

Whitemarsh
Information Systems Corporation

Whitemarsh Metabase Information Needs Analysis Users Guide

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1 Introduction

The purpose of the database application, Information Needs Analysis is to answer the questions:

- Who needs what and in which organizational context
- What function purpose does the information serve
- What resource life cycle node does the information pertain to
- What are the critical characteristics of the information
- Through which databases and information needs is this information provided

The information needs analysis permits recording of the characteristics of the information needs of the enterprise. Each information need can be described and the various characteristics and characteristic types can be allocated to each information need. Once information needs are characterized they can be allocated to the various mission-organization-functions and then ranked. This permits enterprises to know the characteristics of what information is needed by whom within the different organizations in the performance enterprise missions.

Information needs analysis is essential for comprehensive database design. It is the necessary first step before beginning good database domain specification and Entity Relationship diagram building. The Whitemarsh methodology employs information needs analysis at a high level during Phase 1, Preliminary Analysis, and also in Phase 2, Conceptual Specification.

Presumed Knowledge

This user guide, and all the other metabase user guides presume that the reader has read and is completely familiar with the following documents: Metabase Common Processes, and Metabase Bill of Materials and Single File Recursion (BOM/SFR Guide). These two documents serve as metabase teaching guides for processes that commonly occur throughout the metabase system.

F7 invokes automatic spell checking on all text fields like names and descriptions.

Metabase Example

The metabase example, Movies, is a complete example of a business which is available from the Whitemarsh website. The Movies Rental Corporation was modeled after the largest movies rental corporation in the United States. As such, the example has national, regional, and retail outlets. There are two data models, one for an original data capture, store based system, and another which is a data warehouse for rented movies.

2 Software Installation

Metabase installation is explained in the Metabase Administrators Guide.



3 Database Design

The database consists of 7 different tables in this database application. The tables are:

- Information Need
- Information Need Type
- Characteristic Type
- Characteristic
- Information Need Characteristic Assignment
- Ranking
- Mission Organization Functional Ranked Information Need

There are five additional entities in the database. These are:

- Organization
- Mission
- Function
- Mission Organization
- Mission Organization Function

These entities are shaded because they are read-only within this module. They are created/updated in the Mission_Organization_Function_Person metabase module.

Figure 1 presents the overall data model.

The design permits the creation of one or more information needs. These needs are grouped by type, and then are allocated one or more characteristics. Information need characteristics are also grouped by type.

Once the information needs are identified and classified, they can be allocated to one or more Mission Organization Functions. That implies that the function that is performed within an organization in support of a mission has need of the assigned information. Hence the name, information need.

Since not all information needs are of equal rank, the INA software enables the analyst to rank the assigned information needs according to a pre-determined ranking.

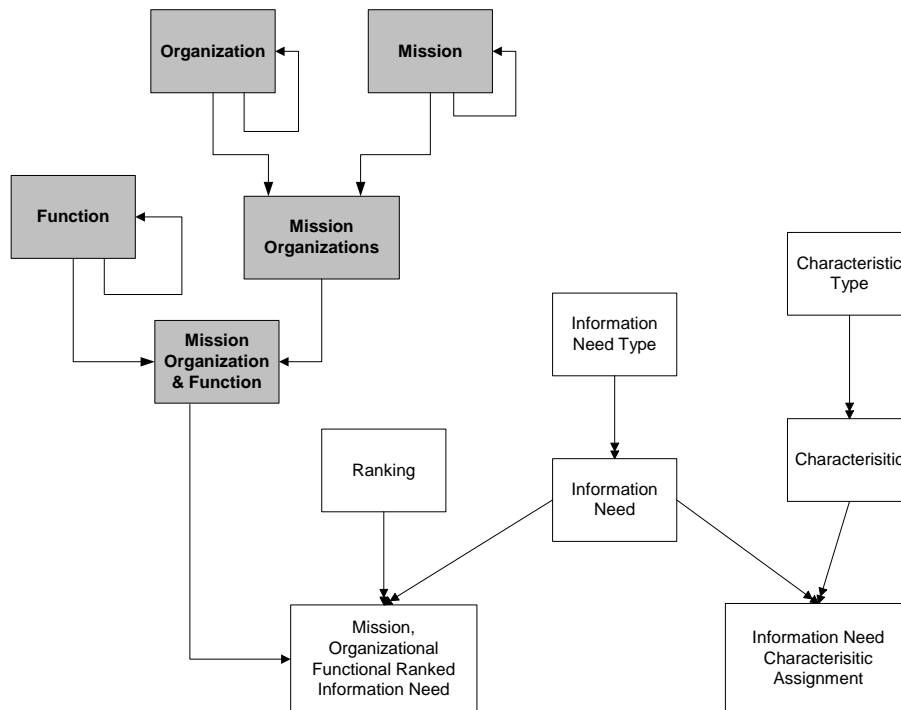
The definition for each entity is as follows:

- **An Information Need:** An information need is just what its name implies, a need for information. It should however be formal enough to represent some significant IT assets such as a quarterly financial report, the current state of inventory, an order, and the like. Information needs are created through analysis and are characterized. Information needs are ultimately allocated to Resource Life Cycle Nodes. That is, a database and or an information system is required by a resource life cycle node to produce an information need that in turn fulfills the need of some functional area of an organization that is accomplishing a mission of the enterprise. Information needs are both typed and characterized. While it would not be common, it certainly would be within the scope of



an information need to be a data mart that is then processed by OLAP (online analysis processing software).

- **Information Need Type:** An information need type is a classification of information need. This may be according to functional area such as finance, administration, sales, etc., or may be some other information need grouping.
- **Characteristic Type:** A characteristic type is a collection of characteristics that would apply to one or more [information need] characteristic. For example, cut-off, media of production, distribution, and the like.
- **Characteristic:** An [information need] characteristic is a collection of characteristics within an information need type that can then be assigned to an information need. For example, if the characteristic type is Media of Production, then the probable set of characteristics could be: hard-copy or on-line access.



