

The Role of Ontologies for Sustainable, Semantically Interoperable and Trustworthy EHR Solutions - *Joint Workshop of the EFMI WGs “Electronic Health Records” and “Security,*

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eHealth/pHealth information systems have to meet specific paradigms, in particular: distribution; component orientation; being based on a reference architecture as well as formal concept, context and knowledge representation; offering security and privacy services embedded in the architectural components; following a unified process for analysis, design, implementation and deployment; and many others. In that context, the role of ontologies for domain representations is growing. Meeting clinical and business requirements, the solutions must respond to current challenges as well as offer migration paths and roadmaps to the future.

The workshop aims at a discussion of requirements and solutions for sustainable, semantically interoperable and trustworthy EHR solutions, thereby considering the role of ontologies, related principles and international standards. In this context an overview will be given of the main architectural and paradigmatic streams, existing and emerging specifications, and the most important international and national EHR projects. The presentation and discussion of the different competing approaches as well as national programs is organized as a panel, enabling open consideration of potentially controversial viewpoints.

Barry Smith will answer the question, why ontologies are needed to achieve EHR interoperability. After briefly introducing internationally accepted EHR requirements the state of the art for EHR architectures and related standards, Bernd Blobel will present an architectural framework for semantically interoperable and sustainable EHR solutions. Dipak Kalra will discuss ISO 13606 EHR communication as well as the *openEHR* Foundation's achievements. Both specification sets are based on the ontology of clinical processes expressed as Archetypes, representing the only existing ontology-based EHR standard. Marc Koehn will give an overview on Canada's journey towards an ontology driven EHR, claiming: "Let's walk before we run!" He will explain that this journey is driven given a very particular organizational context and political responses, describing this context and the way to tackle Canada's EHR solution in the first instance and positioning for ontology orientation over time.

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Harmonizing all relevant standards like Canada does, Ken Lunn will highlight the NHS approach, based on UK's unique approach to a national health system. Pekka Ruotsalainen will present the Finnish project "Trusted eHealth and eWelfare Information Space", which considers ontology-based and model-driven methodologies. Stefan Schulz will analyze the role of natural languages in the EHR, thereby focusing on: rationale for using free text in EHR; relation between unstructured text, standardized document formats, ontologies and information models; difficulties of extracting information from free text; importance of new usability paradigms for bridging the gap between textual and structured documentation in the EHR. As trustworthiness is crucial for the acceptance of any eHealth/pHealth solution, Peter Pharow discusses security, privacy and safety requirements in future, personalized care settings. In that context, he will especially emphasize the role of personalized portable devices.

eHealth communication and cooperation cannot be restricted locally, regionally or nationally, but needs to be implemented internationally at a European or even global scale. The harmonization of different solutions, mapping schemes and migration strategies are inevitable. Therefore, the invited experts, and participating scientists and practitioners from the audience, will discuss the pros and cons of the solutions presented, inform about emerging activities with the objective of considering what might be the best practice solutions and migration strategies needed. In the last part of the workshop, experts and participants are challenged with the formulation of candidate strategies and recommendations for fostering international solutions.

The workshop is jointly organized by the EFMI Working Groups "Electronic Health Records" and "Security, Safety and Ethics" and will be moderated by Bernd Blobel.

The announced workshop is part of the MIE 2009 "Medical Informatics in a United and Healthy Europe" (www.mie2009.org), 30 August – 2 September 2009, Sarajevo, Bosnia and Herzegovina.

The workshop has been scheduled at 31 August 2009, 9am – 12 am and 3pm – 6 pm.