Resource Analysis and Classification for Purpose Driven Value Model Design

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ABSTRACT

Business and IT systems are today facing an ever more complex environment characterised by openness, variety, and change. In order to cope with this environmental complexity, organisations need effective instruments for managing their knowledge. Essential among these instruments are enterprise models, i.e. computational representations of the structure, processes, information, resources, and goals of organisations. When using enterprise modeling for analysing and designing business scenarios and networks, the reasoning should not start from business processes and activities but from notions at a higher level of abstraction. This can be done by focusing on the business motivation behind processes and expressing it in value models, i.e. models focusing on high level and business oriented objects like resources, actors, resource conversions, and resource exchanges. The declarative orientation of value models make them attractive for a number of different purposes, including profitability analysis, marketing analysis, process design, and service analysis. As value models can be used for many different purposes, there is a risk that they will become overloaded, complex, and difficult to understand. Therefore, when designing a value model, its purpose should be explicitly stated in order to focus the analysis. The goal of this article is to show how the purpose of a value model should influence its design. The approach builds on an analysis and classification of resources, resource conversions, and resource exchanges.

Keywords: Business Modelling, E3value, Enterprise Modelling, Rea, Service Design, Value Modelling

INTRODUCTION

Today’s business and IT systems are facing an ever more complex environment characterised by openness, variety, and change. Organisations are becoming less self-sufficient and increasingly dependent on business partners and other actors. In order to cope with tasks they cannot handle alone, organisations need to collaborate with others in ever changing constellations. Analogously, IT systems are becoming less monolithic and isolated, which puts increased demands on their ability to communicate with each other. Organisations are also experienc-
ing ever more variety in their business, in all conceivable dimensions. Products are becoming more diverse and adaptable. Customers are requiring individualised care as evidenced by notions like one-to-one marketing and personalised customisation. The different competencies required by the workforce are multiplying. Furthermore, organisations need to manage an environment that is constantly changing and where lead times, product life cycles, and partner relationships are shortening.

In order to cope with increasingly complex business and IT environments, organisations need effective instruments for managing their knowledge about these environments. Essential among these instruments are enterprise models, i.e. computational representations of the structure, processes, information, resources, and goals of organisations. There is an increased recognition that when creating models of new business scenarios and processes or redefining old ones, the analysis should not start from business processes and activities but from notions at a higher level of abstraction. This abstraction can be achieved in different ways, e.g. by focusing on the essential communicative acts (Dietz, 2003) rather than specific message exchanges, or by investigating commitments and obligations (McCarthy, 1982) rather than the way these are fulfilled, or by focusing on the business motivation behind a process. Models on this level of abstraction are known as business models or value models.

Value models have a special characteristic in that they are formulated declaratively with little or no concern for the order of activities taking place or other forms of activity dependencies. A value model focuses on high level and business oriented objects like resources, actors, and resource exchanges. In contrast, a process model may include procedural and technical details including messages and activities as well as control and data flow. The declarative orientation of value models make them attractive for a number of different purposes, including the following ones:

- **Profitability analysis:** A value model can be used for determining the financial profits gained by actors participating in a value network, thereby ensuring the sustainability of the network. The profitability analysis is based on the volumes and monetary values of the resource exchanges in the network. Value and business modeling for profitability analysis has been addressed by many authors, e.g. (Gordijn, 2003; Osterwalder, 2002; Geerts, 1999).

- **Marketing analysis:** A value model can be used for representing and reasoning about the customer needs and wants that are addressed by the resource exchanges of the value network. A marketing analysis is carried out in order to ensure that an actor offers products and services that are attractive for customers. Reasoning about satisfying customer needs using value modeling is discussed in (Kinderen, 2006; Johannesson, 2008; Kinderen, 2009).

- **Business process analysis and design:** A value model can be a starting point for designing business processes. The resource exchanges of the value model will form a basis for identifying the business processes required for realising a value network. Work on value models for business process analysis and design has addressed how process models can be partially derived from value models and how process models can be ensured to conform to business models (Andersson, 2005; Wieringa, 2005; Wieringa, 2008).

- **Service analysis:** A value model can be used for analysing the role and function of services, i.e. how services are executed, what capabilities are required for this, and what benefits are produced and for whom. A service analysis can support the design of innovative services that are aligned with the needs and requirements of all actors participating in a service execution. Work on value modeling for service analysis has addressed issues like
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