Chapter IV

Process Model for an Empirically Grounded Reference Model Construction

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Abstract

This chapter stresses the importance of integrating empirical evidence in the construction process of reference models. With reference to the authors’ underlying epistemological beliefs, requirements for an empirically grounded process model are derived. Based on a literature review of existing process models and experience gained from three research projects, an advanced process model is proposed in order to provide concrete instructions that show how these requirements can be met. Real-life examples from completed and ongoing research projects are continuously integrated so as to contribute to the practicability of the proposed model for the reader.
Introduction

In recent years, reference modeling has gained increasing relevance in information systems research and information systems development. The benefit of reference modeling is documented by a growing number of researchers working in this area and the large number of reference models that are available (Fettke & Loos, 2004a, pp. 17, 30). At the same time, a differentiation of reference modeling techniques can be observed, which explains the wide spectrum of recommendations and tools available for reference modeling (cf., for example, Rosemann & Schütte, 1999; Becker et al., 2001; Becker et al., 2002). According to Schütte (1998, p. 69), a reference information model is defined as a construction created by a modeler who declares universal elements and relationships of a system as a recommendation so that a center of reference is created. In this context, reference models are used for the design of information systems, and are typically documented using semi-formal or formal languages.

To a large extent, however, the analysis of the hitherto developed reference modeling techniques and methods shows a disregard for empirical inquiries as the basis for reference modeling. The authors of the well-established process models for reference modeling indeed refer to the necessity to integrate potential reference model users and domain experts into the construction process. The question of how this integration can be brought about, however, is typically left unanswered (Fettke & Loos, 2004a, p. 20).

Moreover, the construction process is normally not documented in reference modeling projects. It does not become clear how the modeler arrives at his or her models. Very often, the empirical evidence for the reference model construction is not properly recorded. This lack of documentation and empirical evidence makes it difficult to validate the research results. Furthermore, the discourse on the research results and the incremental refinement and improvement of reference models is unnecessarily complicated (e.g., Scheer, 1995; Becker & Schütte, 1996; Schlagheck, 2000).

This chapter therefore proposes a process model for empirically grounded and validatable reference model construction and documentation. This process model is derived from existing research results and has already been validated in three reference model construction projects. It contains instructions on how potential model users and domain experts can be involved in the construction process and how the construction results can be documented so that a high degree of intelligibility and validatability can be achieved. Moreover, it contains recommendations on how to set up advanced empirical research designs (e.g., with regard to the necessary number of domain experts involved and the planning and conducting of interviews).

The use of this process model (and process models for the construction of reference information models in general) has several benefits: First and foremost, it reduces the effort and costs required to develop a proprietary research process and research design, respectively. Furthermore, the user of a process model can profit from the experience of those who have developed it. This leads to higher research quality and reduced risk of project failure. Of course, a structured and well-elaborated research process also facilitates comprehensible and reproducible research results.

The chapter is structured as follows: In the first section, the state of the research on reference modeling is analyzed with respect to process models that comprise recommendations for the
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