Chapter XIII

Requirements Engineering for Value Webs

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Abstract

Value webs are cooperating, networked enterprises and end-consumers that create, distribute, and consume things of economic value. The task of creating, designing, and analyzing such webs is a prototypical example of a multi-disciplinary task. Business-oriented stakeholders are involved because the way an enterprise creates economic value is discussed. But also representatives responsible for business processes (many innovative value webs require changes in processes) and inter-organizational information systems (enabling value webs from a technical point of view) play a key role, as well as end-consumers. To facilitate exploration and analysis of such value webs, we propose an approach called e³value that utilizes terminology from business sciences, marketing, and axiology but is founded on methodology seen in requirements engineering such as semi-formal, lightweight graphical conceptual modeling, multiple viewpoints, and scenario techniques. We have developed and tested this methodology in a series of e-business consultancy projects. In this chapter we will present lessons learned in developing value webs, which stem from our consultancy experience. Then we present the e³value methodology, with a focus on modeling and understanding what parties offer each other of economic value. Analysing value webs from such an economic value perspective is the main contribution of our approach; business science approaches contain the right terminology but are far too sloppy to be usable in practice, whereas requirements engineering and conceptual modeling approaches are sufficiently rigorous but do not provide adequate terminology. For educational purposes, we illustrate the methodology with an easy-to-understand, inline example. Finally we discuss related approaches and conclusions.
Introduction

Over the past few years many innovative e-business ideas have been considered. Innovative ideas are characterized by one or more new economic value propositions yet unknown to the market. A value proposition is something offered by a party for consideration or acceptance by another party.

In the recent past, industry clearly showed that is not easy to understand and analyze such e-business ideas (Shama, 2001). Many initiatives have been falling apart. One of the problems with e-business development is that so many stakeholders from different backgrounds (CxO, business development, ICT) representing different enterprises are involved, not understanding each other too well and having different and sometimes conflicting concerns.

To enhance a shared understanding of the e-business idea at stake, requirements engineering (RE) and, more specifically, conceptual modeling (CM) approaches can be of use. Such approaches offer support in defining aspects of a world (in our case e-business ideas) around us with the aim to understand and to analyze it. Although RE/CM is strongly developed in the realm of information systems, there is to our knowledge no such approach focusing on exploration of an e-business idea.

In this chapter we combine a RE/CM way of working, with a business science terminology to understand a network of enterprises creating, exchanging, and consuming objects of economic value — in short a model representing an e-business idea. Our methodology is called e-value, reflecting that it is important to understand an e-business idea from an economic value perspective before thinking over business process and information systems consequences.

This chapter is structured as follows. The next section introduces e-business development and the role RE/CM plays in more detail. Then we present the description techniques offered by the e-value methodology, and thereafter we provide guidelines for how to make these descriptions. Additionally these sections contain an educational case study (for real-life projects, see Gordijn & Akkermans (2003)). A series of other, sometimes ontological-founded approaches are discussed. Finally we present our conclusions.

A RE-Approach for Value Webs

Over the past few years we have learned a number of lessons while doing a series of projects on innovative e-business case development in the realm of banking, insurance, telecom, Internet service provisioning, news, music, and electricity supply and distribution (Gordijn & Akkermans 2003). The most important lesson is that in such projects, initially exploring a business model from an economic value perspective is crucial. A business model explains why an e-business idea is potentially profitable for the enterprises involved. Because we assume the business model under consideration is innovative and thus hardly known, such a model initially can only be articulated vaguely, resulting in misunderstandings between participating enterprises. Additionally a vaguely