



eHealthMonitor

Clustering Event
26th of September, 2013





Project outline



Project title: eHealthMonitor – Intelligent Knowledge Platform for Personal Health Monitoring Services

Starting date: 01.12.2011

Duration: 36 month

Funding scheme: STREP

Objective: ICT-2011.5.3a) Patient guidance services (PGS) for personalised management of health status

Total budget: 4 078 283 €

EU Contribution: 2 779 000 €

Partners:

- Research/Technical partners
 - University of Hohenheim (DE)
 - BOC Asset Management GmbH (AT)
 - Selex Electronic Systems, S.P.A (IT)
 - Foundation for Research and Technology Hellas (GR)
 - Friedrich-Alexander-Universität Erlangen-Nürnberg (DE)
 - MEDICALgorithmics S.A (PL)
- Enduser partners
 - Interdisziplinäres Zentrum für Public-Health (DE) - Dementia
 - Kardiosystem Sp. z.o.o. (PL) – Cardiovascular disease
 - Prime Insurance Company Ltd. (CY/GR) – Public health/prevention



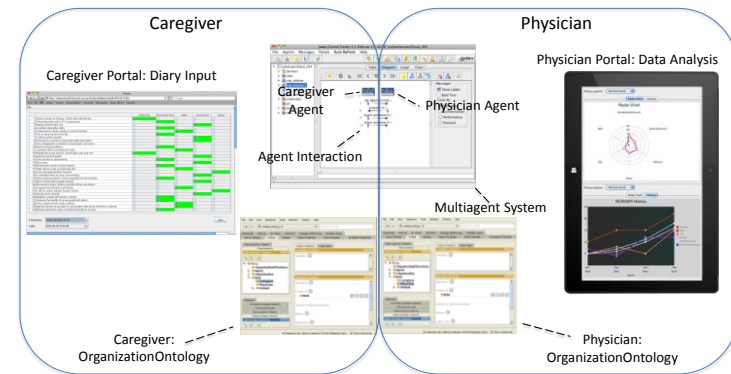
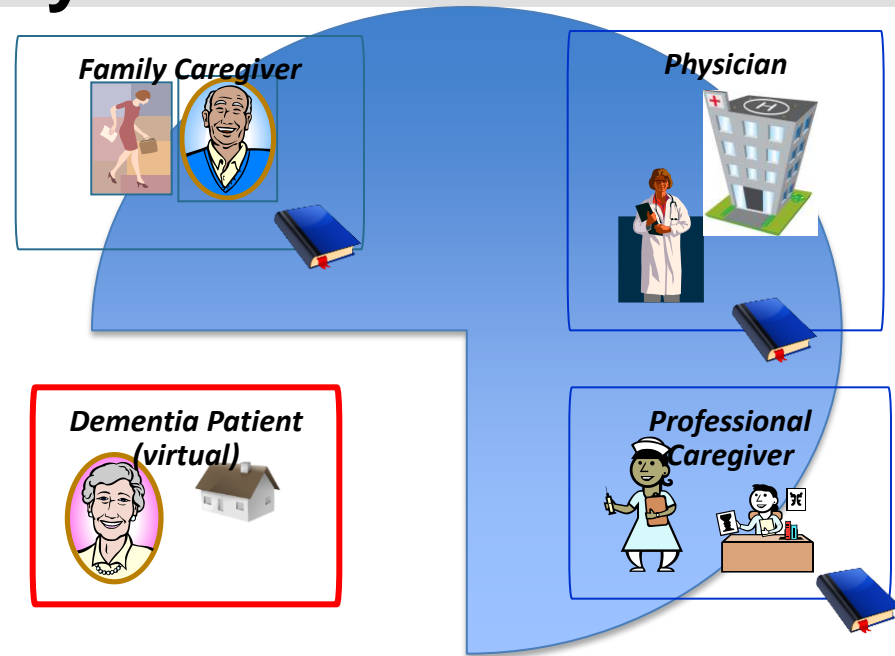
- **European society** is characterised
 - (1) by high **costs** for its health system
 - (2) shrinking work force due to health reasons and an **aging population**→ Enormous **pressure** on the **economy** and the **social system**
- **Preventive strategies** are one approach
 - (1) to reduce disease risks and (2) to improve health outcomes (3) as well as patient satisfactionHowever, today's prevention programmes are **limited** to standardised information provision and recommendations
- **Fragmentation of knowledge** about personal risk factors hinders the assessment of disease risks
→ provide personalised electronic **health services** to patients aiming at
 - (1) reducing health risks and
 - (2) offering preventive health recommendations



