

# Chapter I

## Reference Model Management

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### ABSTRACT

Reference modeling is located in a field of conflict between research and practice. Despite the array of theoretical concepts, there is still a deficit in knowledge about the use and problems inherent in the implementation of reference models. Accordingly, in the past years the supply-sided development of reference models predominant in the science world has distanced itself from their demand-sided use in business and administration. This contribution will analyze the causes of these problems and present a solution in the form of an integrative approach to computer-supported management of reference models. The task to be carried out with this solution approach will be concretized using data structures and a system architecture and then prototypically implemented in the form of a reference model management system.

### INTRODUCTION

#### Business Process Modeling and Reference Modeling

The central idea in reference modeling is the re-utilization of the business knowledge contained in reference models for the construction of specific information models (Hars, 1994; Scheer, 1994b; Schütte, 1998; vom Brocke, 2003; Becker & Schütte, 2004; Fettke & Loos, 2004; Thomas, 2006a). Reference models provide companies with an initial solution for the design of organization and application systems. The possibility of orienting oneself with the specialized content in a reference model can, on the one hand, decisively save time and costs for the model user and, on the other, can increase a model's quality because reference models present general recommendations for the subject area under analysis.

Towards the end of the 1990s, a certain "reference modeling euphoria" could be detected which could be attributed to the strong influence of process-oriented paradigms, such as business

process reengineering (Hammer & Champy, 1993) or continuous process improvement (Robson, 1991). However, while process consulting and, especially, software tools for business process modeling established themselves as a separate market segment (Gartner Inc., 1996), a development in the opposite direction can be observed for reference modeling—despite the often mentioned close connection to business process modeling.

Today, the systematic development of reference models is seldom seen in practice. Reference models are rarely oriented towards customer segments or enterprise processes. The potential for improvements which result from the enterprise-specific adaptation of reference models is usually not consequently integrated into them. Modeling tool providers are discontinuing modeling projects due to restrictions in time, personnel and finances. Few reference models exist on the basis of a modeling method which offers comprehensive support for model adaptation—the few exceptions here are the reference models from some providers of ERP systems.

Reference modeling as a field of research in the information systems discipline finds itself conflicted between theory and practice. This field of conflict is characterized by the fact that the theoretic foundation of reference modeling propagated by researchers is rarely consistent with the pragmatic simplicity of reference models and the manageability of their enterprise-specific adaptation called for in business practice. This discrepancy can, for the most part, be ascribed to the problems discussed below.

## **PROBLEMS IN REFERENCE MODELING**

### **Research Diversity**

The number of scientific contributions on the topic of reference modeling has multiplied in the last few years. From the contextual perspec-

tive, works come to the fore which support the development of reference models for branches of trade not considered up to now, such as public administration, health care systems or credit and insurance business (Fettke & Loos, 2003). Today's literature also provides a multitude of different suggestions from the methodological perspective for the construction and usage of reference models. The number of modeling methods and techniques applied with the corresponding approaches is so diverse, that even their classification has become a subject of reference modeling research (Fettke & Loos, 2002b). Up to now, few recommendations for the case-specific selection of classes of methods or individual techniques of reutilization have been made. The question also remains open, as to whether the technologies examined can be integrated into construction processes. The fact that most of the examined technologies are geared to a certain modeling language (Fettke, et al., 2002b, pp. 18 ff.) should at least make an integrated usage difficult. Reference model developers and users are therefore hardly in the position of deciding which of the methods, techniques and languages suggested in literature are adequate for their use cases. In this connection, it becomes clear why so few “unique” languages in reference modeling (e.g., Lang, 1997; vom Brocke, 2003) or reference modeling-specific extensions of established languages in information modeling (e.g., Remme, 1997; Schütte, 1998; Schwegmann, 1999; Becker, Delfmann, Knackstedt, & Kuropka, 2002) have so far not found great acceptance in practice.

### **Findings Deficit**

There is a considerable degree of unanimity in literature regarding the application possibilities of reference models. Nevertheless, few empirical studies on the topic of “reference modeling” are documented. The only German-language empirical study on the creation and usage of reference models was carried out in the spring of 1997 at the University of Muenster (Schütte, 1998, pp. 75 ff.).

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