation features provided by 3rd party applications.
Abiding to the standard	To be decided by the involved Partners

Standard	New 802.21 Standard
Relevant Body	IEEE
Relevant WP	SP3
Relevance to this WP	It enables seamless handover between different heterogeneous networks and defines a mechanism for the exchange of location information.
Abiding to the standard	To be decided by the involved Partners

Standard	Bluetooth Location Positioning Profile (LPP)
Relevant Body	Bluetooth Standards Forum
Relevant WP	SP3
Relevance to this WP	It defines location positioning profiles for a Bluetooth Personal Area Network domain.
Abiding to the standard	To be decided by the involved Partners

Standard	ISO 19101 standards family
Relevant Body	ISO TC 211
Relevant WP	SP3
Relevance to this WP	<p>ISO TC 211 is addressing the standardization of geographical information including metadata and the geographical data itself. Currently more than 30 standards of the ISO 19100 family have been published and other are under elaboration. Among the published standards:</p> <ul style="list-style-type: none"> - ISO 19115:2003 - Geographical Information – Metadata; - ISO 19116:2004 - Positioning Services; - ISO 19133:2005 – Geographical Information ,

	<p>Location based services – Tracking and Navigation;</p> <ul style="list-style-type: none"> - ISO 19136:2007 – Geography Markup Language (GML); - ISO 19139: 2007 – Geographic information – Metadata, XML schema implementation
Abiding to the standard	To be decided by the involved Partners

Standard	OSGi Mobile Specifications
Relevant Body	OSGi
Relevant WP	SP3
Relevance to this WP	<p>The OSGi specifications were enhanced to extend the OSGi Service Platform to mobile devices. The OSGi mobile specification uses the OSGi framework to allow mobile devices based on Java ME™ Connected Device Configuration to evolve and adapt their capabilities by installing new sharable service components and applications on demand. In this way it is aiming to enable a whole new segment for middleware in the mobile industry by bringing dynamic middleware to mobile devices.</p> <p>The architecture of the OSGi mobile specification allows developers to create, deploy and manage loosely coupled cooperating components into the mobile Java environment. As the next generation architecture for the mobile space, the OSGi mobile specification updates the simple monolithic environment of CLDC (Connected Limited Device Configuration) to the same fully functional and robust Java component environment that developers have come to rely upon in the desktop and server spaces. This new architecture will help to ensure that compelling applications and services will be available in the mobile environment.</p> <p>The OSGi mobile specification is the underlying technology in JSR 232, the mobile Java service platform, which was submitted to the JCP by OSGi members Nokia Corporation and Motorola.</p>
Abiding to the standard	To be decided by the involved Partners

4.4. Domotics

Standard	X10
Relevant Body	X10 Organization
Relevant WP	WP 2.7
Relevance to this WP	Very well recognized mainly in America, its main characteristic is that it does not need a specific bus to transfer commands between devices; it implies simpler installation. From the other side it is also a drawback because the signal uses a quite noisy communication medium.
Abiding to the standard	To be decided by the involved Partners

Standard	KNX
Relevant Body	KNX Association
Relevant WP	WP 2.7
Relevance to this WP	<p>The standard defines a building automation fieldbus that focuses on the energy management of electric installations, the demand side management, the environment control and safety. A KNX system can be installed in all types of buildings and monitors and controls various environmental procedures and functionalities.</p> <p>The KNX standard inherits most of its characteristics from EIB developed by the EIBA the biggest consortium of European companies. Its main characteristic is that there isn't a central node controlling communications. It is a decentralized set of sensors and actuators; each one can take its own decisions and manage its own communications. The system requires the installation of a bus in order to feed and communicate devices.</p> <p>The standard has a strong influence in Europe.</p>
Abiding to the standard	To be decided by the involved Partners

Standard	Lon Works
Relevant Body	Echelon Corporation, USA
Relevant WP	WP 2.7
Relevance to this WP	<p>It is an open standard with a strong influence in America. It's a distributed system that can use several ways of communication. The devices are programmed in a language called NeuronC and the name of the communication protocol is LonTalk. It uses a proprietary technology called LNS (LonWorks Network System).</p> <p>Each supported operation of the LNS can be performed locally, through DCOM-based clients and remotely through IP-based clients. Implementations usually include an Internet server that allows remote control (Echelon Corporation, 2007).</p>
Abiding to the standard	To be decided by the involved Partners

Standard	DomoML
Relevant Body	
Relevant WP	2.7
Relevance to this WP	XML/SOAP based protocol for the IP backbone of the Domotic Network
Abiding to the standard	To be decided by the involved Partners

Standard	ISO/IEC 14543ed. 1.0 (2006-07)
Relevant Body	ISO / IEC
Relevant WP	2.7
Relevance to this WP	<p>Home electronic system (HES) architecture – Part 3-1: Communication layers – Application layer for network based control of HES Class 1;</p> <p>Part 3-2: Communication layers – Transport, network and general parts of data link layer for network based control of HES Class 1;</p> <p>Part 3-3 : User process for network based control of HES Class 1;</p> <p>Part 3.4 : System management, management procedures for network based control of HES Class 1;</p>

	<p>Part 3-5: Media and media dependent layers. Powerline for network based control of HES Class 1;</p> <p>Part 3.6 : Media and media dependent layers. Twisted pair for network based control of HES Class 1;</p> <p>Part 3-7: Media and media dependent layers. Radio frequency for network based control of HES Class 1;</p>
Abiding to the standard	To be decided by the involved Partners

Standard	ISO/IEC 18012-1 (2004)
Relevant Body	ISO / IEC
Relevant WP	2.7
Relevance to this WP	Home electronic system: Guidelines for product interoperability
Abiding to the standard	To be decided by the involved Partners

Standard	ISO/IEC 15044 TR ed. 1.0 (2000)
Relevant Body	ISO / IEC
Relevant WP	2.7
Relevance to this WP	Terminology for Home Electronic System (HES)
Abiding to the standard	informative

Standard	ISO/IEC 15045-1 (2004)
Relevant Body	ISO / IEC
Relevant WP	2.7
Relevance to this WP	Home electronic system (HES): A residential gateway model for HES
Abiding to the standard	To be decided by the involved Partners

Standard	ISO / IEC 15067
Relevant Body	ISO / IEC
Relevant WP	2.7
Relevance to this WP	<p>Home Electronic System (HES) application model</p> <p>Part 3 : Model of an energy management system for HES;</p> <p>Part 4: Security system for HES.</p>
Abiding to the standard	To be decided by the involved Partners

Standard	ISO/IEC JTC1/SC 25/ WG1
Relevant Body	ISO/ IEC
Relevant WP	2.7
Relevance to this WP	Home electronic systems
Abiding to the standard	To be decided by the involved Partners

Standard	CLC / TC 205
Relevant Body	CENELEC
Relevant WP	2.7
Relevance to this WP	Home and building Electronic Systems
Abiding to the standard	To be decided by the involved Partners

Standard	CEN / TC 247
Relevant Body	CENELEC
Relevant WP	2.7
Relevance to this WP	Building Automation, Controls and Building Management
Abiding to the standard	To be decided by the involved Partners

Standard	CLC / TC 79
Relevant Body	CENELEC
Relevant WP	2.7
Relevance to this WP	Alarm Systems
Abiding to the standard	To be decided by the involved Partners

4.5. Public Transport management and information

Within this section standards are included regarding the development of common public transport data model in order to build public transport information systems. That means it is related to Reference Data Model for Public Transport.

Standard	Transmodel (CEN TC278)
Relevant Body	CEN
Relevant WP	WP 3.2; WP 3.3
Relevance to this WP	provides an abstract model of common public transport concepts and data structures to be used to build Public transport information system
Abiding to the standard	

Standard	SIRI (CEN/TS 15531)
Relevant Body	CEN
Relevant WP	WP 3.2; WP 3.3
Relevance to this WP	SIRI is an XML protocol to allow distributed computers to exchange real-time information about public transport services and vehicles
Abiding to the standard	

Following section includes national standards (Germany, UK). This section is more to provide a general overview than these standards should be considered in OASIS.

Standard	ÖPNV-Datenmodell 5.0
Relevant Body	VDV (Germany)
Relevant WP	WP3.2; WP 3.3
Relevance to this WP	German reference framework for data modelling for passenger transport
Abiding to the standard	
Standard	NaPTAN
Relevant Body	UK DfT
Relevant WP	(WP 3.2; WP 3.3)
Relevance to this WP	(UK nationwide system for uniquely identifying all the points of access to public

	transport in the UK)
Abiding to the standard	

Standard	NPTG
Relevant Body	UK DfT
Relevant WP	(WP 3.2; WP 3.3)
Relevance to this WP	provides a topographic database of towns and settlements in the UK; it provides a common frame of reference for the NaPTAN schema and other UK Public Transport Information schemas
Abiding to the standard	

Standard	TransXChange
Relevant Body	UK DfT
Relevant WP	(WP 3.2; WP 3.3)
Relevance to this WP	UK nationwide standard for exchanging bus schedules and related data
Abiding to the standard	

4.6. Automotive/Intelligent Transport Systems

Standardisation in the field of telematics to be applied to road traffic and transport, including those elements that need technical harmonisation for intermodal operation in the case of other means of transport.

To provide guidelines for the future standardisation initiatives in the following fields:

- vehicle, container, swap body and goods wagon identification
- vehicle-vehicle and vehicle-infrastructure communication
- in-vehicle HMI concerning telematics
- traffic and parking management
- user fee collection
- public transport management

4.6.1. Emergency call standardisation

Standard	Minimum Set of Data (MSD)
Relevant Body	CEN/TC 278
Relevant WP	WP3.4
Relevance to this WP	<p>It is the minimum dataset needed to start and manage the eCall service. The standard specifies the format used during an eCall to send message data from the accidented vehicle to the nearest emergency centre.</p> <p>MSD is an eCall binding requirement: it will be employed within this workpackage (specifically in A3.4.2) in order to access the emergency service chain and provide first aid to elderly drivers in critical situations.</p> <p>The use of MSD messages will be necessary also for the development of an extended version of eCall functionalities, by connection to the health monitoring system of WP2.6, which is one of the main goals of our contribution within the</p>

	workpackage.
Abiding to the standard	Yes

Standard	Global System for Mobile communications (GSM)
Relevant Body	ETSI, GSM Association
Relevant WP	WP3.4
Relevance to this WP	The GSM standard is applied in 112 vehicle-PSAP voice communications within eCall (A3.4.2). GSM features USSD (Unstructured Supplementary Service Data) and SMS (Short Message Service) functionalities, which are techniques that can be employed to transmit the MSD or other auxiliary data from the accidented vehicle to the emergency central.
Abiding to the standard	Yes

Standard	Universal Mobile Telecommunications System (UMTS)
Relevant Body	3GPP
Relevant WP	WP3.4
Relevance to this WP	Besides GSM, UMTS is another communication standard that can be used to manage the 112 vehicle-PSAP voice link during an eCall (A3.4.2).
Abiding to the standard	Yes

Standard	91/396/EEC
Relevant Body	European Commission
Relevant WP	WP3.4
Relevance to this WP	This Council Decision, emanated/made by the European Commission, establishes that a single emergency number, 112, must be provided by each Member State within EU. The document also recommends the introduction of E112 (Enhanced 112), a 112 service in which, additionally, the position of the caller must be given, provided by the telecom operator and based on the cellular network.
Abiding to the standard	Yes

Standard	Full Set of Data (FSD)
Relevant Body	Currently not standardized or under standardization. This will possibly be made in the next future. This issue is very important for OASIS WP3.4.
Relevant WP	WP3.4
Relevance to this WP	The FSD consists in a dataset that can be exploited to offer additional assistance/support services to the driver, complementary to those available by means of the MSD, through communication with an external Service Provider. The FSD contains much more bytes (information) than the MSD. Making use of FSD messages shall be significantly important for our contribution within A3.4.2 and A3.4.3, enriching the content with extra data to provide elderly drivers targeted custom services.
Abiding to the standard	Yes

4.6.2. Controller Area Network CAN (to be evaluated whether it is useful at a more general level than WP3.4)

Through the CAN (bus), information on parameters like vehicle status, speed, rotation, etc. can be achieved, conveyed by devices such as sensors and actuators connected to the in-car network.

