Activity-Driven Needs Analysis and Modeling in Healthcare Information Systems Development
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Background / Presenter

Irmeli Luukkonen

• Current position: Researcher at University of Eastern Finland (Kuopio University), School of Computing, HIS R & D and DAISY research groups

• Research interests: Method development; Activity-Driven methods, Starting point analysis, Modeling, Socio-technical Health and Wellbeing information systems


• PhD 2012. *Activity-Driven Needs Analysis and Modelling in Information Systems Development*

• Researcher in applied research projects since 2003
  - **PlugIT** (Information Needs in Home Healthcare), **ZipIT** (combining work development and ISD), **China Finland eHealthPartners** (Applying former developed methods in different culture and context), **MyWellbeing** (citizen-centric viewpoint in needs analysis), **SOLEA** (Service Oriented Locally Adapted Enterprise Architecture; process and activity modeling ), **ISD4D** (A Holistic Information Systems Development Approach for Societal Development; workflows and information needs), **Medication Information Management** (Activity-driven starting point analysis in Northern Savo area)
Background / Research background and motivation

Starting point of ISD process is often fuzzy...

• Information systems are complex, development does not start at ”clean table”
• In the beginning, there is a need for a Big Picture to guide different development activities in realistic and right direction. But how to capture the Big Picture?
  • Methods for early phases of ISD are rare
  • Commonly, there is lack of time and resources
Research Context & Methods

• Applied research projects
• Action research, "researching by doing"; qualitative methods
• Multidisciplinary and multiprofessional, multinational research groups
• Health information systems
• Home healthcare, maternity care, cross-organizational care chain
• Starting point analysis, Process modeling, activity modeling, Enterprise Architecture

ZipIT (2005-2007) Basis for method development

SOLEA (2008-2011) Process modeling and EA

INDEHELA-Education, 2010 Teachability of methods

China-Finland eHealthPartnership (2007-2008) Applicability of methods
ICT MUST SUPPORT WORK AS PART OF INFORMATION SYSTEM
ACTIVITY-DRIVEN APPROACH
• Draws on applications of Activity Theory, Developmental Work Research, & Participatory methods
• A socio-technical view: Information system includes **people, information, information tools** (electronic, manual & immaterial)
• Starting point is to **understand daily work**, in the real context
• **Intertwined** work and information systems development.
NEEDS ANALYSIS:

• **Shared understanding** on the work activities and the information needs within them.

• **Different viewpoints:** Management, healthcare work, IS developers, Client/patient/citizen..

• Appreciating the different professionals’ needs => **participatory** methods in planning and data gathering

=> Need for understandable tools and visualizations
MODELING

- Tables, diagrams, storytelling
  - Cooperation & communication to achieve shared understanding
  - Traceable and interlinkable models in several dimensions: time, granularity, and between items belonging to separate EA sub-architectures.

Example of using storytelling and cooperative writing: one person starts writing => email => another continues / answers questions / corrects etc
Summary of the Results

Nature of the user organizations’ ISD early phases

Activity theoretical roots, AD approach to ISD

Mainstream methodologies, including process modeling

Needs for methodological support =>
<= Adjustable tools

Operationalization =>
<= Theoretical development

<= Relation to each other =>

Activity-Driven Needs Analysis and Modeling:
- purpose and situations when to use
- tools for data gathering, analyzing and modeling
- interlinkages to other methodologies
Thank you for cooperation

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Hospital districts of Northern Savo, Southwest Finland, Helsinki and Uusimaa, and Satakunta; the City of Kuopio, the Municipality of Sotkamo, East Hospital, Weifang Community Health Center, and the Bilene-Macia Health Center
Thank You!

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- Communication Oyj
- FD Systems Oy
- Intensium Oy
- Suomalainen läkäriseura Duodecim
- Mawell Oy
- Medici Data Oy
- ProWellness
- eHIT
- GoodIT
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- Commit, CSC Tieteen tietotekniikan keskus
- Datawell
- Fujitsu Services
- Intersystems
- Itella Information
- Logica Suomi
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Thank You!
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More information

http://www.oppi.uef.fi/uku/zipit/
www.oppi.uef.fi/uku/ehp/cn-fi/
http://www.uef.fi/en/solea/etusivu
http://www.uef.fi/fi/act/