

Graphical Entity Relationship Models: Towards a More User Understandable Representation of Data

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Abstract. The Entity Relationship Model was originally proposed as a way of representing user requirements in a way that non-technical users could understand. However anecdotal evidence and empirical studies both indicate that users have major difficulties understanding Entity Relationship models in practice. This paper proposes a number of modifications to the Entity Relationship Model to make it more understandable to business users. These include the use of an enhanced graphical representation, levels of abstraction and the use of business scenarios. This method has been used successfully in a wide range of organisational contexts, and has been particularly successful at the corporate level, where understandability of models has been found to be a major barrier to their acceptance and use. In addition, an automated tool has been developed to support the technique, which allows users to interact directly with the model and understand how it works through the use of animation.

1. INTRODUCTION

The Entity Relationship Model: A User Oriented Representation of Data?

The Entity Relationship Model was originally proposed as a way of defining information requirements in a business-oriented rather than a technical way (Chen, 1976). By defining user requirements in terms of real world concepts such as objects, people, events and the relationships between them, it was believed that it would provide a common language between business specialists and technical specialists (ISO, 1987; Kent, 1986; Date, 1986). This would enable users to directly participate in the development of models and verify their correctness.

A major advantage of the Entity Relationship model compared to other representational techniques is its graphical form (Feldman and Miller, 1986). Diagrams have significant advantages over textual specifications for the purposes of communication. They are also more effective for communicating with users because they put information in a form which is more palatable for non-technical people (Page-Jones, 1980).

According to the literature, the Entity Relationship Model is:

- Simple and easily understood by non-specialists (Konsynski, 1979);
- Highly intuitive and provides a very natural way of representing a user's information requirements (Brodie et al, 1984);
- Suitable for computer-naïve end-users (Berman, 1986).