Information Needs Analysis

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Figure 1. Information Needs Analysis Data Model.



- **Information Need Characteristic Assignment:** The information need characteristic assignment is the assignment of the characteristic to the information need. For example, if the information need was a Financial Report, it might be quarterly, hard-copy, and summary.
- **Ranking:** Once a collection of Mission Organization Ranked Information Needs have been made, it then represents the set of information needs determined important for that functional area of an organization that is accomplishing a mission of the enterprise. At the outset, all the ranks are defaulted to Unknown. That is, the ranking is unknown. That needs to be changed by first creating a set of rankings such as bottom 50%, mid 40%, and top 10%. This set of rankings are then employed to characterize the Mission Organization Ranked Information Needs
- **Mission Organization Functional Ranked Information Need:** Once the functional areas of an organization that is accomplishing a mission of the enterprise have been created within the metabase module, Mission Organization Function Person Assignment, and after the Information Needs have been created, a set of information needs are assigned to the Mission Organization Function. Once assigned, their rank is defaulted to unknown. This needs to be changed by reviewing each mission organization function ranked information need and adjusting its rank.

4 Reference Data

There are four reference data tables,

- Characteristic
- Characteristic Type
- Information Need Type
- Ranking

The values employed in the demo data and that are suggested for the characteristic type and characteristics reference data tables are:

Characteristic Type	Characteristic
Cut-off	End of year End of quarter End of month End of week End of day End of hour Continuous



Characteristic Type	Characteristic
Media of production	hard copy on-line access
Distribution	Push report Web pull Paper
Frequency	Annual Quarterly Monthly Weekly Daily As needed
Granularity	Summary Estimated or projected Actual detail

The values included in the demo data for the reference tables for information need type and ranking are:

Table	Value set
Information Need Type	Administration Facilities Finance Materiel Outcomes Payroll Personnel Programs Property Staffing
Ranking	Bottom 50% Mid 40% Top 10%

The value sets for all these tables can be changed as needed or appropriate.

5 Operation



Once the application is installed it is ready to use. Just invoke the software from the metabase program. The application is a traditional windows application. Metabase reports are accomplished through any ODBC class report writer such as Crystal Reports.

5.1 Log In Process

Figure 2 shows the log-in screen that appears immediately after the application is started. Entered is your user name and your password. These are created by the Metabase Administrator through the metabase administration module. Please contact your metabase administrator to set up your user name and password. Once a user name and password is established, all the user's information can be changed by the user through a restricted use version of the administrator software. Once the send button is pressed the specific metabase database instances that can be accessed by the user is presented. The metabase is such that users are allowed to use specific metabase instances and specific metabase modules.

In this particular example, the user, once they sent their user name and password are shown the metabase database that they can access, that is, Movies. Highlight the choice and press the Select button. Once that is done then the metabase name, Movies, is shown as the data set that is being accessed.