Example - Dementia use case scenario: Course-of-disease diary



- Scenario includes physician(s) and caregiver(s) and a patient suffering from dementia
- Nurses' observation scale for geriatric patients (NOSGER) form the basis of a course-of-diseases diary
- Analysis of these data and other data sources on physician side enables tightly focused the provision of customised information (recommendations) to support a group decision making process regarding the current situation

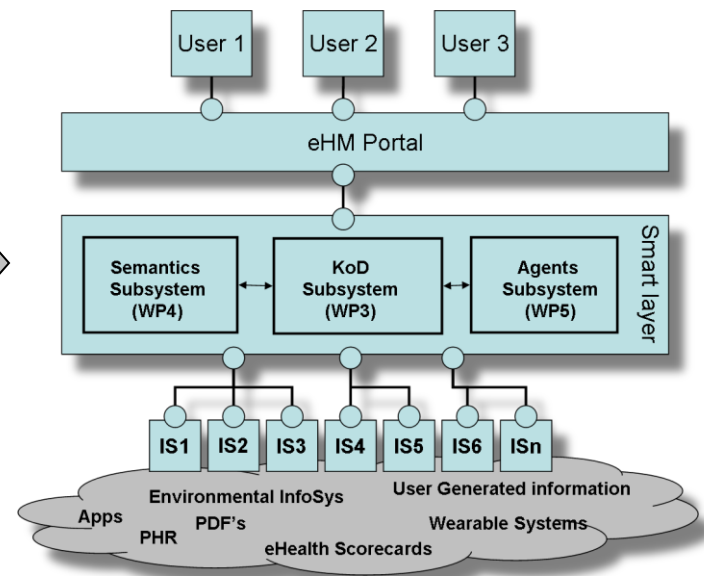
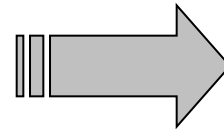
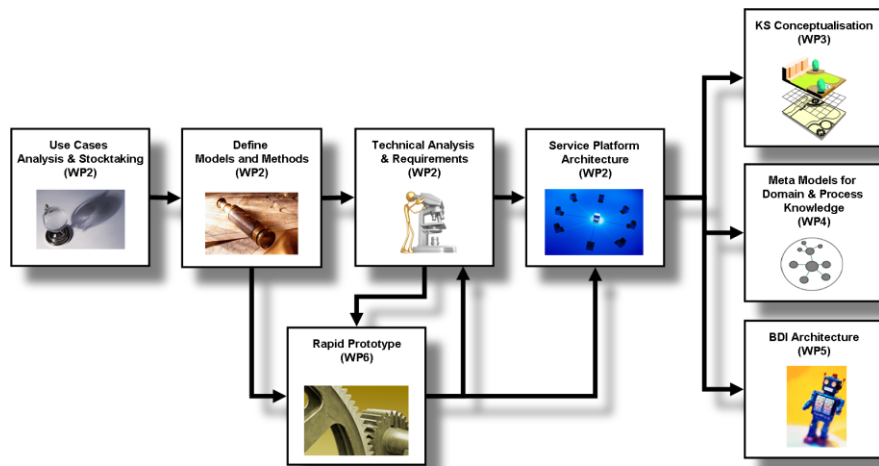




Overall Objective



A **service oriented platform** capable of supporting different types of stakeholders by providing **personalised** access to the personal knowledge space consisting of both **heterogeneous** and **dynamic knowledge sources** as well as dynamic and interchangeable **knowledge tools** and **methods** to support their processing.