Standard	ISO 11898-1: Road vehicles – Controller area network (CAN) – Part 1: Data link layer and physical signalling
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	It standardizes the communication protocol of the Controller Area Network (CAN). More precisely, it defines the data link layer, composed of the Logical Link Control (LLC) sublayer and the Media Access Control (MAC), and some aspects of the physical layer. This standard will be required in order to utilize the CAN functionalities within the workpackage , thus getting updated information about the vehicle (status,

	speed, etc.).
Abiding to the standard	Yes

Standard	ISO 11898-2: Road vehicles – Controller area network (CAN) – Part 2: High-speed medium access unit
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	This standard specifies the high-speed (transmission rates of up to 1 Mbit/s) medium access unit, and some medium dependent interface features, which comprise the physical layer of the CAN. The standard could be helpful while using the Controller Area Network within WP3.4.
Abiding to the standard	Yes

Standard	ISO 11898-3: Road vehicles – Controller area network (CAN) – Part 3: Low-speed, fault-tolerant, medium-dependent interface
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	It specifies characteristics of setting up an interchange of digital information between electronic control units of road vehicles equipped with the CAN at transmission rates above 40 kBit/s up to 125 kBit/s. This standard could be needed when utilizing the Controller Area Network in WP3.4.
Abiding to the standard	Yes

4.6.3. Vehicle-vehicle and vehicle- infrastructure communication

This section introduces some protocols and technologies currently under standardization involving vehicle to vehicle and vehicle to infrastructure communication.

In this sense, much effort is now being undertaken by two entities that deserve a mention: the CAR 2 CAR Communication Consortium, dedicated to the objective of further increasing road traffic safety and efficiency, and the Vehicle Infrastructure Integration Initiative, promoted by the U.S. Department of Transportation and other parties.

Standard	IEEE 802.11p
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Relevant Body	IEEE
Relevant WP	WP3.4
Relevance to this WP	<p>The purpose of this draft standard is to add Wireless Access in the Vehicular Environment (WAVE). In particular, it aims to provide specifications needed for MAC and physical layers for particular needs of vehicular networks.</p> <p>The utilization of this standard within WP3.4 will be taken under consideration, especially for what concerns information exchange between vehicles.</p>
Abiding to the standard	To be decided

Standard	IEEE 1609 – Family of standards for Wireless Access in Vehicular Environments (WAVE)
Relevant Body	IEEE
Relevant WP	WP3.4
Relevance to this WP	<p>This draft standard is a higher layer standard on which IEEE 802.11p is based. It consists in a group of 4 standards which define the architecture, communications model, management structure, security mechanisms and physical access for WAVE.</p>
Abiding to the standard	To be decided

4.6.4. In-vehicle HMI concerning telematics

Standard	European Statement of Principles on HMI of In-Vehicle Systems (ESoP)
Relevant Body	European Commission
Relevant WP	WP3.4
Relevance to this WP	<p>The ESoP summarises essential safety aspects to be considered for the HMI for in-vehicle information and communication systems. They state principles concerning design, installation, information presentation, interaction with display and controls, system behaviour and information about the system.</p> <p>These recommendations should be followed when designing and developing</p>

	the HMI of the system to be used in WP3.4.
Abiding to the standard	Yes

Standard	ISO 15006: Road vehicles – Ergonomic aspects of transport information and control systems – Specifications and compliance procedures for in-vehicle auditory presentation
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	This standard provides ergonomic specifications for the design and installation of auditory displays presenting speech and tonal information while driving. The functionalities of this standard within this workpackage will help granting drivers telematic (A3.4.2) and comfort (A3.4.3) support services, by reducing the visual workload of the pilot.
Abiding to the standard	Yes

Standard	ISO 15008: Road vehicles – Ergonomic aspects of transport information and control systems – Specifications and compliance procedures for in-vehicle visual presentation
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	This standard provides ergonomical specifications for displays of in-vehicle systems. These concern design aspects such as image quality, legibility of characters and color recognition for displays that contain dynamic visual information. These specifications are needed when providing telematic (A3.4.2) and comfort (A3.4.3) support services to the elderly drivers.
Abiding to the standard	Yes

Standard	ISO 2575: Road vehicles - Symbols for controls, indicators and telltales
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Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	This standard provides symbols for use on controls, indicators and telltales to ensure identification and facilitate use of these devices, in cars, light and heavy commercial vehicles and buses. The standard will help the design and development of the HMI structure within WP3.4.
Abiding to the standard	Yes

Standard	ISO 13407: Human centred design processes for interactive systems
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	This standard describes the human centred design approach throughout the life cycle of interactive systems. It can be applied to a wide range of computer-based interactive systems, therefore it will be useful when designing and developing the HMI device structure within this workpackage.
Abiding to the standard	Yes

Standard	ISO 15005: Road vehicles – Ergonomic aspects of transport information and control systems – Dialogue management principles and compliance procedures
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	This standard deals with the ergonomic design of Transport Information and Control Systems (TICS), giving principles for dialogue design. The standard's recommendations should be taken into account to provide the driver with telematic (A3.4.2) and comfort (A3.4.3) support services, by reducing his overall workload and ensuring effective and efficient use of TICS in the vehicles.
Abiding to the standard	Yes

Standard	ISO/CD 16673: Occlusion method to
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	assess visual distraction due to the use of in-vehicle information and communication systems
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	<p>This standard deals with the assessment of TICS concerning visual distraction, thus providing an easy-to-use and cheap method for measuring visual demands and aspects of interruptability.</p> <p>The method should be used for the evaluation of applications that include visual or visual-manual interfaces and which are accessible to the driver while the vehicle is in motion.</p> <p>Following this standard's recommendations shall help the design and development of the HMI structure within the workpackage WP3.4.</p>
Abiding to the standard	Yes

Standard	ISO 17287: Road vehicles – Ergonomic aspects of transport information and control systems – Procedure for assessing suitability for use while driving
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	<p>This standard specifies a procedure for assessing whether specific TICS, or a combination of TICS with other in-vehicle systems, are suitable for use by drivers while driving.</p> <p>Within WP3.4, this standard will become useful during the HMI design step.</p>
Abiding to the standard	Yes

Standard	AMI-C 4002: Requirements and specifications for human machine interfaces
Relevant Body	AMI-C
Relevant WP	WP3.4
Relevance to this WP	This standard describes an HMI strategy for presenting user interface information to a specified type of displays or controls and in a form that is controlled by vehicle

	<p>manufacturer. The HMI strategy uses a content-based approach with a HMI manager, an AMI-C XML schema and HMI API's.</p> <p>This standard shall provide useful techniques for designing and developing the HMI structure within the workpackage WP3.4.</p>
Abiding to the standard	Yes

4.6.5. User fee collection

Dedicated Short Range Communications (DSRC) is the main wireless protocol employed in Europe for electronic fee collection, for what concerns the communication between vehicle and roadside equipment. It is defined through 4 CEN directives.

Standard	EN 12253: Road transport and traffic telematics – Dedicated short-range communication – Physical layer using microwave at 5,8 GHz
Relevant Body	CEN
Relevant WP	WP3.4
Relevance to this WP	<p>This standard describes the physical layer protocol of DSRC.</p> <p>The utilization of this standard within WP3.4 is going to be considered, focusing on the inter-vehicular and vehicle-road structures information exchange.</p>
Abiding to the standard	To be decided

Standard	EN 12795: Road transport and traffic telematics – Dedicated Short-Range Communication (DSRC) – DSRC Data link layer: Medium Access and Logical Link Control
Relevant Body	CEN
Relevant WP	WP3.4
Relevance to this WP	The standard defines the MAC and LLC layers of DSRC.
Abiding to the standard	To be decided

Standard	EN 12834: Road transport and traffic telematics – Dedicated Short-Range Communication – Application layer
Relevant Body	CEN
Relevant WP	WP3.4
Relevance to this WP	This standardises the DSRC application layer.
Abiding to the standard	To be decided

Standard	EN 13372: Road transport and traffic telematics – Dedicated Short-Range Communication (DSRC) – DSRC profiles for RTTT applications
Relevant Body	CEN
Relevant WP	WP3.4
Relevance to this WP	This standard describes the aspects of DSRC regarding Road Traffic and Transport Telematics (RTTT).
Abiding to the standard	To be decided

4.6.6. Public transport management

Standard	General Packet Radio Service (GPRS)
Relevant Body	ETSI, 3GPP
Relevant WP	WP3.4
Relevance to this WP	This standard is often used for long-range communication between public transport units (mobile) and control or storage centers (fixed). GPRS functionalities shall be employed within this workpackage for long range transmission of small size data, e.g. for the exchange of short messages between the car and the server-side agents platform.
Abiding to the standard	Yes

Standard	IEEE 802.15.1 (Bluetooth)
Relevant Body	IEEE
Relevant WP	WP3.4, WP2.6

Relevance to this WP	It standardises a wireless protocol based on short-range communications technology at high data rates, creating wireless Personal Area Networks (PANs). In public transport, this standard can be utilized for example for short-range communications between buses and bus-stops, when the former are stationary. Within this project, Bluetooth will be used to put the BAN sensors of WP2.6 in communication with the client-side agents platform, lying on an in-vehicle nomadic device, in order to provide emergency and health status monitoring services to the elderly driver (A3.4.3).
Abiding to the standard	Yes

4.6.7. Vehicle, container, swap body and goods wagon identification

Standard	ISO 3779: Road vehicles – Vehicle identification number (VIN) – Content and structure
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	This standard specifies the content and structure of the Vehicle Identification Number (VIN), which is used to recognize individual motor vehicles. The VIN is one of the mandatory fields included in eCall's MSD; thus, making use of eCall functionalities within this workpackage requires the adoption of the VIN standard.
Abiding to the standard	Yes

Standard	ISO 3780: Road vehicles – World Manufacturer Identifier (WMI) code
Relevant Body	ISO
Relevant WP	WP3.4
Relevance to this WP	The WMI is one of the parameters contained in the VIN for vehicle identification.

Abiding to the standard	Yes
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Standard	EN 13044: Swap bodies – Coding, identification and marking
Relevant Body	CEN
Relevant WP	Under discussion
Relevance to this WP	This standard provides a system for the identification and presentation of information about swap bodies. The use this standard within the project has to be decided yet.
Abiding to the standard	To be decided

Standard	ISO 6346: Freight containers – Coding, identification and marking
Relevant Body	ISO
Relevant WP	Under discussion
Relevance to this WP	This standard specifies an identification system, a size and type code, a country code and operational marks for freight containers. The use this standard within the project has to be decided yet.
Abiding to the standard	To be decided.

4.6.8. Traffic and parking management

Standard	ISO 14819-1: Traffic and Traveller Information (TTI) – TTI messages via traffic message coding – Part 1: Coding protocol for Radio Data System – Traffic Message Channel (RDS-TMC) using ALERT-C
Relevant Body	ISO
Relevant WP	WP3.3, WP3.4
Relevance to this WP	This standard, and in particular TMC, defines a technology for delivering traffic and travel information to drivers. These functionality shall be required when designing and developing route guidance

	(A3.3.4) and telematic support (A3.4.2) service to the elderly drivers.
Abiding to the standard	Yes

Standard	ISO 14819-2: Traffic and Traveller Information (TTI) – TTI messages via traffic message coding – Part 2: Event and information codes for Radio Data System-Traffic Message Channel (RDS-TMC)
Relevant Body	ISO
Relevant WP	WP3.3, WP3.4
Relevance to this WP	This standard describes the strategy used to achieve densely coded messages to be carried in the RDS-TMC feature.
Abiding to the standard	Yes

4.7. Web Services

Optimization of existing Web services regarding the requirements of elderly users. Integration of Web services in the OASIS ontologies.