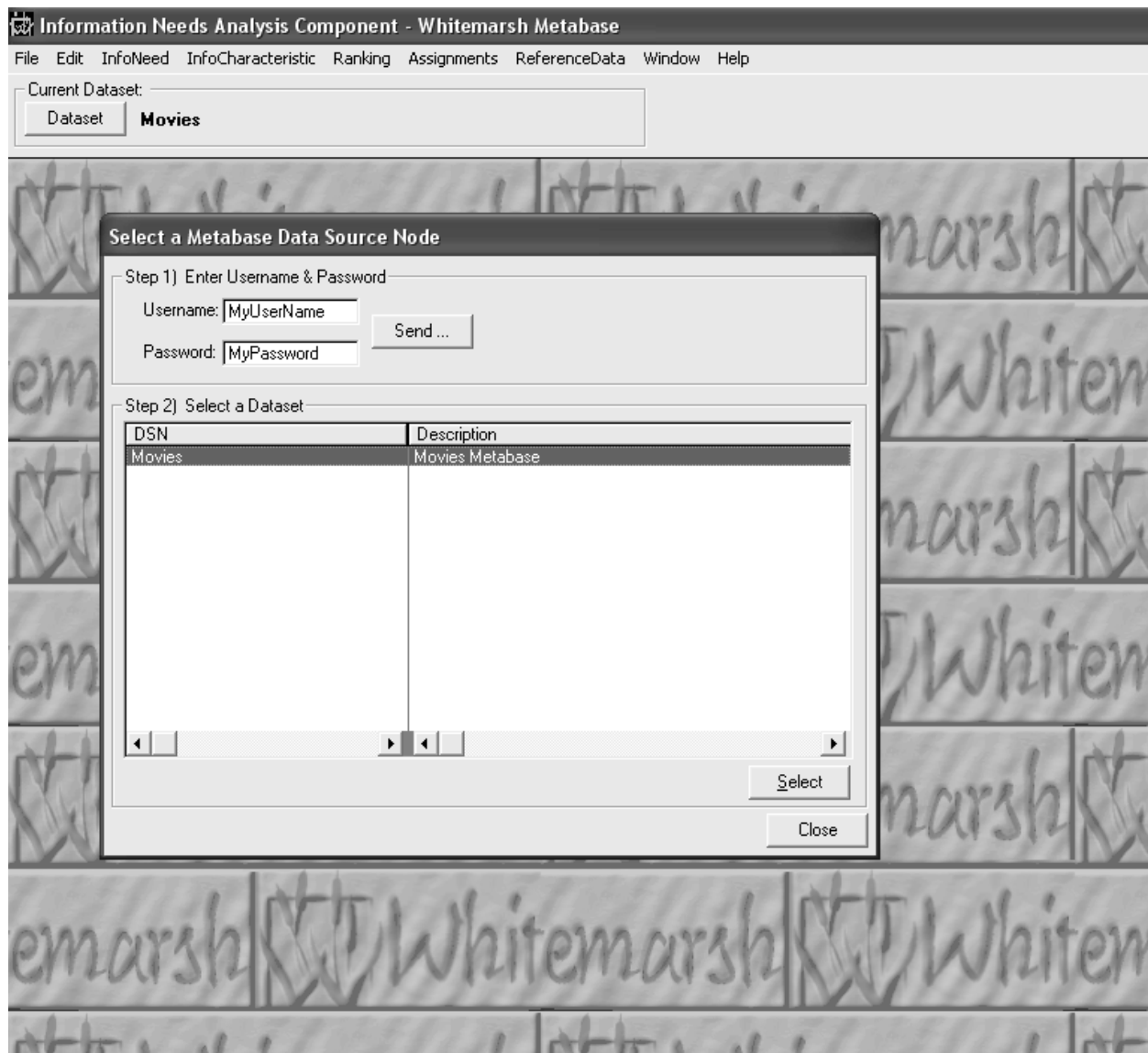


Figure 2. Login screen.



6 Process Model

The information needs analysis process model consists of two classes of processes:

- Reference Data
- Information Needs Analysis

The complete menu for this module is presented in the table that follows.

6.1 Reference Data

The information needs analysis reference data includes:

- Characteristics
- Characteristics Type
- Information Characteristic
- Information Need
- Information Need Type
- Ranking

- | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">-- Info Need<ul style="list-style-type: none">-- Information Needs-- Info Characteristic<ul style="list-style-type: none">-- Information & Characteristics-- Ranking<ul style="list-style-type: none">-- Rankings-- Assignments<ul style="list-style-type: none">-- Assign Mission Organization Functions to Ranked Information Needs-- Assign Information Needs to Characteristics-- Assign Information Need Ranking-- Reference Data<ul style="list-style-type: none">-- Information Need Types-- Characteristic Types |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Menu for Information Needs Analysis



6.1.1 Characteristic

The browse list and data entry start screen is presented in Figure 3. This shows a list of characteristics within certain characteristic types. To create a new characteristic press Insert. To modify one, select and press the change button. To delete, select and press the delete key. The metabase, with rare exceptions (that are explicitly warned) supports strong referential integrity. Thus you cannot a “parent” record without first deleting all the “child” records.

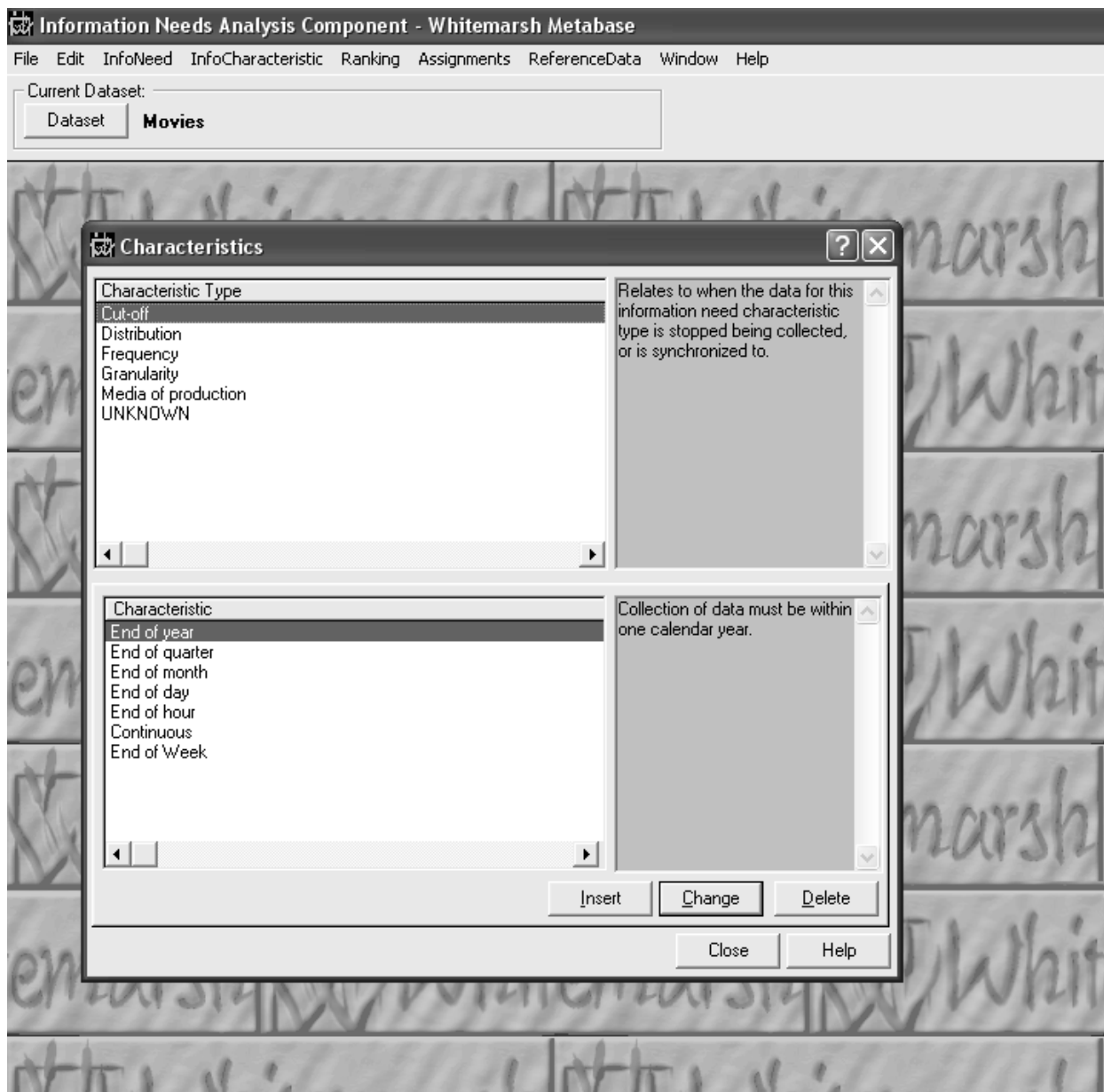


Figure 3. Information Characteristics within Characteristic Type.



