



Whitemarsh  
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## Metabase: Data Modeler Architecture & Concept of Operations

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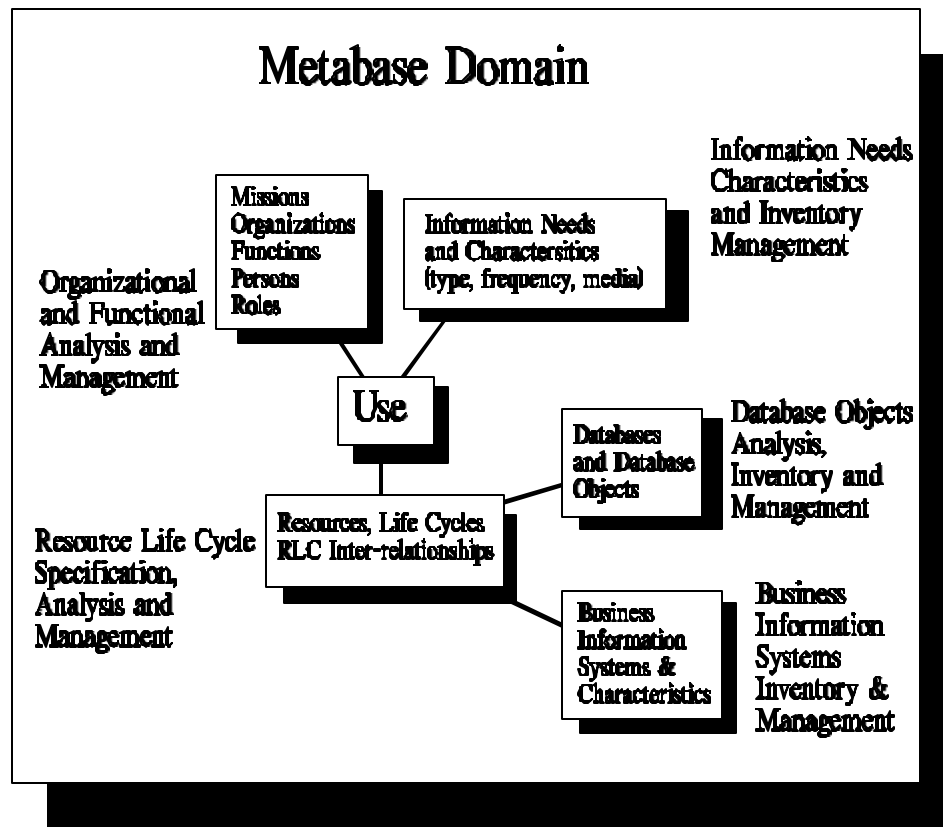
# Whitemarsh Metabase: Data Modeler Architecture & Concept of Operations

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## Forward

This paper introduces the architecture and concept of operations basis for the Whitemarsh Metabase module: Data Modeler. The majority of this document forms Section 3, Database Design, of the Data Modeler user guide.

The data modeler module “lives” within the Database and Database Objects component of the Metabase Domain diagram below. As seen through this diagram, as persons through their role within an organization perform functions in the accomplishment of enterprise missions, they have information needs. These information needs reflect the state of certain enterprise resources such as finance, people, and products that are known to the enterprises. The states are created through business information systems and databases. Databases in turn are known to the enterprise through database objects and data models. This paper is all about the architecture of the data models within and among databases and database objects.



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## 1.0 Why Data Standardization Is Important

From the information technology perspective, it is commonly felt that data standardization affects only information technology. That cannot be farther from the truth. While certainly data standardization affects data element definitions and their specifications that are included in a myriad of data files, data models, databases<sup>1</sup>, and information systems, the domain of data standardization is much pervasive. Because data standardization is so pervasive, the lack of data standardization is very expensive.

A large United States Department of Defense Agency has determined that its Information Technology organizations are spending about \$175 Million per year--every year--to overcome its lack of data standardization. These expenses are for the redundant and conflicting data definitions, the redundant and conflicting data stores and databases, and then all the information systems specifications, implementations, and maintenance efforts required to transform, retransform, etc., all the data. When this sum is extrapolated to the United States Government, the cost is about \$3 Billion per year. Extrapolated to the United States economy, the cost is about \$12 Billion per year.

Situated within the context of the Knowledge Worker Framework<sup>2</sup>, attention to data standardization starts on a high row and its effects spread across all columns. Figure 1 presents the Knowledge Worker Framework and the cells directly affected by data standardization are shaded.

## 1.1 Areas of Data Standardization

Data exists within various databases in a variety of formats and under a variety of names. Because there are seldom enterprise-wide standards that control these formats and names, the same business data is often represented differently: hence conflicting semantics.

The six distinct submodules within the Whitemarsh metabase data modeler module broadly accomplish:

- ! Data Semantics Classifications
- ! Data elements
- ! Specified data models
- ! Implemented data models

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<sup>1</sup> In this paper and in all Whitemarsh materials, database means database. That is, a well organization collection of data that may be defined through and controlled by a database management system (DBMS). When the term database is used it means database. When DBMS is used it means database management system.

<sup>2</sup> The book, Knowledge Worker Framework (significantly different from the Zachman Framework), can be downloaded from the website, [www.wiscorp.com](http://www.wiscorp.com).



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- ! Operational data models
- ! Application interface data models

