What's in an Electronic Business Model?

Jaap Gordijn[1 2], Hans Akkermans[1 3], and Hans Van Vliet[1]

[1] Free University Amsterdam
Vuture.net — Amsterdam Centre for Electronic Business Research
De Boelelaan 1081a, NL-1081 LV Amsterdam, The Netherlands
{gordijn,HansAkkermans,hans}@cs.vu.nl

[2] Deloitte & Touche Bakkenist Management Consultants
Wisselwerking 46 NL-1112 XR Diemen, The Netherlands

[3] AKMC Knowledge Management BV
Klareweid 19, NL-1831 BV, Koedijk, The Netherlands

Abstract. An electronic business model is an important baseline for the development of e-commerce system applications. Essentially, it provides the design rationale for e-commerce systems from the business point of view. However, how an e-business model must be defined and specified is a largely open issue. Business decision makers tend to use the notion in a highly informal way, and usually there is a big gap between the business view and that of IT developers. Nevertheless, we show that conceptual modelling techniques from IT provide very useful tools for precisely pinning down what e-business models actually are, as well as for their structured specification. We therefore present a (lightweight) ontology of what should be in an e-business model. The key idea we propose and develop is that an e-business model ontology centers around the core concept of *value*, and expresses how value is created, interpreted and exchanged within a multi-party stakeholder network. Our e-business model ontology is part of a wider methodology for e-business modelling, called $e^3 - value$, that is currently under development. It is based on a variety of industrial applications we are involved in, and it is illustrated by discussing a free Internet access service as an example.

1 Introduction

The design of an electronic commerce application is in our view *not* primarily an IT-oriented activity. Rather, it consists of very different types of design problems [10]. The most important of these is the design of the *e-business model* which highlights the way of doing business. A business model should do so in a very precise way, because stakeholders such as chief executive officers, marketers, and business developers should agree on it, and because it is a crucial bottomline part of the requirements for an electronic commerce system. For example, how do we develop the IT infrastructure and application system for a free Internet service? This cannot be really done without knowing what the underlying business model for the service is in the first place.

Therefore, we propose an *ontology* [3,6] to define from a generic point of view what should be in an e-business model. The key idea we propose and develop in this paper is that an e-business model ontology centers around the core concept of *value*,

R. Dieng and O. Corby (Eds.): EKAW 2000, LNAI 1937, pp. 257–273, 2000.

and expresses how value is created, interpreted and exchanged within a multi-party stakeholder network of (extended) enterprises and customers. It is exactly this notion of value which is currently lacking in information modelling and analysis approaches, including various business-oriented ontologies that have been developed recently.

The present work is part of a broader methodology for e-business development, called *e*^{3}*-value*, we are currently developing [10]. It reflects and structures the strategic business decisions that need to be made at the executive level on the e-business model and on business-IT alignment, before one can proceed to the technical design of an electronic commerce system. In Sec. 2, we discuss the need for an e-business model ontology. Sec. 3 describes our e-business model ontology, and we illustrate it by a case study. In Sec. 4 we discuss related work, and we briefly summarize the practical use of the ontology in consultancy and application projects.

2 The Need for a Business Model Ontology

Normally, the design of an electronic commerce system starts with the development of a business model. In most cases, such a business model is written down in natural language, perhaps with some informal sketches. The concepts and their interpretations used to describe a business model vary across different stakeholders, and this leads to important obstacles to achieve business-IT alignment in e-commerce applications. Given the enabling role of IT in electronic commerce, this alignment problem is no longer just an engineering issue: it has a strategic significance.

During the design of a business model, an ontology is therefore useful to prescribe which concepts and relations have to be present in a business model. An ontology should provide a reusable conceptualisation, in this case of the concept of *e-business model*, on which people can agree. By specializing and instantiating concepts and relations of the ontology for a particular case, the ontology can also be used to describe a particular business model in a precise and structured way. In the present context, we are mainly interested in ways to enhance communication between various stakeholders, that is, in shared meaning rather than automated reasoning. Thus, our current goal is to construct a so-called ‘lightweight’ ontology [16].

Furthermore, a business model ontology shows designers what kind of decisions should be taken during business model development. If stakeholders agree on a particular business model, a number of business decisions have been taken, so that the model serves as a precise set of business requirements for the electronic commerce information system. These requirements are useful for software architects who design the electronic commerce system from a technical point of view.

An ontology for e-business models must be capable of representing a range of business issues. These issues center, and this is our key proposal, around the generic concept of *value*, and how to create and exchange it in a network setting. Value is a central notion emerging from the scientific economic and business literature on e-business. Our practical experience in application projects also shows it to be a natural and useful concept for executives to focus on.

Informally, a business model highlights a network of actors and how they create or consume objects of value. These actors can be private persons, companies or enterprise