



Chapter 6

What's in a Name? Exploring the Metaphysical Implications of Data Warehousing in Concept and Practice

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Data warehousing is an information technology (IT) innovation based on an evocative metaphor for physical materials management. This metaphor has implications not only for the design of corporate-wide databases but also for the meaning and utility of data used in business analysis and for relationships between IS staff and end-users. While acknowledging that data warehousing offers many benefits, this paper argues that the data warehousing approach has been applied without critical reflection on the cognitive mappings implied by the underlying metaphor and that possible consequences of its use as a guide for organizing IT practices have not been fully explored. The paper examines the metaphorical implications of data warehousing in concept and presents findings of an empirical study of a data warehousing project that illustrated limitations of metaphor in practice. Drawn from these conceptual and empirical analyses, a critique of the metaphor highlights inherent limitations in the data warehousing concept for conceptualizing key aspects of the organizational data management problem. Implications for theory and practice are considered.

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INTRODUCTION AND MOTIVATION

Data warehousing is a label used to describe the application of information technologies such as multidimensional and relational data bases and online analytic processing software for cross-organizational business analysis. Design concepts for data warehousing and experiential reports on their use have received considerable attention in the business press (Sakaguchi and Frolick 1997). Data warehousing has in recent years become the subject of academic research, where research has focused primarily on technical design and development issues. Yet this information technology (IT) innovation is based on an evocative metaphor that has implications not only for the design of corporate-wide databases, but also for the meaning and utility of data used in business analysis and the relationships between IS staff and end-users involved in these endeavors. These implications have not been fully explicated and debated. As more companies commit to a data warehousing strategy, it becomes increasingly important to consider the social and organizational aspects of data warehousing. This paper begins such a discussion by first outlining the role of metaphor in conceptualizing IT innovations and then by examining the data warehousing metaphor in concept. Consequences for practice are illustrated with findings of a field study of a data warehousing project. Limitations of the warehousing metaphor as a guide for organizing IT support of business analysis are then considered, alternative metaphors explored, and the implications of this analysis for theory and practice discussed.

THE ROLE OF METAPHOR IN CONCEPTUALIZING IT INNOVATIONS

Metaphor is a central mechanism that enables human beings to comprehend abstract concepts and reason abstractly (Lakoff and Johnson, 1980). Contemporary cognitive linguistics theory views the phenomenon of metaphor primarily as generalized, conceptual mappings between a source domain and target domain and secondly, as individual linguistic expressions that reflect these mappings (Lakoff, 1993). In a metaphor, conventional mental images conveyed by an idiomatic expression are mapped to a new domain through a pattern of ontological correspondences across the domains. Systems of metaphors, arising from root metaphors, become implicit in the vocabulary and language used to communicate thoughts and interpret events (Ortony, 1979). For example, the metaphor *love is a journey* maps cognitive

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