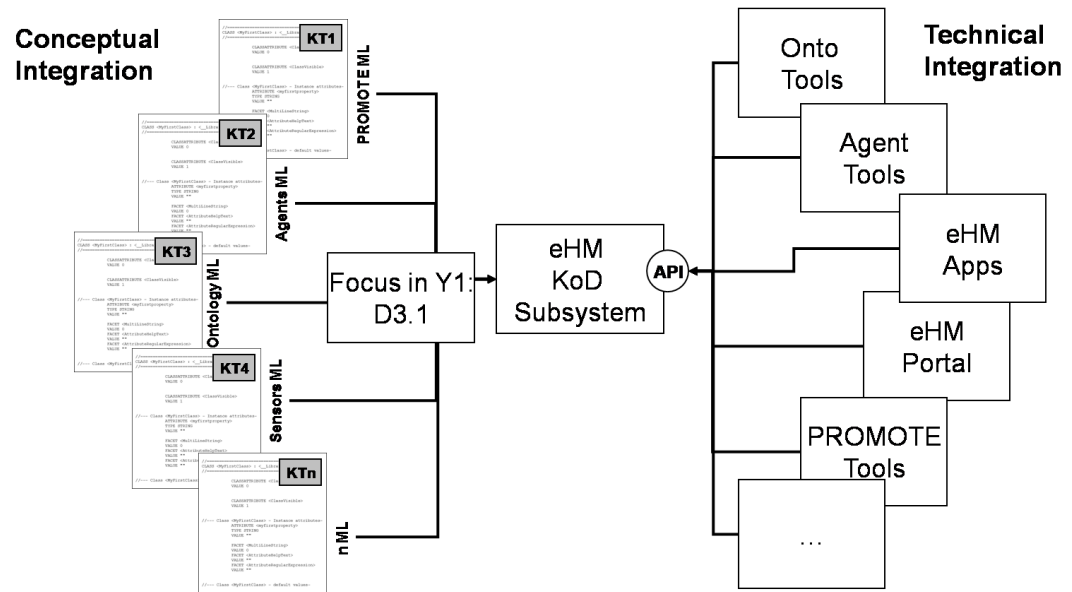




Knowledge on Demand Subsystem



- Definition of a specification method capable of supporting conceptual integration and plugging in of different knowledge technologies that may be required and used in the personal knowledge space by the stakeholders
- Model driven knowledge management approach
- Focus on mobile and community aspects

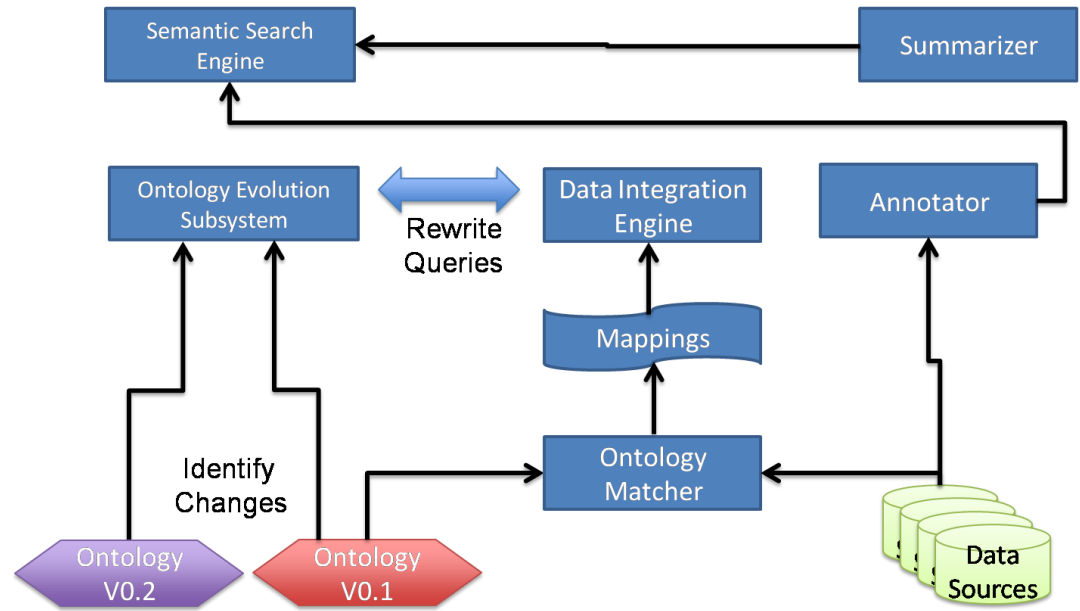




Semantics subsystem



- Establishing formally founded conceptual models of process and domain knowledge by defining appropriate meta-models.
- Establishing the mechanisms for the transformation of domain-specific processes into ontological descriptions.
- Establishing unified view of the domain of interest by appealing to a common, formal representation of domain and process knowledge.
- Produce Model Summaries that will constitute adequate representation of information and will include anchors to complete ontological descriptions.



