Conceptual Data Modeling Process

1. INTRODUCTION

Once the business data vocabulary is complete, the process of documenting the conceptual data model begins.

To provide a framework of organizing the business metadata, we will attempt to create a conceptual data model (CDM). The conceptual data model as described by Chen uses only the business vocabulary data structures and not the business vocabulary data structure components. The problem of identifying which business vocabulary data structures are the entities in the conceptual data model is described by Kent. This problem is does not have an algorithmic solution and acceptable solutions rely on experience and judgement.

2. PROCESS

There is a five-step process for documenting the Enterprise Conceptual Data Model.

2.1 Step 1 – Revise the CDM Diagram

- get the generalized Conceptual Data Model Diagram
- relabel the entities to conform with the business's usage of the entity concepts
- get signoff on the revised enterprise conceptual data model

- **Step 2 – Document the conceptual entities,**
  - For each conceptual entity, document the entity definition
    - o Conceptual entity name
    - o Entity type – operational, journal or organizational
    - o Description –it is a requirement of the database is that an entity have only one meaning
  - Get signoff on the documented entities

2.2 Step 3 – Link an Entity to a Business Data Structure

- For each conceptual entity, map the business data structure that is the closest definition and record that Business Data Structure Name

2.3 Step 4 – Document the CDM relationships

- For each relationship in the CDM, document
  - o the master entity name
  - o the measurement entity name
  - o the sequence number of the master data relationship
  - o the type of relationship
  - o the description

2.4 Step 5 – Document the Entity Components

- For each conceptual entity, identify its components and document. An entity component is not an attribute in the logical data model or column in the database. For example, for the entity Customer, a component might be Customer Contact Person which is a complex data structure that can have many occurrences within Customer.
  - o component name
  - o sequence number
  - o description
  - o component purpose – classification, relationship, or description
  - o cardinality type – taxonomy or profile; reflexive or other; time dependent or time independent
  - o occurrence – single occurrence or multiple occurrences

3. DELIVERABLES

At this point, the conceptual data model documentation process is complete.

The deliverables required to close out the conceptual data modeling process are:

1. Conceptual Data Model Diagram – the diagram that shows the relationships between the entities in the model.
2. Conceptual Data Model Document – the list of all the entities of the model, their definitions, their synonyms, their subtypes and their components.

The other deliverable required at the enterprise level of the development framework is the Enterprise Bus Matrix. The Bus Matrix documents the relationships between the data entities, the applications used for business processing and the business organization chart. The Bus Matrix is a cooperative endeavor between data modeling, application development and the business' Executive Management.

4. REFERENCES

Conceptual Data Model – Enterprise Conceptual Data Model

Conceptual Data Model Diagram – Conceptual Data Model Diagram

Conceptual Data Model Document – Conceptual Data Model Document

Enterprise Bus Matrix Diagram – Enterprise Bus Matrix Diagram