Of all the following standards proposed for this domain, for the moment has decided to dismiss the standards relating to business processes, as, although we see that if applied to the domain, probably do not apply to the project, or at Propose project, leaving the final decision on the part of the review.

Standard	SOAP v1.2
Relevant Body	W3C
Relevant WP	WP1.5,WP1.6
Relevance to this WP	SOAP Version 1.2 is a lightweight protocol intended for exchanging structured information in a decentralized, distributed environment. "Part 1: Messaging Framework" defines, using XML technologies, an extensible messaging framework containing a message construct that can be exchanged over a variety of underlying protocols. Standard that applies to the activity A1.5.3

	<p>Definition of communication agent acts in the content of agent messages, Specification of message structure and Protocols and standards of agent communication.</p> <p>It should also be taken into account in the development of activities A1.6.1 System architecture and interoperability and A1.6.2 Component and system specification</p>
Abiding to the standard	Yes

Standard	WS-ReliableMessaging
Relevant Body	IBM, BEA Systems, Microsoft, TIBCO Software,W3C
Relevant WP	WP1.5
Relevance to this WP	<p>Describes a protocol that allows SOAP messages to be delivered reliably between distributed applications in the presence of software component, system, or network failures.</p> <p>Standard that applies to the activity A1.5.3 Definition of communication agent acts in the content of agent messages, Specification of message structure</p>
Abiding to the standard	Yes

Standard	DIME (Direct Internet Message Encapsulation)
Relevant Body	IETF
Relevant WP	WP1.5
Relevance to this WP	<p>Internet standard for the transfer of binary and other encapsulated data over SOAP.</p> <p>According to the IETF web site, the standard has been withdrawn and never</p>

	<p>made RFC status. However, Microsoft currently does recommend DIME for transmitting files via Web services.</p> <p>Standard that applies to the activity A1.5.3 Definition of communication agent acts in the content of agent messages, Specification of message structure</p> <p>Alternative to WS-ReliableMessaging</p>
Abiding to the standard	Yes

Standard	BXX (Blocks Extensible Exchange Protocol)
Relevant Body	IETF
Relevant WP	WP1.5, WP1.6
Relevance to this WP	<p>An application protocol framework for connection-oriented, asynchronous request/response interactions. It was designed as a tool kit specifically to handle XML documents on the Internet. BXXP-enabled applications set up and maintain a peer-to-peer network connection between two users that can alternate between functioning as clients and servers. The two users can push data back and forth over a network connection as well as respond to requests for data.</p> <p>Activity A1.5.2, A1.5.3, A1.6.1 can bring to their development</p>
Abiding to the standard	Yes

Standard	WS-Addressing
Relevant Body	W3C
Relevant WP	WP1.5
Relevance to this WP	Is a specification of transport-neutral mechanisms that allow web services to

	<p>communicate addressing information. It essentially consists of two parts: a structure for communicating a reference to a Web service endpoint, and a set of Message Addressing Properties which associate addressing information with a particular message.</p> <p>Standard that applies fully with the active agent A1.5.3 Definition of communication acts in the development of content of agent messages, Specification of message structure. Important for Web Service in this domain.</p>
Abiding to the standard	Yes

Standard	WS-Referral
Relevant Body	W3C
Relevant WP	WP1.5, WP1.6
Relevance to this WP	<p>Only used if you are building your own SOAP Router. WS-Referral identifies the interface to a SOAP router not the actual wire protocol for routing; that is taken care of by WS-Routing.</p> <p>Activity A1.5.2, A1.5.3, A1.5.4 and A1.6.1 brings the standard to routing</p>
Abiding to the standard	Yes

Standard	WS-License
Relevant Body	W3C
Relevant WP	WP1.6
Relevance to this WP	<p>WS-License describes a set of commonly used license types (credentials that are signed assertions) and describes how they can be placed within the WS-Security credentials tag. Specifically, the WS-License specification describes how to encode X.509 certificates and Kerberos tickets as well as how to include opaque encrypted keys. WS-License includes</p>

	<p>extensibility mechanisms that can be used to further describe the characteristics of the licenses that are included with a message.</p> <p>This standard applies to the requirements needed to develop the activity A1.6.3 platform on issues of Security Trust, Security and Access Policy(See memory of Oasis)</p>
Abiding to the standard	yes

Standard	WS-Inspection
Relevant Body	IBM, Microsoft
Relevant WP	WP1.6
Relevance to this WP	<p>WS-Inspection is a web service specification for "discovery documents" developed in a joint effort by Microsoft and IBM. WS-Inspection lists groups of web services and their endpoints in an XML format. Currently, other standards are being used for this purpose, such as Microsoft's DISCO. It is expected (by whom, Microsoft?) that WS-Inspection will eventually replace these standards to become the universally accepted discovery standard for web services.</p> <p>Standard affecting activity A1.6.3 platform on issues of Security Trust, Security and Access Policy.</p>
Abiding to the standard	yes

Standard	WSDL 2.0 (Web Services Description Language)
Relevant Body	W3C
Relevant WP	WP1.5, WP1.6
Relevance to this WP	<p>The WSDL defines services as collections of network endpoints, or ports. The WSDL specification provides an XML format for documents for this purpose.</p> <p>WSDL is often used in combination with</p>

	<p>SOAP and XML Schema to provide web services over the Internet. A client program connecting to a web service can read the WSDL to determine what functions are available on the server. Any special datatypes used are embedded in the WSDL file in the form of XML Schema. The client can then use SOAP to actually call one of the functions listed in the WSDL.</p> <p>Standard that applies to the activity A1.5.3 Definition of communication agent acts in the content of agent messages, Specification of message structure and Protocols and standards of agent communication.</p> <p>It should also be taken into account in the development of activities A1.6.1 System architecture and interoperability and A1.6.2 Component and system specification</p>
Abiding to the standard	Yes

Standard	WSDM (Web Services Distributed Management)
Relevant Body	OASIS
Relevant WP	WP1.6
Relevance to this WP	<p>The goal of WSDM is to allow a well-defined network protocol for controlling any other service that is WSDM-compliant. For example, a third-party digital dashboard or network management system could be used to monitor the status or performance of other services, and potentially take corrective actions to restart services if failures occur. Some aspects of WSDM overlap or displace functionality of SNMP.</p> <p>Standard that could apply to activities A1.6.2 Component and system specification in the design and formalise the specification of the main functional components of the OASIS System. In the activity A1.6.1 System architecture</p>

	and interoperability applies absolutely
Abiding to the standard	Yes

Standard	WSMF (Web Service Modeling Framework)
Relevant Body	OASIS
Relevant WP	WP1.5, WP1.6
Relevance to this WP	<p>The WSMF consists of four different main elements: ontologies that provide the terminology used by other elements, goal repositories that define the problems that should be solved by web services; web services descriptions that define various aspects of a web service; and mediators which bypass interoperability problems.</p> <p>Standard that could apply to the activity A1.5.1 Design of the MAI on the Framework of Interaction with the hyper-ontology.</p> <p>We should study whether it can contribute something in the activity A1.5.6 User Profile Repository and Agents.</p> <p>Also can be seen as a complement more activity in A1.6.1 System architecture and interoperability</p>
Abiding to the standard	Yes

Standard	WS-Security
Relevant Body	OASIS
Relevant WP	WP1.5 , WP1.6
Relevance to this WP	<p>WS-Security describes how to attach signatures and encryption headers to SOAP messages. In addition, it describes how to attach security tokens, including binary security tokens such as X.509 certificates and Kerberos tickets, to messages.</p> <p>Affects to the activity A1.5.3 Definition of communication agent acts in the Security of messages to be exchanged between agents.</p>

	It also affects the activity A1.6.3 platform in the Security Trust, Security and Access Policy and the Federated Identity Management
Abiding to the standard	Yes

Standard	WS-Policy
Relevant Body	W3C
Relevant WP	WP1.6
Relevance to this WP	<p>WS-Policy represents a set of specifications that describe the capabilities and constraints of the security (and other business) policies on intermediaries and end points (for example, required security tokens, supported encryption algorithms, and privacy rules) and how to associate policies with services and end points.</p> <p>Standard for the activity A1.6.3 Security platform in the use of Trust, Security and Access Policy</p>
Abiding to the standard	Yes

Standard	WS-Trust
Relevant Body	OASIS
Relevant WP	WP1.5
Relevance to this WP	<p>OASIS standard that provides extensions to WS-Security, specifically dealing with the issuing, renewing, and validating of security tokens, as well as with ways to establish, assess the presence of, and broker trust relationships between participants in a secure message exchange.</p> <p>The WS-Trust specification was authored by representatives of a number of companies, and was approved by OASIS as a standard in March 2007.</p> <p>Apply directly to the activity A1.5.3</p>

	Definition of communication agent acts on the part of Security of messages to be exchanged between agents.
Abiding to the standard	Yes

Standard	WS-Privacy
Relevant Body	Microsoft, IBM, Verisign
Relevant WP	WP1.6
Relevance to this WP	<p>By using a combination of WS-Policy, WS-Security, and WS-Trust, organizations can state and indicate conformance to stated privacy policies. This specification will describe a model for how a privacy language may be embedded into WS-Policy descriptions and how WS-Security may be used to associate privacy claims with a message. Finally, this specification will describe how WS-Trust mechanisms can be used to evaluate these privacy claims for both user preferences and organizational practice claims.”</p> <p>Standard giving his contribution to WS-Security and WS-Policy and therefore applies to the activity A1.6.3 Security platform in the area of Trust, Security and Access Policy</p>
Abiding to the standard	Yes

Standard	WS-Secure Conversation
Relevant Body	OASIS
Relevant WP	WP1.6
Relevance to this WP	<p>The Web Services Secure Conversation Language (WS-SecureConversation) is built on top of the WS-Security and WS-Policy models to provide secure communication between services. WS-Security focuses on the message authentication model but not a security context, and thus is subject several forms</p>

	<p>of security attacks. This specification defines mechanisms for establishing and sharing security contexts, and deriving keys from security contexts, to enable a secure conversation.</p> <p>By using the SOAP extensibility model, modular SOAP-based specifications are designed to be composed with each other to provide a rich messaging environment. As such, WS-SecureConversation by itself does not provide a complete security solution. WS-SecureConversation is a building block that is used in conjunction with other Web service and application-specific protocols (for example, WS-Security) to accommodate a wide variety of security models and technologies.</p> <p>Standard contributing to WS-Security and WS-Policy in the activity A1.6.3 Security platform within the field of Trust, Security and Access Policy</p>
Abiding to the standard	Yes

Standard	WS-Federación
Relevant Body	BEA Systems, BMC Software, CA, Inc., IBM, Layer 7 Technologies, Microsoft, Novell, and VeriSign
Relevant WP	WP1.6
Relevance to this WP	<p>Part of the larger Web Services Security framework, WS-Federation defines mechanisms for allowing disparate security realms to broker information on identities, identity attributes and authentication.</p> <p>Standard that applies to the activity A1.6.3 Security platform within the field of Federated Identity Management</p>
Abiding to the standard	Yes