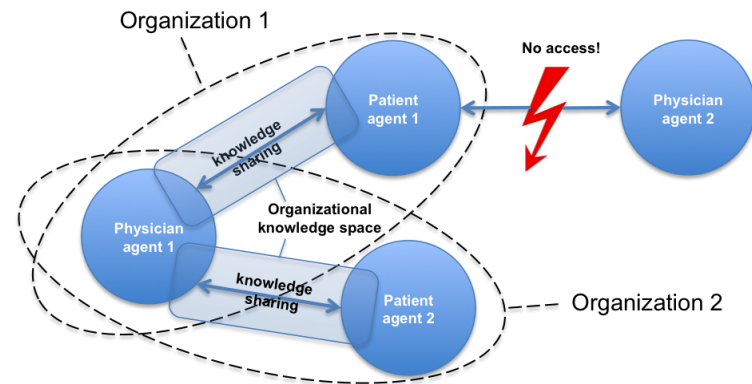
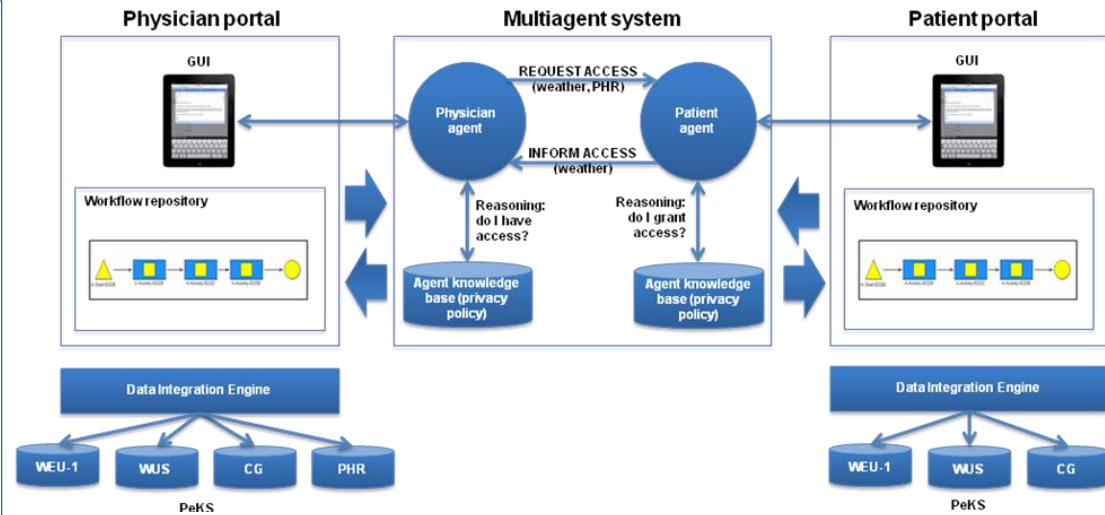


