Capturing Social and Clinical Knowledge for Personalised Care

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Abstract. Cognitive technologies promise to have significant societal impact in domains where there is a need to transform multidisciplinary information into actionable services. But, with most of information still unstructured and despite the enormous potential of semantic technologies to empower the world of information management, their impact in the market and society and the extent to which they provide significant advantages to address real-life problems have yet to break through.

From an industry perspective, the abundance of digital information gives an unprecedented opportunity to use data science to improve health and social care delivery. However, healthcare professionals have to quickly cope with large volume of information often scattered among unstructured case notes, health records and knowledge sources to construct a care plan that fully address the needs of the individual.

In this talk, we look at the role of cognitive approaches that combine semantics, natural language processing and learning for patient-centric care. We showcase a Cognive Care Mentor developed as part of the Watson Care Management platform to support care professionals to take better informed decisions by: a) capturing and interpreting information, from unstructured health and social case notes, as well as Linked Data sources, to gain a comprehensive understanding of an individual, and (b) continuously learn from the actual practice of care professionals to suggest potentially missing information and courses of action based on this holistic semantic picture.

We discuss the lessons learned and future directions behind this societal use case that requires harvesting large amounts of data. In particular, the challenges regarding knowledge acquisition, to find and combine meaningful pieces of knowledge from sources with evidence for answers, even without a complete representation of a question, to facilitate intuitive human interaction, in which professionals interact in a natural way with the system and the systems reacts and adapts its knowledge to give better suggestions, and finally domain expert validations.