

Context and Semantics for Knowledge Management

Paul Warren • John Davies • Elena Simperl
Editors

Context and Semantics for Knowledge Management

Technologies for Personal Productivity

 Springer

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Foreword

The Web and information technology have become part of our daily lives and an integral part of work. In a short period of time, the way we access and use information has undergone a fundamental change. This is not only due to the fact that technology has enabled us to create new ways of storage and retrieval, and novel forms of content, but it is also related to the increasing amount of information now generated on a constant basis.

Knowledge and information form part of the biggest assets of enterprises and organizations. However, efficiently managing, maintaining, accessing, and reusing this intangible asset is difficult. The fact that much of corporate knowledge only resides in employees' heads seriously hampers reuse and conservation. This problem is not only evident on an organization-wide scale but also for the individual user: knowing where information can be found and which data is relevant for a certain workflow or context is typically a human-driven task where computers provide only limited computational support. In an age where practically every industry is becoming increasingly information based, the problem of information finding, interpreting, and combining is omnipresent for knowledge workers.

While a human user can interpret and combine information from different sources, integrate data using heterogeneous formats, or extract essential knowledge from distributed chunks of information, a machine cannot easily handle such a complex task. On the other hand, however, the human user is limited in terms of computational speed. Consequently, both capabilities must be combined and knowledge management systems must allow as much automation as possible to support users and make use of human input where needed.

The Semantic Web and semantic technology address these computational challenges and aim to facilitate more intelligent search and smoother data integration. With the recent success of Linked Data the technology has taken a more data-centric and lightweight approach to semantics. Individual pieces of data are often of little value, while the combination and integration of many create a new asset. Still, a human contribution is required in several areas and this contribution can be encouraged by providing incentive mechanisms: either through time saving or other forms of rewards that are made visible to the user. The evolution of the

Web to a Web of people, Web 2.0, brought many examples that demonstrate the power of such motivation mechanisms. This socio-technical combination integrates computational power with human intelligence in order to improve and speed up knowledge work and to create increased knowledge-based value.

The ACTIVE project acknowledged the challenge of today's knowledge workers with a pragmatic approach, integrating semantic technology, the notion of context, the Web 2.0 paradigm, and supporting informal processes. The selection of technologies and the objectives of the project were driven by the fact that enterprises can only partially conserve and reuse their own knowledge. The outcomes of the project are tools and methods that substantially improve the situation for knowledge workers in their daily tasks and increase individual and collaborative productivity. Validated in case studies in large organizations, ACTIVE technology has proven to significantly improve the way users interact with and use information. Common problems of knowledge work could be alleviated by a powerful combination of machine and human intelligence. The results of the project will have an impact on individual and collaborative knowledge worker productivity and on the capture, reuse, sharing, and preservation of knowledge in organizations.

Innsbruck

Prof. Dieter Fensel

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