Figure 4 presents the update screen for a characteristic. The figure also shows the use of the first field as the foreign key field for the characteristic type record. When a Zero is placed in this first field and TAB is pressed (to advance to the next field), the figure shows a list of valid characteristic types. Select the appropriate one and then press SELECT. The chosen characteristic type identifier is then placed into the characteristic record. Thereafter, add the name of the characteristic and its description.

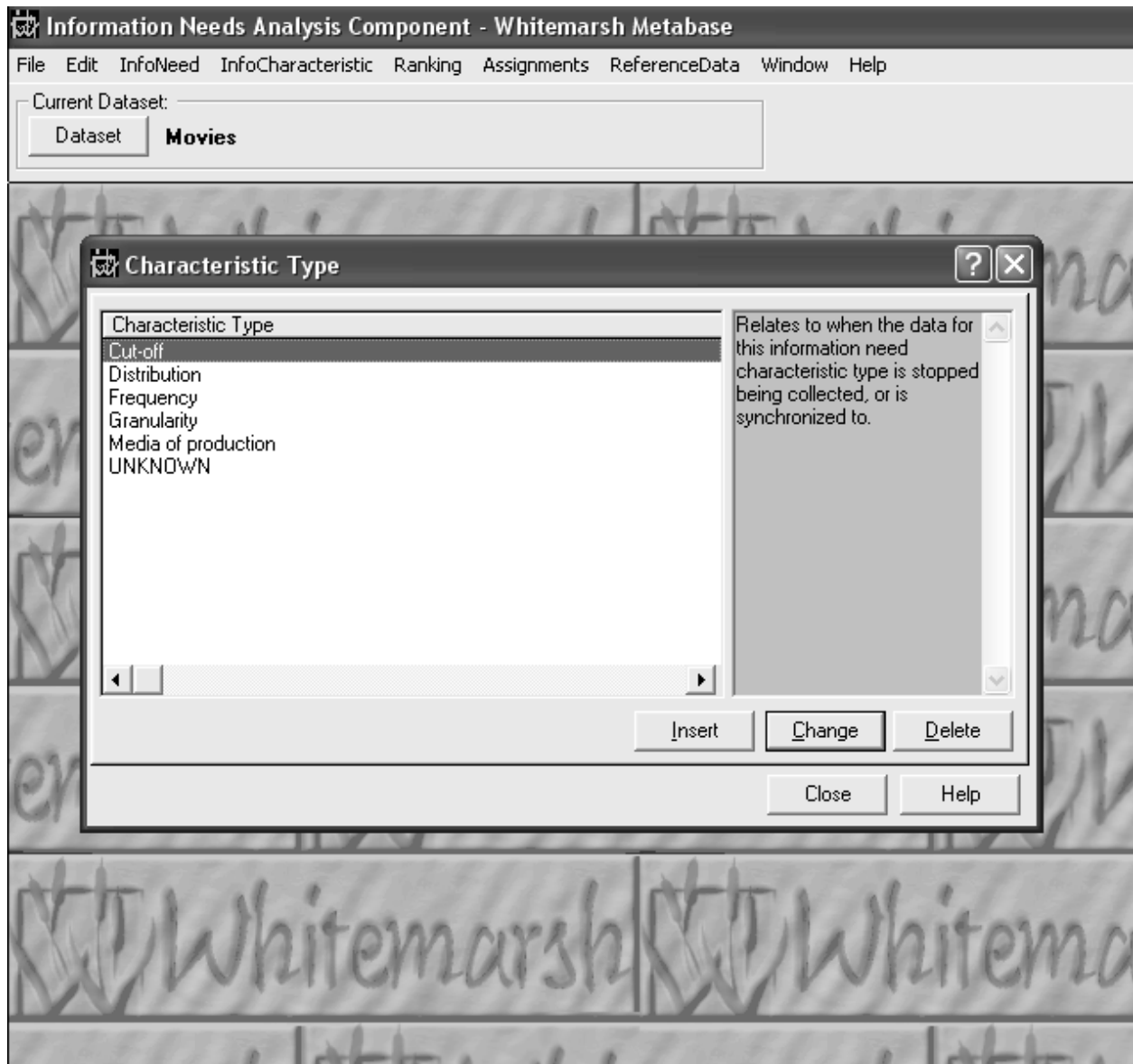


Figure 4. Information Characteristics Type list.



6.1.2 Characteristics Type

The browse list and data entry start screen is presented in Figure 5. A characteristic type is a collection of characteristics that will be employed to assigned to a specific information need of the enterprise as an organization fulfills a specific function on behalf of a mission.

