Co-Producing Telehealthcare Systems for Elderly Communities in Multi-Agency Service Environments

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• Research Center in Information and Communication Technologies
  - Created in 2001, by 3 Belgian Universities
  - Non-profit center, 32 researchers

• Mission
  - Initiate & Perform Applied Research in ICT
  - Technology transfer: Connecting Research Labs to Enterprises
  - Serve the Industry
    - Contribution to Regional Economic Development

• Participation to European Framework Programs
  - FP6:
    - CoreGRID (NoE), HPC4U (STREP), EverGrow (IP-FET), AgentLinkIII (CA), GRIDTrust (STREP), BEinGRID (IP), AssessGRID (STREP), QUALOSS (STREP), OLDES (IP)
  - FP7:
    - DEPLOY (IP), RESERVOIR (IP)
Field of Expertise

- **Software Engineering**
  - Software Process & Product Quality
    - Metrics, Monitoring, Impact on software processes
  - Requirements engineering
    - Security
    - Critical Systems Modelling

- **Distributed Technologies**
  - Grid Technologies, Cluster Computing, Service-Oriented Architectures
    - Distributed data management
    - Collaborative technologies
  - Web data mining
    - Search Engine
    - Reverse Engineering

- **Embedded Systems**
  - Wireless Technologies
  - Co-design – Hw/Sw
  - eHealth applications

April 2007  www.cetic.be
Outline

• Introduction
• The OLDES Project
• Co-production
• Conclusions
Introduction

• The ageing of the population in EU
  - 23% of the population will be aged 65 or over by 2020 and 31% by 2050 with major implications for ‘the labour market and the health and long-term care sector’ (European Commission, 2005: 19)

• e-Health and healthcare form a key part of the Commission’s vision towards an ‘Information Society’

• Multi-agency service work and the delivery of social health care

• Complexity of needs found in Multi-Agency Service Environments (i.e. healthcare environments)
The OLDES Project

• Part of the European Union’s Information Society Technologies (IST) FP6 for ‘Ambient Assisted Living (AAL) for the Ageing Society’.

• A collaboration of local public health and social care providers, system suppliers, and intermediary research organizations and ourselves as university researchers.

• A three-year programme that commenced in January 2007.

• www.oldes.eu
The OLDES Project

• OLDES objectives
  – To develop an easy to use entertainment, health and social care platform intended to ‘ease the life’ of older people ‘in their homes’
  – To enable enhanced communication and information sharing between care agencies

• OLDES commitment
  – A ‘user-centered’ development that, ‘puts older people at the centre and makes their needs the main priority in all developments’ (OLDES Project Description).

• Pilots
  – A group of 100 elderly (including 10 suffering with cardio disease) in Bologna, Italy
  – A group of 10 diabetic patients in the Czech Republic
Co-Production

• A common mistake in designing e-telehealth care systems:

  *Failing to face up to the real complexities of the world in which it is operating*
  - Selecting only those aspects that make sense from the rational scientific, clinical or engineering points of view
  - Ignoring the fact that many aspects of the real worlds of the users are, and will remain, incoherent and problematic

• Establishing a Space for a Valuable Dialogue with Stakeholders

  *Develop an effective and well informed space for co-productive dialogue with different constituencies with quite different ways of making sense of the world.*

• Objective

  *Draw, share and communicate a ‘big and rich picture’ of the dynamics of the context of use and the ‘realities’ of the practices of users*
A ‘Space’ for The OLDES Project

• A computer-based graphical demonstrator
  - A corresponding physical and distributed environment that aims to generate visualizations of sociotechnical scenarios created through a process of shared sense making, exploration and negotiation co-produced by ‘user’ and ‘design’ communities.

• Technology used
  - A fully operational synchronised audio-visual recording environment (including screens; cameras; microphones and editing/publishing suite plus supporting software) which captures the complex social learning interaction activity occurring during co-productive dialogues.
A ‘Space’ for The OLDES Project
Worldview Domain

- Five worldview domains captured
  - The domain of policy and governance at national, regional and local levels.
  - The corporate domain of service management and reporting.
  - The technical and supplier domains where systems are constructed and deployed.
  - The practitioner domain in which needs and demands are encountered and responded to.
  - The client, customer and service user domain where outcomes are experienced.

- The identification of these domains were used as stimulus to facilitate dialogues
- Production of visualisations of Sociotechnical scenarios
Resulted Projections

- People and places:
  - activity from the point of view of protagonists

- Applications view:
  - applications and the interactions that users make with them

- Systems view:
  - activities and message passing between network resources.

- Organisational view:
  - identifies the domains of ownership and responsibility for physical resources.

- A business process or workflow view
  - shows tokens passing round mappings of workflows as a result of transactions and messages.

- A role view
  - abstract responsibilities and intentions and how they are allocated to different actors and organisations in the other views.
Some projections on the OLDES environment

Service Funders and Commissioners

Infrastructure and applications service provision

Service Agencies

Service User Representation

Aggregation and analysis of outcome data

Front line practitioner

Old person with their network and contacts

Network of User Relationships

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Some projections on the OLDES environment

Projection of System and Service environment
Validation of projections

• The initial material presented was reflecting the following criteria:
  - It was recognisable by the participants as relevant and realistic in their worlds.
  - It was reflecting and raising issues about the relevant scope, boundary conditions and capacity constraints of policy, resource, technology as well as the legal/ethical conditions.
  - It provided a starting point that participants could adopt in the process of sharing an emerging set of models, plans and designs.
Conclusions

- Co-production as a new approach in the designing of ICT and organizational architectures in e-services for elderly people.
  - It aims to equip stakeholders involved into the design of multi-agency information systems with an orientation to design process that allows them to develop systems that purposively fit the working practices of those using them.

- The purpose of the graphical demonstrator used in OLDES
  - To initiate and support the process of envisioning and prototyping possible futures which brought together well grounded approaches to governance, practice and systems with intention of facilitating dialogue between these view.