Standard	WS-Authorization
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Relevant Body	Microsoft, IBM
Relevant WP	WP1.6
Relevance to this WP	<p>Web Services represent an important technology for distributed applications and will replace various other technologies for distributed application development soon. A lot of problems of the early days of Web Services are solved now. However, for authorization no appropriate solution is available and ready to use. We define requirements for authorization of Web Services and investigate existing authorization solutions concerning these requirements. Based on existing authorization solutions and the defined requirements, a Web Service Authorization framework is developed. We describe concepts and the design of the proposed framework and give an overview of selected implementation aspects (e.g. authorization data access, descriptive deployment). The framework emphasizes easy deployment of Web Service authorization and is ready to use. Practical experience using the framework concludes the paper.</p> <p>Standard for providing the platform Security A1.6.3 activity in the area of Trust, Security and Access Policy</p>
Abiding to the standard	To be decided by the Consortium

Standard	XKMS
Relevant Body	W3C
Relevant WP	WP1.6
Relevance to this WP	<p>Uses the web services framework to make it easier for developers to secure inter-application communication using public key infrastructure (PKI). XML Key Management Specification is a protocol developed by W3C which describes the distribution and registration of public keys. Services can access an XKMS compliant server in order to receive updated key information for encryption and</p>

	authentication. Standard recommended for all fields of activity A1.6.3 Security platform for the WP1.6
Abiding to the standard	Yes

Standard	XRML
Relevant Body	ISO
Relevant WP	WP1.6
Relevance to this WP	<p>Its a eXtensible Rights Markup Language which has also been standardized as the Rights Expression Language (REL) for MPEG-21. XrML is owned by ContentGuard.</p> <p>XrML is based on XML and describes rights, fees and conditions together with message integrity and entity authentication information.</p> <p>Standard alternative to XKMS for encryption and authentication of information. Applies to the activity A1.6.3 Security platform</p>
Abiding to the standard	Yes

Standard	XML Encryption
Relevant Body	W3C
Relevant WP	WP1.6
Relevance to this WP	<p>Although XML Encryption can be used to encrypt any kind of data, it is nonetheless known as "XML Encryption" because an XML element (either an EncryptedData or EncryptedKey element) contains or refers to the cipher text, keying information, and algorithms.</p> <p>Both XML Signature and XML Encryption use the KeyInfo element, which appears as the child of a SignedInfo, EncryptedData, or EncryptedKey element and provides</p>

	<p>information to a recipient about what keying material to use in validating a signature or decrypting encrypted data.</p> <p>The KeyInfo element is optional: it can be attached in the message, or be delivered through a secure channel.</p> <p>Supplement for the activity A1.6.3 Security platform in the encryption of information</p>
Abiding to the standard	Yes

Standard	XML Signature
Relevant Body	W3C
Relevant WP	WP1.6
Relevance to this WP	<p>XML signatures can be used to sign data—a resource—of any type, typically XML documents, but anything that is accessible via a URL can be signed. An XML signature used to sign a resource outside its containing XML document is called a detached signature; if it is used to sign some part of its containing document, it is called an enveloped signature; if it contains the signed data within itself it is called an enveloping signature.</p> <p>Supplement for the activity A1.6.3 Security platform to sign data—a resource</p>
Abiding to the standard	Yes

Standard	SAML (Security Assertion Markup Language)
Relevant Body	OASIS
Relevant WP	WP1.6
Relevance to this WP	Standard for exchanging authentication

	<p>and authorization data between security domains, that is, between an identity provider (a producer of assertions) and a service provider (a consumer of assertions)</p> <p>SAML assumes the principal (often a user) has enrolled with at least one identity provider. This identity provider is expected to provide local authentication services to the principal. However, SAML does not specify the implementation of these local services; indeed, SAML does not care how local authentication services are implemented (although individual service providers most certainly will).</p> <p>Thus a service provider relies on the identity provider to identify the principal. At the principal's request, the identity provider passes a SAML assertion to the service provider. On the basis of this assertion, the service provider makes an access control decision.</p> <p>Standard for security, authentication and authorization between datas. Apply all activity A1.6.3 Security platform. We should verify if It applies with activity A1.5.3 Definition of communication agent acts within the field of Security of messages to be exchanged between agents.</p>
Abiding to the standard	Yes

Standard	UDDI (Universal Description, Discovery and Integration)
Relevant Body	OASIS
Relevant WP	WP1.6
Relevance to this WP	UDDI was originally proposed as a core Web service standard. It is designed to be interrogated by SOAP messages and to provide access to Web Services Description Language documents

	<p>describing the protocol bindings and message formats required to interact with the web services listed in its directory. He UDDI was integrated into the Web Services Interoperability (WS-I) standard as a central pillar of web services infrastructure. By the end of 2005, it was on the agenda for use by more than seventy percent of the Fortune 500 companies in either a public or private implementation. Many of these enterprises subscribe to some form of service-oriented architecture (SOA), server programs or database software licensed by some of the professed founders of the UDDI.org and OASIS.</p> <p>We consider it important to implement a standard in A1.6.1 System architecture and interoperability and in A1.6.2 Component and system specification</p>
Abiding to the standard	To be decided by the consortium

Standard	ebXML Registry
Relevant Body	OASIS
Relevant WP	WP1.5, WP1.6
Relevance to this WP	<p>The ebXML registry has become one of the most well accepted registry standards for governments and industries. Though originally designed for B2B artifacts, almost any industrial artefact can be registered into an ebXML registry by extending the ebXML registry information model. However, this extensibility also debilitates its interoperability caused by insufficient semantic provided for it. This paper presents our solution to extend semantic for a software component in our development of SCRR system. An attribute ontology of software component is introduced to provide rich semantic information. We also explain how to implement a software component registry based on classification by applying the attribute ontology.</p>

	<p>To consider to be applied in A1.5.6 User Profile Repository and Agents to develop the user profile agents have direct access to the repository which they update according to changes in user behaviour or whenever a user demands new services.</p> <p>Also considered for the interoperability of A1.6.1 System architecture and interoperability</p>
Abiding to the standard	To be decided by the Consortium

4.8. Privacy and Security

Some of the following standards have already been mentioned in previous sections, as they also cover other relevant areas.

Standard	ETSI TS 102 176 V1.2.1 (2005-07) ETSI TS 102 176 V1.2.1 (2005-07)
Relevant Body	ETSI
Relevant WP	WP1.5, WP1.6
Relevance to this WP	<p>This document defines an initial set of algorithms and the corresponding parameters to be included in a list of approved methods for producing or verifying Electronic Signatures in Secure Signature-Creating Devices (SSCD) (EESSI-work area F: CWA 14168 / 14169 Secure Signature-Creation Devices), to be referenced in the Certificate Policy documents (EESSI-work area A: TS 101 456: Policy requirements for certification authorities issuing qualified certificates), during the signature creation and validation process and environment (EESSI-work area G1/2: CWA 14170: Security Requirements for Signature Creation Systems; CWA 14171 Procedures for Electronic Signature Verification), in trusted CSP components (Certification Service Provider) (EESSI-work-area D: CWA 14167-1: Security Requirements for Trustworthy Systems</p>

	<p>Managing Certificates for Electronic Signatures) and other technical components and related areas.</p> <p>The present document defines a list of approved cryptographic algorithms combined with the requirements on their parameters, as well as the approved combinations of algorithms in the form of "signature suites". The approved algorithms and parameters shall be referenced in the corresponding Protection Profiles (e.g. for SSCD or trusted CSP components). To support the management activities, a numbering scheme for cryptographic algorithms and their parameters is defined.</p> <p>This standard consists of two parts: Part 1: Hash functions and asymmetric algorithms Part 2: Secure channel protocols and algorithms for signature creation devices</p>
Abiding to the standard	Yes

Standard	ISO IEC 10181 Information technology - Open Systems Interconnection - Security frameworks for open systems
Relevant Body	ISO
Relevant WP	WP1.6
Relevance to this WP	<p>This standard consists of seven parts: Part 1: Overview Part 2: Authentication framework Part 3: Access control framework Part 4: Non-repudiation framework Part 5: Confidentiality framework Part 6: Integrity framework Part 7: Security audit and alarms framework</p> <p>The security frameworks address the application of security services in an Open Systems environment, where the term Open Systems is taken to include areas such as Database, Distributed Applications, ODP and OSI. The security frameworks are concerned with defining the means of providing protection for systems and objects within systems, and with the interactions between systems. The security frameworks are not concerned with the methodology for constructing systems or mechanisms.</p> <p>The security frameworks address both data elements and sequences of operations (but not protocol</p>

	<p>elements) which are used to obtain specific security services. These security services may apply to the communicating entities of systems as well as to data exchanged between systems, and to data managed by systems.</p> <p>The security frameworks provide the basis for further standardisation, providing consistent terminology and definitions of generic abstract service interfaces for specific security requirements. They also categorize the mechanisms that can be used to achieve those requirements.</p> <p>One security service frequently depends on other security services, making it difficult to isolate one part of security from the others. The security frameworks address particular security services, describe the range of mechanisms that can be used to provide the security services, and identify interdependencies between the services and the mechanisms. The description of these mechanisms may involve a reliance on a different security service, and it is in this way that the security frameworks describe the reliance of one security service on another.</p>
Abiding to the standard	To be considered by the involved partners.

Standard	ISO IEC 13335 Information technology - Security techniques - Management of information and communications technology security
Relevant Body	ISO
Relevant WP	WP1.6
Relevance to this WP	<p>This standard consists of several parts:</p> <p>Part 1: Concepts and models for information and communications technology security management</p> <p>Part 2: Managing and planning IT Security</p> <p>Part 3: Techniques for the management of IT Security</p> <p>Part 4: Selection of safeguards</p> <p>Part 5: Management guidance on network security</p> <p>Part 1 of this standard presents the concepts and models fundamental to a basic understanding of ICT security, and addresses the general management issues that are essential to the successful planning, implementation and operation of ICT security. Part 2 of ISO/IEC 13335 (currently 2nd WD) provides operational guidance on ICT security. Together these parts can be used to help identify and manage all aspects of ICT</p>

	<p>security.</p> <p>The guidelines in part 2 address subjects essential to the management of IT security, and the relationship between those subjects. These guidelines are useful for the identification and the management of all aspects of IT security.</p> <p>Part 3 provides techniques for the management of IT security. The techniques are based on the general guidelines laid out in part 1 and 2. These guidelines are designed to assist the implementation of IT security.</p> <p>Part 4 provides guidance on the selection of safeguards, taking into account business needs and security concerns. It describes a process for the selection of safeguards according to security risks and concerns and the specific environment of an organisation. It shows how to achieve appropriate protection, and how this can be supported by the application of baseline security. An explanation is provided on how the approach outlined in this part of the standard supports the techniques for the management of IT security laid out in part 3.</p> <p>Part 5 provides guidance with respect to networks and communications to those responsible for the management of IT security. This guidance supports the identification and analysis of the communications related factors that should be taken into account to establish network security requirements.</p> <p>Part 5 builds upon Part 4 of this standard by providing an introduction on how to identify appropriate safeguard areas with respect to security associated with connections to communications networks.</p> <p>It is not within the scope of this standard to provide advice on the detailed design and implementation aspects of the technical safeguard areas.</p>
Abiding to the standard	Yes

Standard	ISO/TS 17090-3 Public key infrastructure; Health informatics
Relevant Body	ISO/TS
Relevant WP	WP1.6
Relevance to this WP	It identifies the principles needed in a healthcare security policy for cross-border communication and defines the minimum levels of security required, concentrating on aspects unique to healthcare. Also, it

	<p>gives guidelines for certificate management issues involved in implementing and operating a healthcare public key infrastructure (PKI). It specifies a structure and minimum requirements for certificate policies, as well as a structure for associated certification practice statements.</p> <p>This is a standard applies to the security of exchange of medical information.</p> <p>In terms of security policy applies to the activity A1.6.3 Security platform</p>
Abiding to the standard	Yes