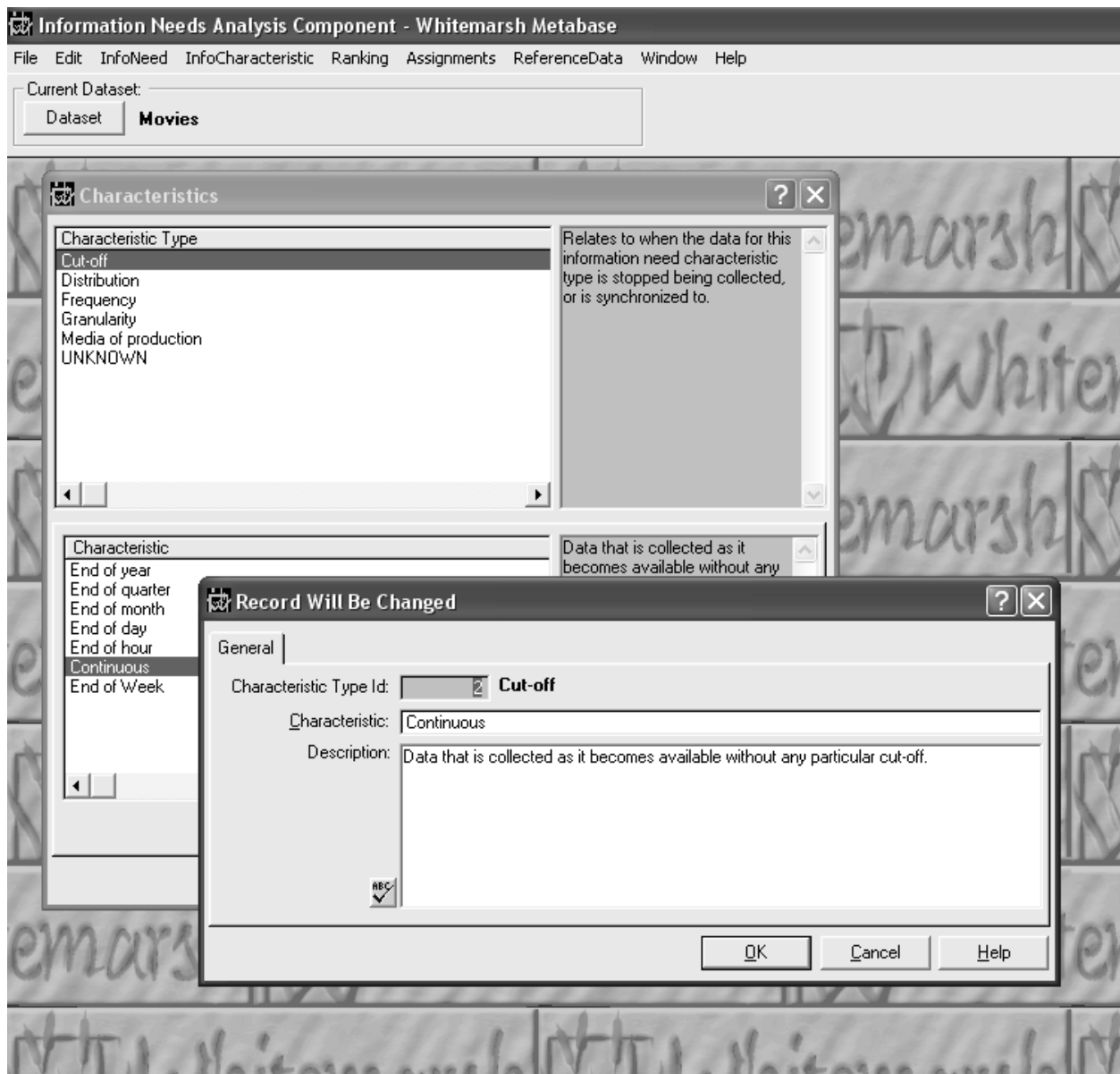


Figure 5. Information Characteristics update screen.

Figure 6 presents an update screen for Characteristic Type record. The two fields that can be entered are its name and description.



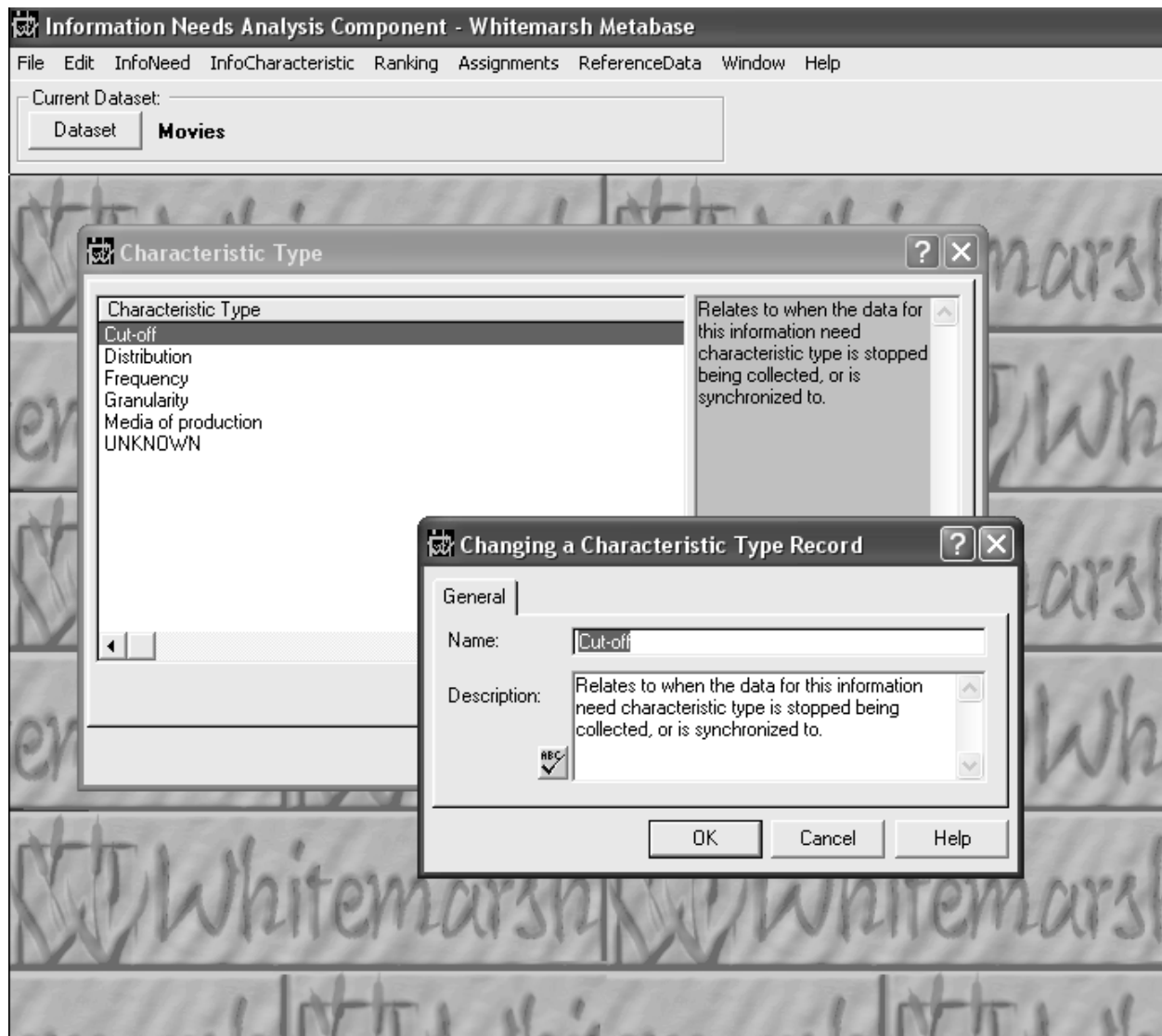


Figure 6. Information Characteristics Type update screen.



