

Chapter XI

Added-Value: Getting People into Semantic Work Environments

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ABSTRACT

In this chapter we will look at users' taking action processes in Semantic Work Environments. We argue that the underlying motivational problem between vast semantic potential and extra personal investment can be considered as a "Semantic Prisoner's Dilemma" that builds on two competing value perspectives: The micro and macroperspective. The former informs a user's decision for action, whereas the latter informs a designer's decision for offering services. An in-depth analysis of the term "Added-Value" reveals its double relativity, which allows a sophisticated evaluation of such services from a microperspective. We use this property of double relativity for suggesting the "Added-Value Analysis" as a design method for getting people into Semantic Work Environments—showcasing its strength with a description of CPOINT and CONNEXIONS.

INTRODUCTION

In 1998, WWW inventor and W3C director Tim Berners-Lee proposed a rather gigantic project now called the "Semantic Web." His road map is based on his understanding of the Semantic Web as "a Web in which machine reasoning will be ubiquitous and devastatingly powerful"

(Berners-Lee, 1998, p. 50) assuming that its data exists in machine-processable documents. Even though he was aware of the fact that "instead of asking machines to understand people's language, it involves asking people to make the extra effort" (Berners-Lee, 1998, p. 50), he was so enamoured by the possibility to manage the Web's data, see also Berners-Lee and Fischetti (1999),

Berners-Lee, Hendler, and Lassila (2001), that he neglected the cost-benefits ratio involved for its users. Although the grand idea of a Semantic Web is well-established by now, it has not come into real life yet. To save the idea on a smaller scale and lighten the burden involved, Semantic Work Environments (SWE) have been proposed, but face similar difficulties to motivate users into (voluntary) action. This is because formalizing or explicating semantics per se is unnecessary for humans with their complex interpretation capability. If they do, they do it for a machine to understand them in the long run: is that worth the effort? Note that this is a problem inherent to semantic technology, not to collaborative or social technology like “Wikipedia.”

We argue that the underlying motivational problem between vast semantic potential and extra personal investment can be analyzed in terms of the well-known nonzero-sum game “Prisoner’s Dilemma.” This “Semantic Prisoner’s Dilemma” consists in two competing perspectives on taking action: The *micro*- and the *macroperspective*. The latter is a view from without, having the overview of the value landscape, whereas former is a view from within, where not all value information is available. As only the user can take action, the user’s microperspective is decisive for getting her into an SWE.

In contrast, an SWE design standpoint tentatively takes the macroperspective and expects users to go for the global optimum in the value landscape. We will show why a rational user can only go for the local optimum. In order to tip the scale of taking-action towards getting people into SWEs, we propose to change the values in the decision landscape, so that from a microperspective the local gains for the decision with the global optimum increase above the critical threshold for acting. In particular, if we enrich an SWE by elaborate, semantic services for the user’s concrete situation, then it is more probable that the scale tips in the desired direction.

But how to design such elaborate, semantic services? We suggest the “Added-Value Analysis” (AVA) as a design method. We will explicate the double relativity of the term “Added-Value,” which allows us to take various microperspectives into account in the design process. Even though the AVA process may feel familiar—and then “just” presents an explication of formerly implicit design processes, it lifts these good practices to a conceptual reflective level. For instance, the awareness about easy-to-fall-for catches (even for professional designers) allows to systematically avoid their consequences. Moreover, by its formalization, such a practice can be replicated by newcomers as well as all people involved in a software design process. Since the concept of “Added-Value” is often misinterpreted, we will elaborate on its history and usage, particularly because “the way in which Added-Value is defined effectively determines its role” (de Chernatony, Henry, & Riley, 2000, p. 43). We illustrate the technique by applying it to the SWEs CPOINT and CONNEXIONS. Both are based on strong semantic representation formats for course materials, which make them comparable but complementary in their semantic services.

CPOINT (Kohlhase, 2005b; Kohlhase, 2005a; Kohlhase & Kohlhase, 2004) is largely a personal SWE for managing and flexibly delivering large collections of MS PowerPoint (PPT) presentations. It is an open-source Semantic Work Environment from within PPT that facilitates semantic classification and annotation of PPT objects like images or text boxes. CPOINT was implemented by one of the authors within the Course-Capsules project at Carnegie-Mellon-University, Pittsburgh, PA. The system can convert semantically annotated PPT documents into the OMDOC format (Kohlhase, 2006).

In contrast, CONNEXIONS (Baraniuk et al., 2002; CNX, 2006) is a community-centered, Web-based content management system for advanced scholarly materials. These “scholarly

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