Standard	CEN EN 13608 Security for healthcare communication
Relevant Body	CEN
Relevant WP	WP2.6
Relevance to this WP	<p>This standard defines concepts for secure systems. Besides that, secure data objects and secure data channels are addressed.</p> <p>This consists of three parts:</p> <p>Part 1: Concepts and terminology</p> <p>Part 2: Secure data objects</p> <p>Part 3: Secure data channels</p>
Abiding to the standard	To be considered by the involved partners

Standard	ISO TR 21089 Trusted end-to-end information flows
Relevant Body	ISO
Relevant WP	WP2.6
Relevance to this WP	<p>This standard offers a guide to trusted end-to-end information flow for health(care) records and to the key trace points and audit events in the electronic entity/act record lifecycle (from point of record origination to each ultimate point of record access/use). It also offers recommendations regarding the trace/audit detail relevant to each.</p> <p>It offers recommendations of best practice for healthcare providers, health record stewards, software developers and vendors, end users and other stakeholders, including patients.</p>
Abiding to the standard	To be considered by the involved partners

Standard	ISO / IEC 15067
Relevant Body	ISO / IEC
Relevant WP	2.7
Relevance to this WP	Home Electronic System (HES) application model Part 3 : Model of an energy management system for HES; Part 4: Security system for HES.
Abiding to the standard	To be decided by the involved Partners

Standard	WS-Security
Relevant Body	OASIS
Relevant WP	WP1.5 , WP1.6
Relevance to this WP	WS-Security describes how to attach signatures and encryption headers to SOAP messages. In addition, it describes how to attach security tokens, including binary security tokens such as X.509 certificates and Kerberos tickets, to messages. Affects to the activity A1.5.3 Definition of communication agent acts in the Security of messages to be exchanged between agents. It also affects the activity A1.6.3 platform in the Security Trust, Security and Access Policy and the Federated Identity Management
Abiding to the standard	Yes

Standard	XML Encryption
Relevant Body	W3C
Relevant WP	WP1.6
Relevance to this WP	Although XML Encryption can be used to encrypt any kind of data, it is nonetheless known as "XML Encryption" because an XML element (either an EncryptedData or EncryptedKey element) contains or refers to the cipher text, keying information, and algorithms. Both XML Signature and XML Encryption use the KeyInfo element, which appears as the child of a SignedInfo , EncryptedData , or EncryptedKey element and provides information to a recipient about what keying material to use in validating a signature or

	<p>decrypting encrypted data.</p> <p>The KeyInfo element is optional: it can be attached in the message, or be delivered through a secure channel.</p> <p>Supplement for the activity A1.6.3 Security platform in the encryption of information</p>
Abiding to the standard	Yes

4.9. Meta-ontologies

W3C recommends a number of semantic markup language standards as part of semantic web stack. RDF and OWL standards will be used for describing properties, classes, including relations, cardinality and relations among classes of ontologies.

Standard	Resource Description Framework (RDF)
Relevant Body	W3C
Relevant WP	WP1.2
Relevance to this WP	<p>RDF with OWL ontology standards will be used for WP1.2 in order to develop the Common Ontological Framework. It will be mainly focus on OWL rather than RDF. OWL adds facilities for expressing meaning and semantics to XML, RDF, and RDF Schema. The OWL and RDF will be used to define properties for COF in a symbolic way and not in procedural way. All activities of this WP will take into account these standards in order to specify formal heterogeneous basis for all relevant ontologies (A.1.2.2), integrate single service (A1.2.3) and inter-connect single domain ontologies (A1.2.4). Finally, the A.1.2.5 will use these standards in order to interconnect ontologies from different domains (multi-domain ontologies).</p>
Abiding to the standard	Yes

Standard	Ontology Web Language (OWL)
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Relevant Body	W3C
Relevant WP	WP1.3
Relevance to this WP	OWL with RDF will be used at the back-end of the GUI application for ontological framework (A1.3.1) and at A1.3.2. Besides, the A1.3.3, A1.3.4 and A1.3.5 will rely on these standards. These activities will use ontologies from different domain.
Abiding to the standard	Yes

4.10. User Interface

Standard	ISO / IEC 9241-11
Relevant Body	ISO / IEC
Relevant WP	4.1
Relevance to this WP	Ergonomic Requirements for Office Work with Visual Display Terminals (VDTs) Part 3 : Visual display Requirements; Part 4: Keyboard requirements; Part 5: Workstation layout and postural requirements; Part 6: Working environment; Part 7: Requirements for displays with reflections; Part 8: Additional Requirements for coloured displays; Part 9: Requirement for non-keyboard input devices (mouse, trackball, etc.); Part 11: Guidance on Usability;
Abiding to the standard	Yes

Standard	ISO 9241-20 (2008)
Relevant Body	ISO
Relevant WP	4.1 SP2 SP3
Relevance to this WP	Ergonomics for human-system interaction – Part 20: Accessibility Guidelines for ICT equipment and services
Abiding to the standard	To be decided

Standard	ISO 9241-151 (2008)
Relevant Body	ISO
Relevant WP	4.1 SP2 SP3
Relevance to this WP	Guidance on the human-centred design of software Web interfaces
Abiding to the standard	To be decided

Standard	ISO 9241-171 (2008)
Relevant Body	ISO
Relevant WP	4.1 SP2 SP3
Relevance to this WP	Ergonomics of human system interaction – Part 171: Guidance in software accessibility.
Abiding to the standard	To be decided

Standard	ISO 9241-410 (2008)
Relevant Body	ISO
Relevant WP	4.1
Relevance to this WP	Ergonomics of human system interaction – Part 410: Design criteria for physical input devices
Abiding to the standard	To be decided

Standard	U.S. Department of Health and Human Services (HHS)
Relevant Body	HSS
Relevant WP	4.1 SP2 SP3
Relevance to this WP	Research – based Web Design & Usability

	Guidelines
Abiding to the standard	Informative

Standard	W3C
Relevant Body	W3C
Relevant WP	SP1
Relevance to this WP	User Agent Accessibility Guidelines 1.0 (Guidelines for designing user agents that lower barriers to Web accessibility for people with disabilities (visual, hearing, physical, cognitive and neurological). User agents include HTML browsers and other types of software that retrieve and render Web content.
Abiding to the standard	Yes

Standard	ISO-TS 16071
Relevant Body	ISO
Relevant WP	4.1
Relevance to this WP	Ergonomics for human-system interaction – Guidance on accessibility for human-computer interfaces
Abiding to the standard	To be decided

Standard	ISO 13407
Relevant Body	ISO
Relevant WP	4.1 5.5
Relevance to this WP	Human centred design processes for interactive systems
Abiding to the standard	Informative

Standard	ISO 9126
Relevant Body	ISO
Relevant WP	4.1

	SP2 SP3
Relevance to this WP	Software Engineering – Product Quality Part 1 : Quality Control; Part 2 : External metrics; Part 3 : Internal metrics ; Part 4 : Quality in use metrics.
Abiding to the standard	To be decided by the involved partners
Standard	ISO 14915
Relevant Body	ISO
Relevant WP	4.1 SP2 SP3
Relevance to this WP	Software ergonomics for multimedia user interfaces
Abiding to the standard	To be decided by the involved partners

Standard	IEC 51997
Relevant Body	IEC
Relevant WP	4.1 SP2 SP3
Relevance to this WP	Appearance and behaviour for multimedia interfaces
Abiding to the standard	To be decided by the involved partners

Standard	ISO 18789
Relevant Body	ISO
Relevant WP	4.1
Relevance to this WP	Ergonomic requirements and measurement techniques for electronic visual displays
Abiding to the standard	Yes

Standard	ISO 13406
Relevant Body	ISO
Relevant WP	4.1 4.4
Relevance to this WP	Ergonomic requirements for work with visual displays based on flat panels
Abiding to the standard	Yes

Standard	ISO 18021
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Relevant Body	ISO
Relevant WP	4.1 4.4
Relevance to this WP	User Interfaces for mobile tools
Abiding to the standard	To be decided by the involved Partners

4.11. Ambient Intelligent

Ambient Intelligence (Aml) describes an ubiquitous environment which is furnished with computational artefacts that remain in the background of our lives and that have intelligent capabilities to support user-centric activities and goals according to N.

The development of ambient intelligence systems demands an interdisciplinary approach, borrowing methods and techniques from computing fields, such as Ubiquitous Computing, Context-aware Computing, Human-Computer Interaction (HCI) and Artificial Intelligence (AI).

The environment should be aware of the user's context to provide information and services whenever users need them, in a proactive fashion and anticipating user's needs. Furthermore, the services provided by the environment have to be accessible to diverse and non-specialist users through simple and effortless interactions, that is, the human-computer interaction must be natural.

Within this section, 14 standards are included regarding the development of Ambient Intelligence Platform, such as the languages protocols which will be used within WP3.1, the ontologies, etc.

The standards that apply in this domain are as follows:

Standard	XC00080B: Personal Travel Assistance Specification
Relevant Body	FIPA
Relevant WP	WP3.1
Relevance to this WP	The personal travel assistance specification is relevant with our work in A3.1.1 regarding will be performed on mobility and smart workplaces applications for the elderly
Abiding to the standard	To be consider by the consortium

Standard	SC00008I: SL Content Language Specification
Relevant Body	FIPA
Relevant WP	WP1.5
Relevance to this WP	Can be used for A1.5.3(Definition of agent communication acts) according with Agent

	Communication Language
Abiding to the standard	Yes

Standard	XC00011B: RDF Content Language Specification
Relevant Body	FIPA
Relevant WP	WP1.5
Relevance to this WP	Can be used for A1.5.3(Definition of agent communication acts) according with Agent Communication Language
Abiding to the standard	Yes

Standard	SC00037J: Communicative Act Library Specification
Relevant Body	FIPA
Relevant WP	WP1.5
Relevance to this WP	Communicative acts are to be used between all agents' communications in A1.5.3 and Connection agents in A1.5.4
Abiding to the standard	Yes

Standard	SC00061G: ACL Message Structure Specification
Relevant Body	FIPA
Relevant WP	WP1.5
Relevance to this WP	SC00061G: ACL Message Structure Specification will be used for develop A1.5.2 (Specification of the agent community) and A1.5.3 (Definition of agent communication acts)
Abiding to the standard	Yes

Standard	SC00033H: Brokering Interaction Protocol Specification
Relevant Body	FIPA
Relevant WP	WP1.5
Relevance to this WP	A similar protocol within A1.5.3 will be specified, which will be compatible with this

	but will probably extend it.
Abiding to the standard	Yes

Standard	SC00084F: Agent Message Transport Protocol for HTTP Specification
Relevant Body	FIPA
Relevant WP	WP1.5
Relevance to this WP	Agents in every activities in WP1.5 can use this protocol
Abiding to the standard	Yes

Standard	SC00026H: Request Interaction Protocol Specification
Relevant Body	FIPA
Relevant WP	WP1.5
Relevance to this WP	This classic protocol will be used within the Oasis service network (A1.5.1 A1.5.2 A1.5.3 A1.5.4).
Abiding to the standard	Yes

Standard	Resource Description Framework (RDF)
Relevant Body	W3C
Relevant WP	WP1.1
Relevance to this WP	RDF (with OWL) will be used for facilitating the activities A1.1.1 (Review of ontologies and ontology management tools per application area) and A1.1.2 (Analysis of ontologies and ontology management tools per application area)
Abiding to the standard	Yes

Standard	Ontology Web Language (OWL)
Relevant Body	W3C
Relevant WP	WP1.1
Relevance to this WP	OWL (with RDF) will be used for facilitating the activities A1.1.1 (Review of ontologies and ontology management tools per

	application area) and A1.1.2 (Analysis of ontologies and ontology management tools per application area)
Abiding to the standard	Yes