6.1.3 Information Need Type

The browse list for information need type is presented in Figure 7. An information need type is a collection of information needs that in turn will both assigned to satisfying a specific information need of the enterprise as an organization fulfills a specific function on behalf of a mission. As can be seen from the list, these needs are functionally based.

Figure 8 presents the update screen for Information Need type record. The information that can be inserted or changed is the name of then information need type and its description.

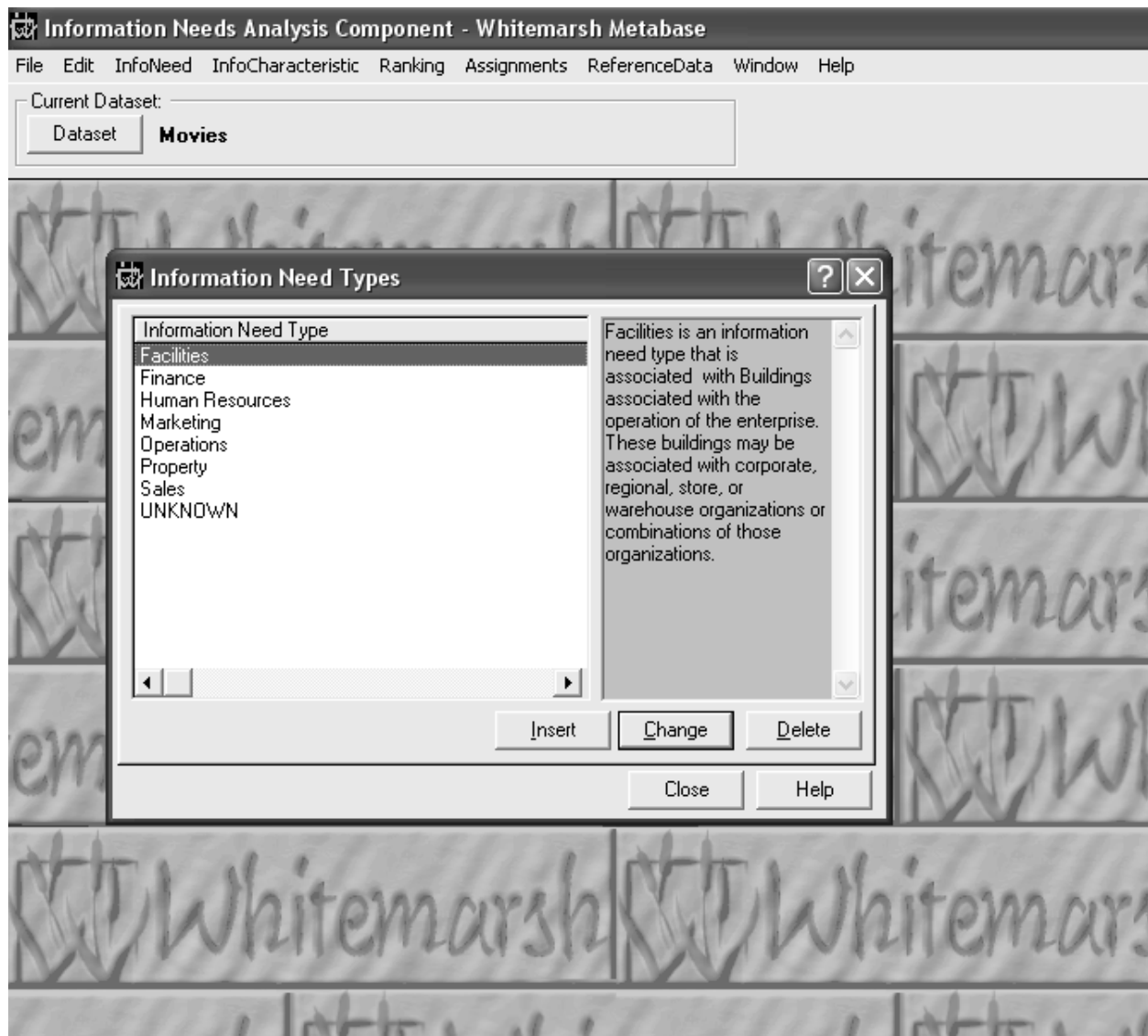


Figure 7. Information Need Type list.



