Editorial: Knowledge Management within the Health, Pharmaceutical and Clinical Sectors: Towards patient-centric health care systems

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Abstract: In this short editorial we summarise the rationale of the special issue and we provide the basic contribution.

Biographical notes: Miltiadis D. Lytras is an Assistant Professor in the Computer Engineering and Informatics Department-CEID (University of Patras). His research focuses on the semantic web, knowledge management and e-learning, with more than 80 publications in these areas. He has co-edited/co-edits 25 special issues in international journals (like *IEEE Transaction on Knowledge and Data Engineering*, *IEEE Internet Computing*, *IEEE Transactions on Education*, etc.) and has authored/edited 12 books. He is the Founder and Officer of the Semantic Web and Information Systems Special Interest Group in the Association for Information Systems (http://www.sigsemis.org). He serves as the Editor-in-Chief of 14 international journals, and he is an Associate Editor or Editorial Board Member in seven other journals.

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Ambjörn Naeve is the Head of the Knowledge Management Research group at the Royal Institute of Technology in Stockholm and the scientific director of Uppsala Learning Lab at Uppsala University. His research focuses on knowledge management, semantic web, and technology enhanced learning, and he has published and co-edited widely and served on a large number of program committees for international conferences within these fields – including WWW, ECIS, Pragmatic Web, and I-Know.

C. Makropoulos is Research Director of the Division of Applied Technologies of the National Centre for Scientific Research 'Demokritos', in Ag. Paraskevi, Greece. He was Associate Professor at the Technical University of Aachen Germany, Director of the Development Division of the L. Heraeus in Germany, Director of the Hellenic Tellecomunications Organization (OTE). Member of the board of the E.U. High Level Group (Europe and the Global Information Society). Member of the Board of the Greek research Network. His research interests focus on the areas of the interoperability of Heterogeneous networks (Satellite-Terrestrial) Advanced Tele-medicine and e-learning platforms (synchronous-asynchronous) Knowledge management technologies He has more than 60 publications in scientific journals and international conferences.

Vipul Kashyap, PhD is a Senior Medical Informatician in the Clinical Informatics Research & Development group at Partners HealthCare System and is currently the chief architect of a Knowledge Management Platform that enables browsing, retrieval, aggregation, analysis and management of clinical knowledge across the Partners Healthcare System. He received his PhD from the Department of Computer Science at Rutgers University in New Brunswick in the area of metadata and semantics-based knowledge and information management. He is also interested in characterisation of the value proposition of semantic technologies in the enterprise context. Before coming to Partners, He has held positions at MCC, Telcordia (Bellcore) and was a fellow at the National Library of Medicine. He has published two books on the topic of Semantics, 40–50 papers in prestigious conferences and journals; and has participated in panels and presented tutorials on the topic of semantic technologies. He sits on the technical advisory board of an early stage company developing semantics-based products, and represents Partners on the W3C

advisory committee and the HealthCare Information Technology Standards Panel (HITSP).

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1   Introduction

Knowledge Management has reached a significant level of maturity. Nowadays, the critical question is the exploitation of Knowledge Management techniques within specific contexts towards the provision of value-adding services, as well as the cultivation of knowledge-driven social responsibility embedded in policies and large scale initiatives.

The health, clinical and pharmaceutical sectors are characterised by their knowledge intensiveness and justify a form of human semantic computing based on social responsibility.

The requirement to organise and use heterogeneous knowledge artefacts as well as the need to establish and support social networks is critical in order to enable patient-centric health care systems, and they set major challenges for Knowledge Management. Traditional technologies mixed with emerging ones, like ubiquitous/pervasive computing and Semantic Web expand further the value borders of information systems. In fact a new emerging area of semantics, mixed with conceptual modelling capabilities can exploit dynamic information channels in order to support more citizen/patient centric services.

In fact, the evolution of the Semantic Web and its relevant technologies, tools and applications provide a new context for exploitation, where the "expression of meaning" relates directly to numerous open issues within the health, clinical and pharmaceutical sectors.

In this special issue we invited submissions into the following topics:

- Applications of SW and KM technologies for health/clinical and pharmaceutical sectors.

- Semantic Networking for Health, pharmaceutical and clinical Information systems.

- Knowledge Management supported ubiquitous and pervasive applications for health, pharmaceutical and clinical sectors.

- Knowledge Portals/Spaces and Grids for health, pharmaceutical and clinical sectors.

- Knowledge Management for Reference Health Information.

- Knowledge Management for Evidence based Medicine.

- KM for Clinical Decision Support.

- Knowledge Acquisition and Authoring of Clinical Guidelines and Rules.

- Knowledge Maintenance and Versioning of Clinical Knowledge such as Order Sets and Templates, Clinical Documentation Templates, Clinical Rules, Reminders and Alerts, etc.

- Ontology-based Knowledge Management as applied to Clinical Practice.

- Discovery of Knowledge in Clinical Databases as applied to Knowledge Management.

- Meta-information descriptions for the management of clinical information assets and its applications to learning and practical use.

- Learning as a KM process in clinical and general health management.

- Knowledge and Learning Management Applications for life long learning in health sectors.

- Mobile Knowledge Agents for health services.

We exploited a mixed editing strategy of Open Call and Personal Invitations and finally the special issue has 15 excellent papers covering the special issue theme from several views. We are happy for concluding this intellectual process since this special issue is one of the first efforts to analyse the contribution of Knowledge Management and Semantic Web Research to Health, Clinical and Pharmaceutical Domains. For more than 14 months more than 30 researchers, academics and practitioners we put together put enthusiasm and inspiration towards the development of an excellent quality publication.

When such a process is completed then the feelings are mixed. From the one hand we provide to our community up to date, state of the art research willing to influence the thoughts and the ideas in the domain of HealthCare. From this point of view we are really looking forward for your comments and reflection to this edition. All of guest editors and authors would be happy to get part in this community discourse. From the other hand the fast changing conditions and the evolution of the Knowledge management domain make us feel that this edition that just completed is just a new start for a new milestone. We are really looking forward to investigate new aspects of the fascinating convergence of Knowledge Management and Semantic Web in Health, Clinical and Pharmaceutical Domains.

Last but not least. Episteme is not neutral. For us Episteme and Knowledge are human centric terms. In a world were millions of people all around the world are suffering from poverty and health problems, we must contribute with our scientific ideas and applications to a world with better health conditions for all.

We would like to dedicate this special issue to all the people that put their selves in the service of our society in regions of our world were Knowledge Management and Semantic Web just don't matter. With the wish, our modern world to put again the human entity as the unit of analysis we invite you to work together for a new humanistic era in the adoption of emerging technologies.

Acknowledgement