Standard	Resource Description Framework (RDF)
Relevant Body	W3C
Relevant WP	WP1.2
Relevance to this WP	RDF (with OWL) will be used for A1.2.1 Requirements and specification of a common ontological framework and can help for a common methodological approach, and will be devised for the development of the OASIS Common Ontological Framework (COF)
Abiding to the standard	Yes

Standard	Ontology Web Language (OWL)
Relevant Body	W3C
Relevant WP	WP1.2
Relevance to this WP	OWL (with RDF) will be used for A1.2.1 Requirements and specification of a common ontological framework and can help for a common methodological approach, and will be devised for the development of the OASIS Common Ontological Framework (COF)
Abiding to the standard	Yes

Standard	Resource Description Framework (RDF).
Relevant Body	W3C
Relevant WP	WP1.2
Relevance to this WP	RDF (with OWL) will be used for A1.2.2 to specify the formal heterogeneous basis for including all OASIS-relevant ontologies within a single overarching structure.
Abiding to the standard	Yes

Standard	Ontology Web Language (OWL)
Relevant Body	W3C
Relevant WP	WP1.2

Relevance to this WP	OWL (with RDF) will be used for A1.2.2 to specify the formal heterogeneous basis for including all OASIS-relevant ontologies within a single overarching structure.
Abiding to the standard	Yes

Standard	Resource Description Framework (RDF).
Relevant Body	W3C
Relevant WP	WP1.2
Relevance to this WP	RDF (with OWL) will be used for A1.2.4 to consist in moves the repository of ontologies identified and developed in WP1.1 and the ontology layers of A1.3.2 beyond a mere collection of ontologies, to become a well-specified hyper-ontology
Abiding to the standard	Yes

Standard	Ontology Web Language (OWL)
Relevant Body	W3C
Relevant WP	WP3.5
Relevance to this WP	OWL (with RDF) will be used for A1.2.4 to consist in moves the repository of ontologies identified and developed in WP1.1 and the ontology layers of A1.3.2 beyond a mere collection of ontologies, to become a well-specified hyper-ontology.
Abiding to the standard	Yes

Standard	Resource Description Framework (RDF).
Relevant Body	W3C
Relevant WP	WP1.2
Relevance to this WP	RDF (with OWL) will be used for A1.2.5 for Multi-domain ontologies interconnection and A1.2.6 Coordination of development of new ontologies
Abiding to the standard	Yes

Standard	Ontology Web Language (OWL)
Relevant Body	W3C
Relevant WP	WP3.5
Relevance to this WP	OWL (with RDF) will be used A1.2.5 for

	Multi-domain ontologies interconnection and A1.2.6 Coordination of development of new ontologies
Abiding to the standard	Yes

4.12. Localization and Navigation

The following standards must be related to the development of localization and navigation module.

Standard	Geographic Data Files (GDF)
Relevant Body	CEN
Relevant WP	WP3.3, WP3.4
Relevance to this WP	It is a European standard format that is used to describe and transfer road networks and road related data. This standard is needed when using a GPS satellite positioning system, therefore it shall be useful for the implementation of the improved eCall services, which is one of the objectives of WP3.4. On the other hand, it will help the development of driver route guidance services (A3.3.4).
Abiding to the standard	Yes

Standard	ISO 19136: Geographic information – Geographic Markup Language (GML)
Relevant Body	ISO, OGC (Open Geospatial Consortium)
Relevant WP	WP3.3, WP3.4
Relevance to this WP	GML is a standard language developed to express geographical features. The utilization of this standard within the workpackages shall be taken into account, since it might concern the area of GPS functionalities management.
Abiding to the standard	To be decided

Standard	NMEA 0183
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Relevant Body	NMEA (National Marine Electronics Association)
Relevant WP	WP3.3, WP3.4
Relevance to this WP	It is a combination of electrical and data specifications for communication between marine electronic devices, amongst which are GPS receivers. The utilization of this standard could be needed in these workpackages while managing or developing in-vehicle GPS devices.
Abiding to the standard	To be decided

Standard	RTCM SC-104
Relevant Body	RTCM (Radio Technical Commission for Maritime Services)
Relevant WP	WP3.3, WP3.4
Relevance to this WP	It consists in a standard on differential Global Navigation Satellite System (GNSS) broadcasts. This standard could be needed in these workpackages concerning the management or development in-vehicle instrumentation for satellite positioning.
Abiding to the standard	To be decided

5. Contribution to the standards

After the development of the main OASIS services and modules, but mainly according to the Pilots results, new standards and guidelines may need to be proposed. These will be attempted to be combined with the existing guidelines and standards or to be proposed to standardisation bodies as new ones. This work is to be realised towards the end of the project's life. However, a preliminary template that will be distributed to the pilots responsables and the developers, has been formulated.

This template is composed of a short description of the proposed standards, and categorises them according to the respective OASIS service domain. Furthermore, the proposed standards are to be distinguished if they are to be introduced as new ones (in the respective standardisation body), or if they are correlated to an existing standard, thus a modification of the respective standard is needed.

Issue no.	OASIS service area	Recommended standard (short description)	Recommended standard specific title	Relevant standardisation body
1			
2				
..				

Table 1 Preliminary template for standards recommendation

6. Conclusions

Standardization is a very important aspect in the area of independent living and autonomous mobility services delivery. It will ensure interoperability of services which represents one of the main enabling conditions for the growth of the industry and the market addressing the ICT and Ageing area.

The user centred design of the services/solutions addressed to the elderly and the interoperability between services of different parties are particularly critical for this market segment; the objective of OASIS is to reach global interoperability, i.e. seamless data interchange and execution of applications in the ICT for Ageing sector.

The OASIS Project involves a plethora of technologies and one of its main objectives is to join technical areas that are all well-developed, but at the moment disjointed . For each of these areas several standards bodies and industrial fora are actively working but often

- the “elderly world” is not their focus,
- the harmonization between the various standardization initiatives is lacking.

OASIS will improve acceptance and interoperability of the project’s Open Reference Architecture and resulting independent living and autonomous mobility applications and make major contributions to on-going standardisation efforts.

OASIS intends to proactively influence the significant activities in industry and in standardization organizations, aiming at enabling real plug-and-play multi-vendor

interoperability in the personal services ecosystem, with specific focus on elderly persons.

It will be done by organizing its standardization activity according to four paths:

- a. an analysis of the existing standards and of the running initiatives and approaches for flexible harmonization and global interoperability impacting the solutions developed in the OASIS project;
- b. their assessment in relation to the characteristics and the targeted functionalities of the OASIS solution and the identification of lack of standards and/or inadequacy of current available standards;
- c. the elaboration and the proposal of new standards and/or amendment of the existing ones to fill the identified gaps;
- d. the integration and conformance of the developed solutions to the current standards as well as to bring the results of OASIS back into standards (the OASIS world-wide Industrial Forum will greatly contribute to the achievement of this particular goal).

The OASIS Scientific Advisory Board will provide strong links with the standardisation community and will help the Consortium to align its efforts with current and emerging standards. It includes representatives from the US, Japan and Mexico and will greatly contribute to support and foster international standardisation and interoperability beyond a pan-European perspective and ensure global relevance and impact (enhanced further on by the participation in the consortium of ITESM from Mexico and Tsinghua University from China).

The activity A5.6.2 (Existing standards consolidation) and this deliverable D5.6.1 are addressing the first of these three paths by providing a comprehensive list of the relevant existing standards in the main technological areas impacting the OASIS project.

The length of the list (see Annex A of this deliverable) is a clear indication of the complexity and the fragmentation of the standardization scenario and asks for an effective definition of priorities in relation to the level of relevance they have for OASIS. Some of these priorities have been already identified (see Table 29 of the Annex 1 – Description of the Work) and cover areas such as

- Technical and semantic interoperability among the various independent living services and devices.
- Ontology interchange and interoperability
- Wireless interoperability.
- Security and privacy.

Nevertheless further activity will be needed.

At the same time this deliverable provides already a preliminary list of existing standards that will be considered for compliance by the OASIS partners (see Annex B).

The outcomes of all the activities carried out and of all the initiatives taken by the OASIS Consortium and by some specific OASIS Partners will be included in the

deliverable D6.5.2 (Application Guidelines, policy and standards recommendations) planned at the end of the project (month M48).

7. References

1. The Foundation of Intelligent Physical Agents (FIPA)
www.fipa.org/
2. World Wide Web Consortium (W3C)
www.w3.org
3. Health Level Seven (HL7)
<http://www.hl7.org>
4. Open Electronic health records (OpenEHR)
www.openehr.org/
5. Digital Imaging and Communication in Medicine (DICOM)
<http://dicom.nema.org>
6. Systematized Nomenclature of Medicine (SNOMED)
[http:// snomed.org](http://snomed.org)
7. Logical Observation Identifiers Names and Codes (LOINC)
[http:// loinc.org](http://loinc.org)
8. International Organization Standardization (ISO)
www.iso.org/
9. World Health Organization (WHO)
www.who.int/
10. Internet Engineering Task Force (IETF)
www.ietf.org/
11. Organization for the Advancement of Structured Information Standards (OASIS)
www.oasis-open.org/
12. Federal Communication Commission (FCC)
www.fcc.gov
13. IEEE - Institute of Electrical and Electronic Engineers
www.ieee.org

14. International Electrotechnical Commission (IEC)
www.iec.ch
15. Bluetooth Special Interest Group (Bluetooth SIG)
www.bluetooth.org
16. ZigBee Alliance
www.zigbee.org
17. KNX Association
www.knx.org
18. OGC (Open Geospatial Consortium)
www.opengeospatial.org
19. Open Mobile Alliance
www.openmobilealliance.org
20. Location Interoperability Forum (LIF)
www.locationforum.org
21. Java Community Process (JCP)
<http://jcp.org>
22. OSGi Alliance
www.osgi.org

Annex A: Standards Gathering Template

Extract of the filled data.

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
XC00080B: Personal Travel Assistance Specification	FIPA	3.1	The personal travel assistance specification is relevant with our work in A3.1.1 regarding will be performed on mobility and smart workplaces applications for the elderly	www.fipa.org/specs/fipa00080/XC00080B.html
SC00008I: SL Content Language Specification	FIPA	1.5	Can be used for A1.5.3(Definition of agent communication acts) according with Agent Communication Language	www.fipa.org/specs/fipa00008/SC00008I.html
XC00011B: RDF Content Language Specification	FIPA	1.5	Can be used for A1.5.3 (Definition of agent communication acts) according with Agent Communication Language.	www.fipa.org/specs/fipa00011/XC00011B.html
SC00037J: Communicative Act Library Specification	FIPA	1.5	Communicative acts are to be used between all agents' communications in A1.5.3 and Connection agents in A1.5.4	www.fipa.org/specs/fipa00037/SC00037J.html
SC00061G: ACL Message Structure Specification	FIPA	1.5	SC00061G: ACL Message Structure Specification will be used for develop A1.5.2 (Specification of the agent community) and A1.5.3 (Definition of agent communication acts)	www.fipa.org/specs/fipa00061
SC00033H: Brokering Interaction Protocol Specification	FIPA	1.5	A similar protocol within A1.5.3 will be specified, which will be compatible with this but will probably extend it.	www.fipa.org/specs/fipa00033/index.html