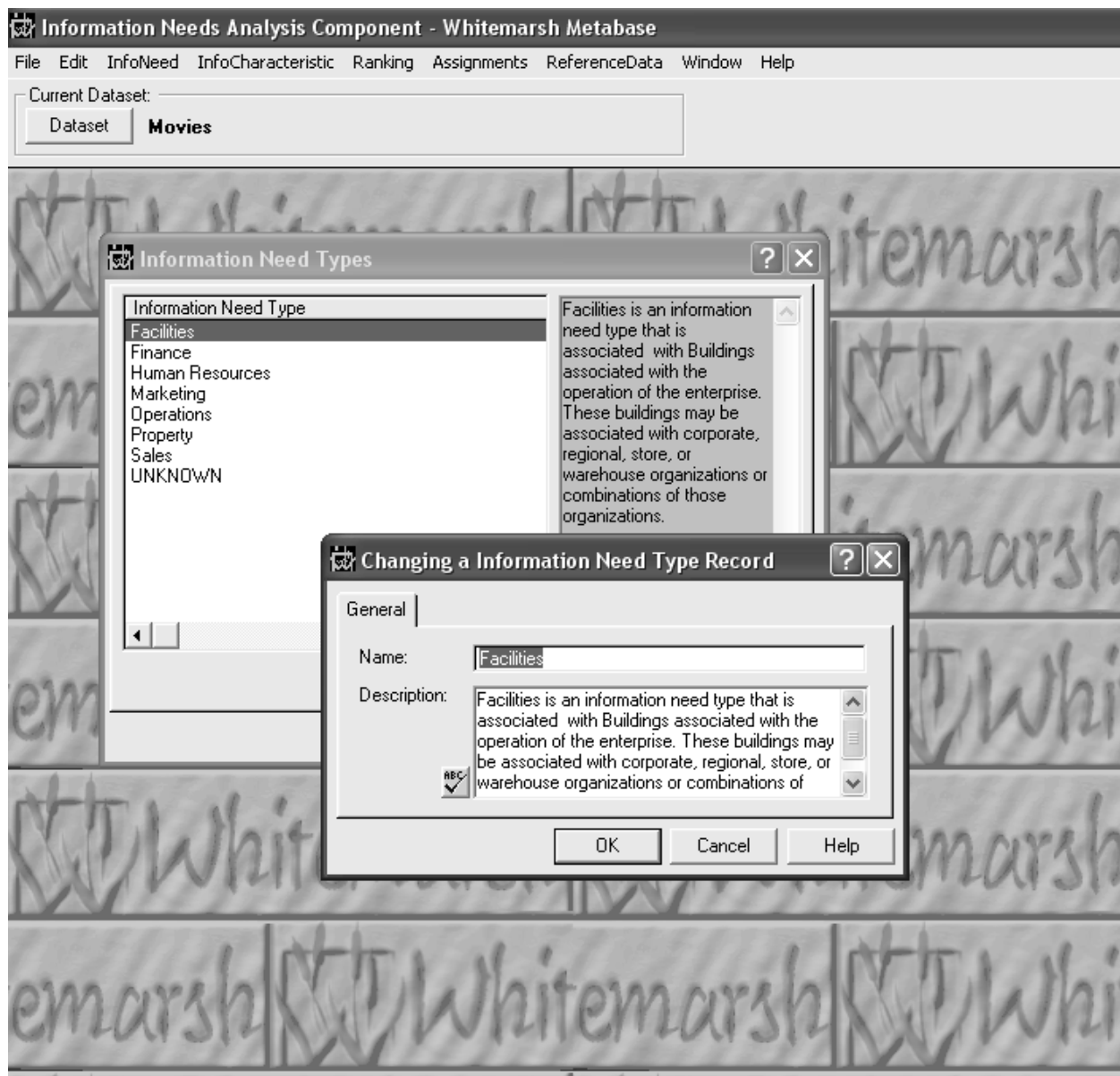


Figure 8. Information Need Type update screen.



6.1.4 Ranking

The browse list and data entry start screen is presented in Figure 9. Ranks are assigned to the collection of assigned information needs within an enterprise organization that performs a specific function on behalf of a mission

