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SemanticHEALTH
Semantic Interoperability Deployment and Research Roadmap

SemanticHEALTH aims to develop a European and global roadmap for deployment and research in health-ICT, focusing on semantic interoperability issues of e-Health systems and infrastructures. The roadmap will be based on consensus of the research community, and validated by stakeholders, industry and Member State health authorities.

Objectives of the project
The Semantic aspects of interoperability have only recently been recognised as the major enabling factor for the safe and sensible communication of patient data. Health language is very large and diverse, and as such not equalled by other professional languages. The delivery of safe and effective health care is a challenge, particularly as the extent of medical errors is becoming apparent. The US Institute of Medicine report "To Err is Human" has estimated that 100,000 US citizens die each year through medical errors. Though there is no hard evidence on the exact role played by the lack of available adequate clinical documentation on patients, it is assumed the effect is substantial, and for the greater part avoidable.

Project Description
To efficiently implement e-Health to meet the rising needs of mobile citizens, patients and providers, the fragmented interoperability initiatives now distributed throughout different EU and Member State programmes must come together. They must be coordinated with the increasing need to link clinical data to information from basic biological sciences and evidence of best clinical practice.

Considering the need for interoperability at the Member State and cross-border level of the European Union – as expressed in the EU e-Health Action Plan – and for global interoperability – as represented by WHO – it is necessary to embark on a process that will prompt the divergent initiatives to join forces for the benefit of all citizens.

This SemanticHEALTH SSA develops a European and global roadmap for deployment and research in health-ICT, focusing on semantic interoperability issues of e-Health systems and infrastructures. The roadmap will be based on consensus of the research community, and validated by stakeholders, industry and Member State health authorities. It

- identifies key short-term (2-5 years) and mediumterm (4-10 years) needs to achieve semantic interoperability of e-Health systems (including issues of nomenclatures presently in use, classifications, terminologies, ontologies, EHR and messaging models, public health and secondary uses, and decision support, their relationships, mapping needs, limitations)
- analyses unsolved issues arising in the context of realistic approaches to priority clinical and public health settings (reflecting on models of use, benefits expected, concrete application experience and lessons learned; relevance of open source model)
- takes account of the impact of non- technological (health policy, legal, socio-economic) aspects
- reflects and integrates results of related FP6 (eHealth ERA, i2-Health and other) studies.
- The consortium and associated experts represent centres of excellence from four continents and the WHO.
Expected Results & Impacts

"The holy grail of connectivity is the transformation of the current paper-based medical record into an electronic medical record that is accessible to all necessary providers and possibly to the patient. Webenabling the EMR expands the potential users and uses …"

To indeed realise this vision, interoperability is mandatory; interoperability not only at the technical and syntax level, but particularly at the semantic level. Semantic interoperability is vital to the seamless flow of data and consistency in meaning on patients’ medical conditions globally, which will form the very foundation upon which future global health research, patient care and public health management evaluation can be effectively and competently carried out.

Technical and semantic standardisation is a key problem for interoperability and the exchange of data amongst health sector actors. Similarly, they have been identified as crucial issues for any National and Regional e-Health Roadmap. Furthermore, standards should be an explicit complement of regulations from one side, and implementation guidelines and certification on the other side. Consequently, it is to be expected that this SSA will have also a positive impact on much needed semantic standardisation in the health domain by identifying relevant priority issues and needs for actions for the near and midterm future.

As a by-product of our project, the context for the development of standards will become more clear and explicit, and the relationship between research issues, standardization activities and industry will be made more effective.

Directly or indirectly, the proposed action will also impact on

• creating an "internal market" in e-Health research

• supporting the Lisbon strategy of Europe becoming the most competitive and dynamic knowledge-based economy until 2010,

• stimulating innovation and economic growth and hence the creation of qualified new jobs.

Semantic Interoperability Deployment and Research Roadmap

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• University College London, (UK)
• Empirca Communication and Technology Research (DE, subcontractor)

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SemanticHEALTH
Sharing Knowledge in e-Health information systems:
A Semantic Interoperability RTD Roadmap
St Radboud Nijmegen (Dutch WHO-FIC-CC)
WHO Geneva
ESKI Budapest
Upsala University (Nordic WHO-FIC-CC)
University St Etienne
Univ College Londen / Univ Manchester
Empirica Bonn
Global expert panel (18)
WHO network

Interoperability: WHY IS IT SO HARD?

- Technology
  - Drive (solution gap?)
- Social / Economic
  - ‘dividend’ (BPR?)
- Regulations / Legislation
  - Cross Organisational/Border
- Needs Multifactored Global Approach
Key Objectives

- To identify short-term (2-5 years) and medium-term (4-10 years) RTD challenges to achieve semantic interoperability of e-health systems
- To analyse unsolved RTD issues arising in the context of realistic approaches to clinical and public health settings
- To take into account the impact of non-technological (health policy, legal, socio-economic) aspects

- USE CASE is ‘SNOMED as a process’

The product

- Comprehensive recommendations for integrated national RTD roadmaps in the EU/Global context
Some Deliverables

- Conceptual framework for e-Health interoperability
- Inventory of key relevant Member States
- Comparative analysis and initial technological RTD recommendations for improving semantic interoperability
- Comparative analysis and initial socio-economic RTD recommendations for improving semantic interoperability
- Barriers, approaches and RTD priorities for semantic interoperability in support of clinical care delivery
- Semantic Interoperability RTD Roadmap
Potential for Collaboration

- SemanticHEALTH offers
  - Open Workshops
  - Share Workshops
  - Dissemination through WHO network
  - Produce shared Final Executive Recommendations