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
SC00084F: Agent Message Transport Protocol for HTTP Specification	FIPA	1.5	Agents in every activities in WP1.5 can use this protocol	www.fipa.org/specs/fipa00084/index.html
SC00026H: Request Interaction Protocol Specification	FIPA	1.5	This classic protocol will be used within the Oasis service network (A1.5.1 A1.5.2 A1.5.3 A1.5.4).	www.fipa.org/specs/fipa00026
Resource Description Framework (RDF)	W3C	1.1	RDF (with OWL) will be used for facilitating the activities A1.1.1 (Review of ontologies and ontology management tools per application area) and A1.1.2 (Analysis of ontologies and ontology management tools per application area)	www.w3.org/RDF
Ontology Web Language (OWL)	W3C	1.1	OWL (with RDF) will be used for facilitating the activities A1.1.1 (Review of ontologies and ontology management tools per application area) and A1.1.2 (Analysis of ontologies and ontology management tools per application area)	www.w3.org/2004/OWL
Resource Description Framework (RDF)	W3C	1.2	RDF (with OWL) will be used for A1.2.1 Requirements and specification of a common ontological framework and can help for a common methodological approach, and will be devised for the development of the OASIS Common Ontological Framework (COF)	www.w3.org/RDF
Ontology Web Language (OWL)	W3C	1.2	OWL (with RDF) will be used for A1.2.1 Requirements and specification of a common ontological framework and can help for a common methodological approach, and will be devised for the development of the OASIS Common Ontological Framework (COF)	www.w3.org/2004/OWL

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
Resource Description Framework (RDF)	W3C	1.2	RDF (with OWL) will be used for A1.2.2 to specify the formal heterogeneous basis for including all OASIS-relevant ontologies within a single overarching structure.	www.w3.org/RDF
Ontology Web Language (OWL)	W3C	1.2	OWL (with RDF) will be used for A1.2.2 to specify the formal heterogeneous basis for including all OASIS-relevant ontologies within a single overarching structure.	www.w3.org/2004/OWL
CEN - EN13606	CEN	4.1	The European standard for the communication of information from EHR systems, and HISA, a services standard for inter-system communication in a clinical information environment. Standardize transfers of HCEs (or portions thereof) so semantically interoperable	
HL7 V3	HL7	1.5 1.6	Mainly for A1.5.3 Definition of agent communication for Content of agent messages and Specification of message structure It can serve as a support for A1.6.1 for provide the overall system architecture and interoperability specifications of the OASIS system.	http://www.hl7.org/library/standards_non1.htm
DICOM	DICOM	1.6	A1.6.1 System architecture and interoperability It can apply in some activities of this WP2.6 Health monitoring, but mainly in the exchange of medical radiology images	
SNOMED	SNOMED	1.5	It is needed for the medical information. Can support in A1.5.6 agent in Content of messages in the medical field. It is one of the standards recommended by the IHE for classifying medical nomenclature.	snomed.org

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
HL7 (CDA & RIM):	HL7	1.6	A1.6.1 System architecture and interoperability A1.6.2 Component and system specification	www.openclinical.org/std_cda.html
ISO/TS 17090-3 Public key infrastructure; Health informatics	ISO	1.6	This is a standard applies to the security of exchange of medical information. In terms of security policy applies to the activity A1.6.3 Security platform	www.iso.org/iso/catalogue_detail?csnumber=35491
ISO/TR 16056-1 (and 2):2004 Interoperability of telecare systems and networks; Data interchange	ISO	1.6	Apply directly to support the activity A1.6.1 System architecture and interoperability, and A1.6.2 Component and system specification	www.e-healthstandards.org.au/downloads/TC215%20Montreal%20Report.pdf -
SOAP v1.2	W3C	1.5 1.6	Standard that applies to the activity A1.5.3 Definition of communication agent acts in the content of agent messages, Specification of message structure and Protocols and standards of agent communication. It should also be taken into account in the development of activities A1.6.1 System architecture and interoperability and A1.6.2 Component and system specification	www.w3.org/TR/soap12-part0/
WS-ReliableMessaging	W3C	1.5	Standard that applies to the activity A1.5.3 Definition of communication agent acts in the content of agent messages, Specification of message structure	msdn.microsoft.com/en-us/library/ms951271.aspx

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
DIME (Direct Internet Message Encapsulation)	IETF	1.5	Standard that applies to the activity A1.5.3 Definition of communication agent acts in the content of agent messages, Specification of message structure Alternative to WS-ReliableMessaging	xml.coverpages.org/dime.html
BXX (Blocks Extensible Exchange Protocol)	IETF	1.5 1.6	Actives A1.5.2, A1.5.3, A1.6.1 can bring to their development	xml.resource.org/public/rfc/html/rfc3080.html
WS-Addressing	W3C	1.5	Standard that applies fully with the active agent A1.5.3 Definition of communication acts in the development of content of agent messages, Specification of message structure. Important for Web Service in this domain.	www.w3.org/Submission/ws-addressing/
WS-Referral	W3C	1.5 1.6	Activity A1.5.2, A1.5.3, A1.5.4 and A1.6.1 brings the standard to routing	www.serviceoriented.org/ws-referral.html
WS-License	W3C	1.6	This standard applies to the requirements needed to develop the activity A1.6.3 platform on issues of Security Trust, Security and Access Policy . (See memory of Oasis) d with a message	www.wsindex.org/Detailed/527.html
WS-Inspection	IBM,MICRO SOFT	1.6	Standard affecting activity A1.6.3 platform on issues of Security Trust, Security and Access Policy .	www.ibm.com/developerworks/library/ws-wsilspec.html
WSDL 2.0 (Web Services Description Language)	W3C	1.5 1.6	Standard that applies to the activity A1.5.3 Definition of communication agent acts in the content of agent messages, Specification of message structure and Protocols and standards of agent communication.	www.w3.org/TR/wsd120/

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
WSDM (Web Services Distributed Management)	OASIS	1.6	<p>It should also be taken into account in the development of activities A1.6.1 System architecture and interoperability and A1.6.2 Component and system specification</p> <p>Standard that could apply to activities A1.6.2 Component and system specification in the design and formalise the specification of the main functional components of the OASIS System. In the activity A1.6.1 System architecture and interoperability applies absolutely</p>	<p>www.oasis-open.org/committees/wsdm/</p>
WSMF (Web Service Modeling Framework)	OASIS	1.5 1.6	<p>Standard that could apply to the activity A1.5.1 Design of the MAI on the Framework of Interaction with the hyper-ontology.</p> <p>We should study whether it can contribute something in the activity A1.5.6 User Profile Repository and Agents.</p> <p>Also can be seen as a complement more activity in A1.6.1 System architecture and interoperability</p>	<p>www.swsi.org/resources/wsmf.pdf</p>
WS-Security	OASIS	1.5 1.6	<p>Affects to the activity A1.5.3 Definition of communication agent acts in the Security of messages to be exchanged between agents.</p> <p>It also affects the activity A1.6.3 platform in the Security Trust, Security and Access Policy and the Federated Identity Management</p>	<p>www.oasis-open.org/committees/wss/</p>
WS-Policy	W3C	1.6	<p>Standard for the activity A1.6.3 Security platform in the use of Trust, Security and Access Policy</p>	<p>www.w3.org/Submission/WS-Policy/</p>

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
WS-Trust	OASIS	1.5	Apply directly to the activity A1.5.3 Definition of communication agent acts on the part of Security of messages to be exchanged between agents.	docs.oasis-open.org/ws-sx/ws-trust/200512
WS-Privacy	Microsoft, IBM, Verisign	1.6	Standard giving his contribution to WS-Security and WS-Policy and therefore applies to the activity A1.6.3 Security platform in the area of Trust, Security and Access Policy	xml.coverpages.org/ni2003-07-09-a.html
WS-Secure Conversation	OASIS	1.6	Standard contributing to WS-Security and WS-Policy in the activity A1.6.3 Security platform within the field of Trust, Security and Access Policy.	docs.oasis-open.org/ws-sx/ws-secureconversation/200512/ws-secureconversation-1.3-os.html
WS-Federation	BEA Systems, BMC Software, CA, Inc., IBM, Layer 7 Technologies, Microsoft, Novell, and VeriSign	1.6	Standard that applies to the activity A1.6.3 Security platform within the field of Federated Identity Management	www.ibm.com/developerworks/library/ws-fed/
WS-Authorization	Microsoft, IBM	1.6	Standard for providing the platform Security A1.6.3 activity in the area of Trust, Security and Access Policy	blog.webservices.or.kr/hollobit/roadmap/ws-specs/WS-Authorization.html
XKMS	W3C	1.6	Standard recommended for all fields of activity A1.6.3 Security platform for the WP1.6	www.w3.org/TR/xkms/
XRML	ISO	1.6	Standard alternative to XKMS for encryption and authentication of information. Applies to the activity A1.6.3 Security platform	www.xrml.org

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
XML Encryption	W3C	1.6	Supplement for the activity A1.6.3 Security platform in the encryption of information	www.w3.org/TR/xmlenc-core/
XML Signature	W3C	1.6	Supplement for the activity A1.6.3 Security platform to sign data—a resource	www.w3.org/TR/xmlsig-core/
SAML (Security Assertion Markup Language)	OASIS	1.6	Standard for security, authentication and authorization between datas. Apply all activity A1.6.3 Security platform. We should verify if It applies with activity A1.5.3 Definition of communication agent acts within the field of Security of messages to be exchanged between agents.	www.oasis-open.org/committees/security/
OpenEHR	OpenEHR	4.1	A4.1.1 for Definition of innovative HCI concepts and modules for elderly users and A4.1.2 for Integrated interface modules for elderly users	www.openehr.org/
CEN TC278, Reference Data Model For Public Transport, ENV12896 (Transmodel ENV 12896)	CEN	WP 3.2 WP 3.3	Reference Data Model For Public Transport	http://www.transmodel.org/
CEN/TS 15531 (SIRI)	CEN	WP 3.2 WP 3.3	Service Interface for Real Time Information; allows exchanging of real-time information about public transport services and vehicles	www.siri.org.uk
ÖPNV-Datenmodell 5.0	VDV	WP 3.2 WP 3.3	German reference framework for data modelling for passenger transport	http://www.vdv.de/wir_ueber_uns/vdv_projekte/oepnv_datenmodell.html?pe_id=47

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
NaPTAN	UK DfT	(WP 3.2 WP 3.3)	UK nationwide system for uniquely identifying all the points of access to public transport in the UK.	http://www.naptan.org.uk
NPTG	UK DfT	(WP 3.2 WP 3.3)	topographic database of towns and settlements in the UK; it provides a common frame of reference for the National Public Access Nodes (NaPTAN) schema and other UK Public Transport Information schemas such as JourneyWeb	http://www.nptg.org.uk/
TransXChange	UK DfT	(WP 3.2 WP 3.3)	UK nationwide standard for exchanging bus schedules and related data	http://www.transxchange.org.uk/

Table 2 Standards Gathering Template

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
a. Wireless Connectivity				
IEEE 802.15.1	IEEE	WP4.2	It is part of the IEEE 802.15 family of standards related to Wireless Personal Area Network (WPAN); the IEEE 802.15.1 std refers to Bluetooth	Latest version of Bluetooth Specs: Specifications of the Bluetooth System , version 2.0 , Nov. 2004. A new release was expected in 2007.
IEEE 802.15.4 in combination with ZigBee	IEEE	WP4.2		IEEE Std. 802.15.4 – 2003 , Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low-Rate Wireless Personal Area Network (LR-WPAN). ZigBee Specification, vers. 1.0 – December 2004 issued by the ZigBee Alliance
IEEE 802.11	IEEE	WP4.2	Related to Wireless Local Area Network (W-LAN)	