Multiagent subsystem



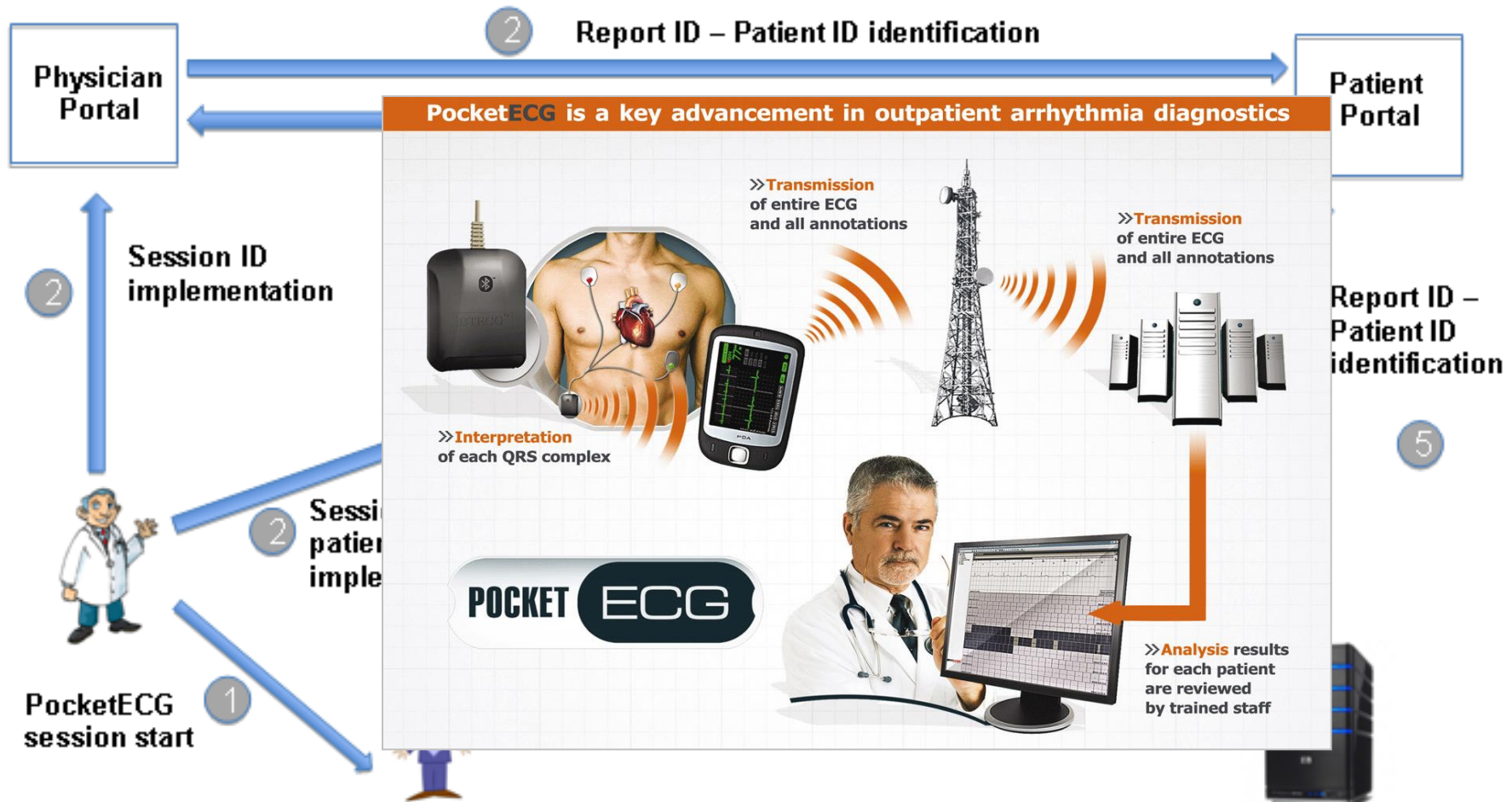
Distributed knowledge sharing by the formation of agent-based organizations

- Mapping of the health-related decision making principles to the technical collaborative decision support approach
- Transfer the operating organizational structures into the platform to represent the relationships etc. between actors (e.g., physician, patient)
 - software agents represent the participating actors (one agent per actor)
 - develop the full lifecycle of agents/organizations (from formation to abortion)





Wearable Sensors in mobile diagnostics





eHealthMonitor does **not** develop **yet another service platform**, but provides a dynamic technology that utilizes **existing distributed knowledge** to **improve** disease (problem)-**specific information management** within a **stakeholder-centered approach**

- **Project-specific innovations:**

- Knowledge on demand modelling techniques
- Semantic models (Integration, personalization and summarization)
- Formation of multiagent organizations to consider privacy policies

- **Domain-specific goals:**

- Personalized healthcare
- Patient empowerment, improved decision support
- Effectiveness of treatment (caregiving/prevention/disease management support)



Questions & Discussion