

Chapter 12

Semantic Interfaces for Personal and Social Knowledge Work

Konstantinos Christidis

National Technical University of Athens, Greece

Niki Papailiou

National Technical University of Athens, Greece

Dimitris Apostolou

University of Pireaus, Greece

Gregoris Mentzas

National Technical University of Athens, Greece

ABSTRACT

A large number of tools has recently emerged supporting information management for individuals in their work context. Semantic technologies play an important role in the development of such tools as they facilitate advanced organization, annotation, navigation, and search capabilities. This study contributes to the design of such tools by outlining how a user-centred design methodology can be applied to develop usable and effective user interfaces. SPONGE, the resulting system, encapsulates core functionalities that are needed for managing personal information and for seamlessly sharing personal information within knowledge networks.

INTRODUCTION

Interest in personal information management first became apparent in the 1980s (Lansdale, 1988) as part of the growing awareness of the potential of the personal computer to enhance human capabilities in processing and managing data. Personal

information management is especially pertinent to ‘knowledge workers’ — people whose work is to a large extent mental rather than purely physical. Personal information management acts as an aide-mémoire to knowledge workers, supplying the right information at the right time. In recent years, the number of ways to keep and manage personal information has increased considerably, in line with the overall increase in the number

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of devices, technologies and applications on which knowledge workers rely. The attendant fragmentation of personal information increases the probability of locking something away in a device, application or format and forgetting that this something was ever seen, heard, or read in the first place (Marshall & Jones, 2006). Additionally, knowledge workers are often out of sync with their personal information resources due to the escalation in web information resources.

Information does not only exist in personal spaces, but is continuously produced and revised in knowledge networks (Heller-Schuh & Kasztler, 2005). Knowledge networks are social networks that are assembled to create, revise and transfer knowledge for the purpose of adding value (Seufert, Von Krogh, & Bach, 1999). Knowledge networks can be both formal (e.g., project teams) and informal (e.g., communities of interest). People involved in such networks may belong to different units in an organization, or even in different organizations, and work in dispersed locations. Knowledge workers handle personal information management tasks on a daily basis, while simultaneously participating in different knowledge networks in the context of their work.

Tools that support information management in knowledge networks include, *inter alia*, community management tools, synchronous and asynchronous communication tools, wikis and social software. Most of these technologies became popular during the rise of the collaborative World Wide Web and have gradually made their way through company firewalls as enterprise collaboration platforms. The information needs of knowledge workers often span both personal and social boundaries. A knowledge worker typically uses a variety of such tools, often switching between different types when moving from one assignment to another.

With the increased availability of data and evolved metadata standards over the years, applications of semantic technologies in organizational information systems have likewise increased

(Linden, 2005). The application of ontologies in organizational information systems facilitates the integration of heterogeneous information items within the organizational memory (Caldwell, 2006; Mika, 2005). Semantic architectures bring together information sources that previously would have proved difficult to capture (Caldwell, 2006). Recently, we have noticed the propagation of semantic technologies in tools supporting information management for individuals in their work context (Caldwell & Linden, 2006; Linden, 2005). Nevertheless, our study shows that semantics-based tools impose an additional layer of information processing that poses challenges to their everyday use by knowledge workers.

In this paper we aim to contribute to the existing knowledge on the design of semantics-based personal and social information management tools. We first discuss related work and our research motivation and objectives. Next, we outline related theories and our research methodology. We then present SPONGE (Social and Personal Ontology-based Gadgets) – a collection of gadgets that aim at the efficient utilization of semantic technologies for supporting personal information management and ad hoc collaboration within knowledge networks. Finally, we analyse the results of the evaluation study, focusing on usability and perceived benefits for knowledge workers, summarize our contributions, derive conclusions and outline areas of further work.

RELATED WORK, MOTIVATION AND OBJECTIVES

To help individuals better manage their personal information, a wide variety of tools have emerged. The concept of metadata has largely influenced the development of these tools, prominent examples of which include GNOME-PIM, Gnowsis, Haystack, IRIS Semantic Desktop, KDE Kontact, MyLife-Bits and Bento. Metadata are used to characterize information; as such, they provide the means to

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