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
In preparation: Bluetooth SIG Medical Devices Working Group, established in 2006	Bluetooth Special Interest Group	WP4.2 ; WP2.6	Definition of an Application Profile for Personal Health and Fitness Devices	
In preparation: ZigBee Personal / Home Healthcare Study Group, established in 2006	ZigBee Alliance	WP4.2 ; WP2.6	New application profile in the area of health monitoring to enable plug- and-play interoperability of wireless ZigBee enabled medical sensors and devices	
In preparation: IEEE P1073.0.1.1		SP2. SP3	Working Group for the promotion of the use of off- the-shelf technologies (WiFi, Bluetooth, ZigBee) in a shared IT infrastructure where multiple devices and systems from diverse vendors can be integrated to provide safe and effective communication of medical data	
In preparation: IEEE P1451.5		SP2, SP3	Definition of wireless communication protocols and data formats for wireless transducers (sensors and actuators) based on the IEEE P1451 family of smart interface standards. The expected standard will adopt the IEEE 802 family of the wireless communication protocols.	
WiBree standard	Nokia + WiBree Forum	WP4.2	Ultra low power wireless technology developed by Nokia, now merged with the Bluetooth SIG. Wibree Specs will be part of the Bluetooth specs as ultra low power Bluetooth technology for WPAN.	
ISO/IEC 18092		SP2, SP3	Exchange of data between two Near Field Communication (NFC) devices (peer-to-peer mode)	

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
ISO/IEC 14443		SP2, SP3	Contactless smart card standard using NFC and RFID	NFC Forum; www.nfc-forum.org
ISO 2173/ HL 7 Health Level 7		WP2.6	Comprehensive set of standards for the exchange of healthcare information between computer applications HL7 vers.3 : Reference Information model	www.hl7.org
ISO 11073 / IEEE 1073		WP2.6 , WP4.2	Family of standards intended to enable medical devices to interconnect and interoperate with other medical devices	
CEN/TC251/PT5-021		WP2.6 , WP4.2	Project Team for the standardization of the representation of digitised biomedical signals, measurements, events and alarms	
b. DOMOTICS				
X10	X10 Organization		Domotics standard	www.x10.org
EIB / Konnex	KNX Association	WP2.7	Domotics standard	www.knx.org
DomoML		WP2.7	XML/SOAP based protocol for the IP backbone of the Domotic Network	See V. Miori, L. Tarrini, M. Manca, G. Tolomei: "An Open Standard Solution for Domotic Interoperability", IEEE Transactions on Consumer Electronics, vol. 51, issue 1 – Febr. 2006
ISO/IEC 14543ed. 1.0 (2006-07)	ISO / IEC	WP2.7	Home electronic system (HES) architecture – Part 3-1: Communication layers – Application layer for network based control of HES Class 1;	

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
			<p>Part 3-2: Communication layers – Transport, network and general parts of data link layer for network based control of HES Class 1;</p> <p>Part 3-3 : User process for network based control of HES Class 1;</p> <p>Part 3.4 : System management, management procedures for network based control of HES Class 1;</p> <p>Part 3-5: Media and media dependent layers. Powerline for network based control of HES Class 1;</p> <p>Part 3.6 : Media and media dependent layers. Twisted pair for network based control of HES Class 1;</p> <p>Part 3-7: Media and media dependent layers. Radio frequency for network based control of HES Class 1;</p>	
ISO/IEC 18012-1 (2004)	ISO / IEC	WP2.7	Home electronic system: Guidelines for product interoperability	
ISO/IEC 15044 TR ed. 1.0 (2000)	ISO / IEC	WP2.7	Terminology for Home Electronic System (HES)	
ISO/IEC 15045-1 (2004)	ISO / IEC	WP 2.7	Home electronic system (HES): A residential gateway model for HES	
ISO / IEC 15067	ISO / IEC	WP 2.7	Home Electronic System (HES) application model Part 3 : Model of an energy management system for HES;	

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
			Part 4: Security system for HES.	
ISO/IEC JTC1/SC 25/WG1		WP2.7	Home electronic systems	
CLC / TC 205	CENELEC	WP2.7	Home and building Electronic Systems	www.cenelec.eu
CEN / TC 247	CENELEC	WP2.7	Building Automation, Controls and Building Management	
CLC / TC 79	CENELEC	WP2.7	Alarm Systems	

Table 3 Extract of the collected data of the Standards gathering template Wireless Connectivity and domotic

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
c. USER INTERFACES				
ISO / IEC 9241-11	ISO / IEC	WP4.1	Ergonomic Requirements for Office Work with Visual Display Terminals (VDTs) Part 3 : Visual display Requirements; Part 4: Keyboard requirements; Part 5: Workstation layout and postural requirements; Part 6: Working environment; Part 7: Requirements for displays with reflections; Part 8: Additional Requirements for coloured displays; Part 9: Requirement for non-keyboard input devices (mouse, trackball, etc.); Part 11: Guidance on Usability;	
ISO 9241-20 (2008)	ISO	WP 4.1, SP2, SP3	Ergonomics for human-system interaction – Part 20: Accessibility Guidelines for ICT equipment and services	
ISO 9241-151 (2008)	ISO	WP 4.1, SP2, SP3	Guidance on the human-centred design of software Web interfaces	
ISO 9241-171 (2008)	ISO	WP 4.1, SP2, SP3	Ergonomics of human system interaction – Part 171: Guidance in software accessibility.	
ISO 9241-410 (2008)	ISO	WP4.1	Ergonomics of human system interaction – Part 410: Design criteria for physical input devices	
U.S. Department of Health and Human Services (HHS)	HSS	WP 4.1, SP2, SP3	Research – based Web Design & Usability Guidelines	
W3C	W3C	SP1	User Agent Accessibility Guidelines 1.0 (Guidelines	See also W3C Checklist of Checkpoints for Web

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
			for designing user agents that lower barriers to Web accessibility for people with disabilities (visual, hearing, physical, cognitive and neurological). User agents include HTML browsers and other types of software that retrieve and render Web content.	Content Accessibility Guidelines 1.0 www.w3.org
ISO-TS 16071			Ergonomics for human-system interaction – Guidance on accessibility for human-computer interfaces	
ISO 13407	ISO	WP4.1 ; WP5.5	Human centred design processes for interactive systems	
ISO 9126	ISO	WP 4.1, SP2, SP3	Software Engineering – Product Quality Part 1 : Quality Control; Part 2 : External metrics; Part 3 : Internal metrics ; Part 4 : Quality in use metrics.	
ISO 14915	ISO	WP 4.1, SP2, SP3	Software ergonomics for multimedia user interfaces	
IEC 51997	IEC	WP 4.1, SP2, SP3	Appearance and behaviour for multimedia interfaces	
ISO 18789	ISO	WP4.1	Ergonomic requirements and measurement techniques for electronic visual displays	
ISO 13406	ISO	WP4.1 WP4.4	Ergonomic requirements for work with visual displays based on flat panels	
ISO 18021	ISO	WP4.1 WP4.4	User Interfaces for mobile tools	

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
d. LOCALIZATION-BASED SERVICES				
OpenLS (Open Location Services) Interface Standard	OGC	WP3.2, WP3.3, WP3.4	Definition of interfaces to facilitate the use of location based information in the wireless Internet environment and to implement OpenLS services such as Directory Service, Geocoder Service, Presentation (Map Portrayal) service and other.	www.opengis.org
Geography Markup Language (GML)	OGC	WP3.2, WP3.3, WP3.4	Data interchange of location information	www.opengis.org
Mobile Location Protocol (MLP)	OMA (LIF)	WP3.2, WP3.3, WP3.4	Markup language (XML-based) for data interchange in location-based services	www.openmobilealliance.org ; www.locationforum.org
WAP-LOCFW, WAP-LOCPROT, WAP-LOCFORM	OMA (WAP)	WP3.2, WP3.3, WP3.4	Parts of the Wireless Application Protocol (WAP) addressing the needs of location-based services	www.openmobilealliance.org
JSR 179 v2.1	JCP	WP3.2, WP3.3, WP3.4	Compact and generic API for the J2ME platform that produces information about the device's present physical location to Java applications.	http://jcp.org
JSR 293 – Location API 2.0 (under preparation)	JCP	WP3.2, WP3.3, WP3.4	An extension of the JSR 179 allowing more enhanced location-based services	http://jcp.org
OSGi Mobile Specifications	OSGi	WP3.2, WP3.3, WP3.4	Extension of the OSGi platform to mobile devices based on Java ME CDC. Initiatives are in progress to ensure the availability of new enhanced applications including advanced location-based services.	www.osgi.org
Bluetooth Location Positioning Profile	Bluetooth Alliance	WP3.2, WP3.3, WP3.4	Location positioning profiles for a Bluetooth PAN	www.bluetooth.org
ISO 19101 standards family	ISO – TC 211	WP3.2, WP3.3, WP3.4	Standardization of geographical information including metadata.	www.iso.org
New IEEE 802.21	IEEE	WP3.2, WP3.3, WP3.4	Seamless handover between different heterogeneous networks and definition of a	www.ieee.org

Standard/Guideline Name	Relevant Body	Rel. WP	Describe the Relevance to this Activity or WP?	References
			mechanism for the exchange of location information.	
GENERAL				
CEN / CENELEC Guide 6		SP1, SP2, SP3	Guidelines for standard developers to address the needs of older persons and persons with disabilities	
JIS Standards for Elderly and People with Disabilities	JIS	SP1, SP2, SP3	Japan Standard	www.jisa.or.jp

Table 4 Extract of the collected data of the Standards gathering template User interface and localization-based services

Annex B: Standards Compliance Template

Standard/ Guideline Name	Relevant standardisation body	Relevant WP	Abiding to the standard - Yes/No
CEN-TC 251	CEN	2.1	
LOINC	LOINC	1.5	
ICD (International Statistical Classification of Diseases and Related Health Problems)	WHO	1.6	
UDDI (Universal Description, Discovery and Integration)	OASIS	1.6	
ebXML Registry	OASIS	1.5 1.6	

Table 5 Extract of the collected data of the Standards compliance template.

Annex C: Standards Proposal Template

Issue Number	Work Package	Standard Domain	Reason of the initiative

Table 6 Extract of the collected data of the Standards Proposal Template.

Annex D: Contact details of international and national bodies

The Foundation of Intelligent Physical Agents (FIPA):

Contact:

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Karen McCabe, IEEE Senior Marketing Manager
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World Wide Web Consortium (W3C):

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Comité Européen de Normalisation (CEN) :

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Tel: + 32 2 550 08 11

Fax: + 32 2 550 08 19

Email: infodesk@cenorm.be

Web: www.cenorm.be

Health Level Seven (HL7):

Health Level Seven, Inc.

Address: 3300 Washtenaw Avenue, Suite 227

Ann Arbor, MI 48104

USA

(+1) 734-677-7777 (phone) (+1) 734-677-6622 (fax)

E-mail: hq@hl7.org

Open Electronic health records (OpenEHR):

Details contact one of the directors of the body

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The Archway Campus
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N19 5LW

Phone: 020-7288-5965
Fax: 020-7288-3322 (Please mark FAO: David Ingram)
E-mail: d.ingram@chime.ucl.ac.uk

Digital Imaging and Communication in Medicine (DICOM):

NEMA, Suite 1752
1300 North 17 Street
Rosslyn, VA 22209
Ph: (703) 841-3285
<http://dicom.nema.org>

Systematized Nomenclature of Medicine (SNOMED):

IHTSDO
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2300 Copenhagen S
Denmark
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Fax: +45 36 44 87 36

Logical Observation Identifiers Names and Codes (LOINC) :

Kathy Mercer
LOINC c/o Medical Informatics
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Phone: 317-423-5558
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International Organisation for Standardisation (ISO):

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World Health Organization (WHO):

WHO Regional Office for Europe
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Internet Engineering Task Force (IETF):

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Fax: +1 703 620 9071

Web: www.ietf.org

Organization for the Advancement of Structured Information Standards (OASIS):

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Federal Communication Commission (FCC)

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Institute of Electrical and Electronics Engineers (IEEE)

IEEE Operations Center
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10016-5997 USA

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International Electrotechnical Commission (IEC)

IEC Central Office

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