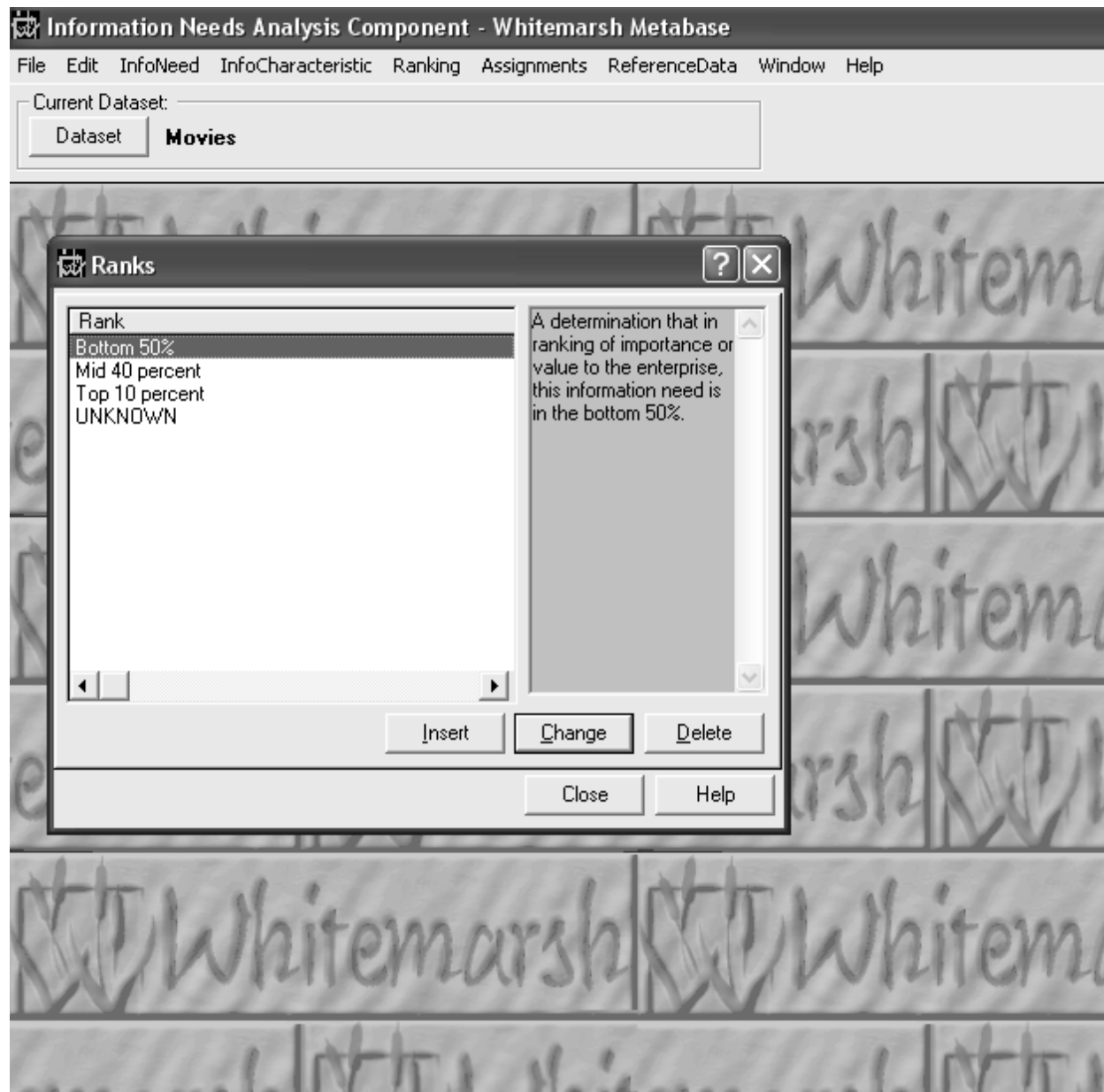


Figure 9. Information Ranking list.

Figure 10 presents the update screen for Rank. The data that can be entered is a characterization of the rank and a description. The characterizations shown are vague, on purpose. It is hard, if



not impossible, to precisely categorize the value of an Information Need to a particular function within an organization as it serves to complete a mission. Thus, the ranking should be as presented so that endless arguments are avoided as to whether the ranking is 85.3879 or 84.994. Another characterization of the ranking might be: Critical, important, and helpful.

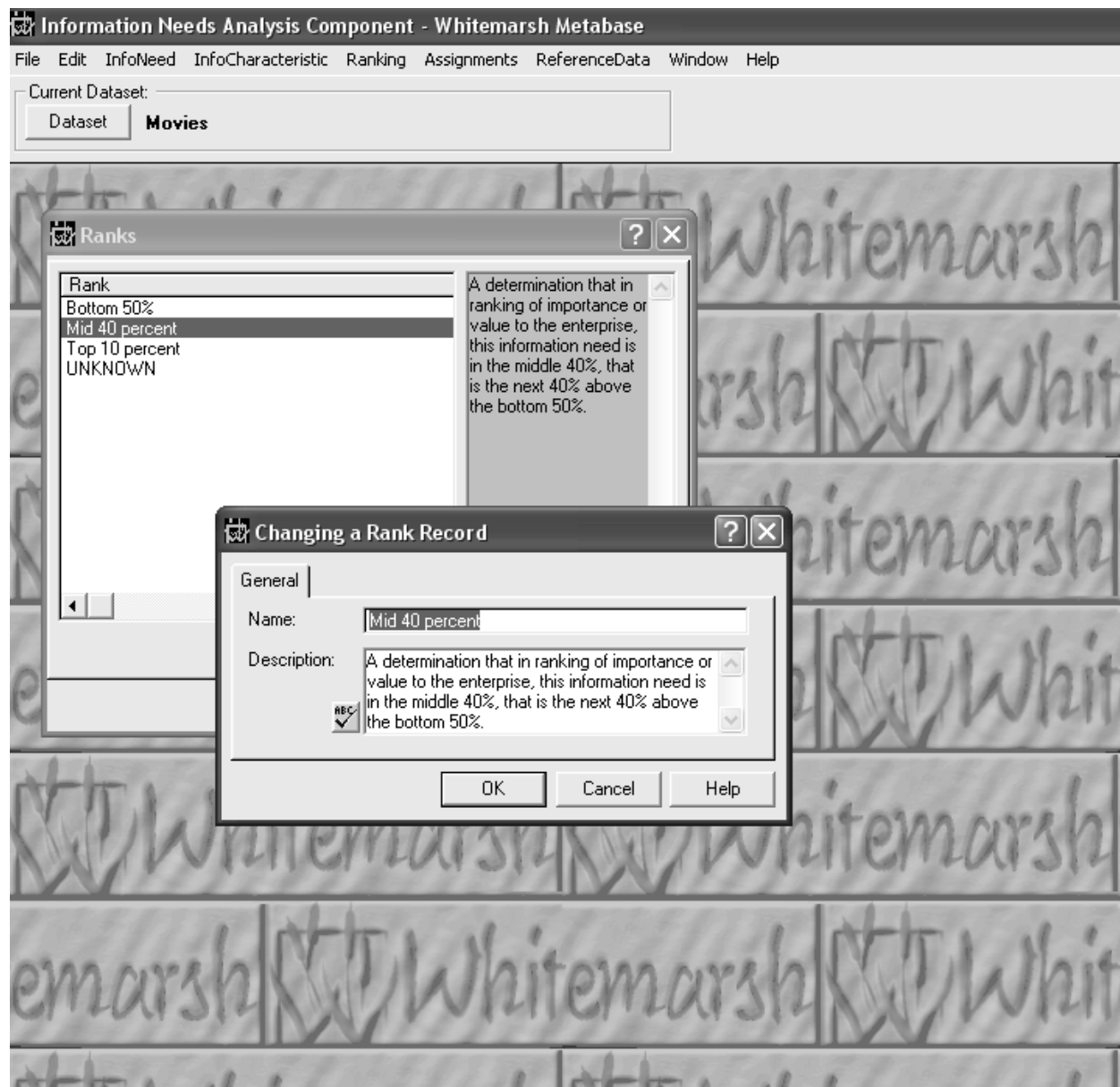


Figure 10. Information Ranking update screen.



6.2 Fact Data

The fact data process consists of only one screen, Information Need. Figure 11 presents the update screen for an Information Need record. The information within this record consists of picking the Information Need Type through the foreign key and then entering the Information Need name and a description of the information for that satisfies this particular need.

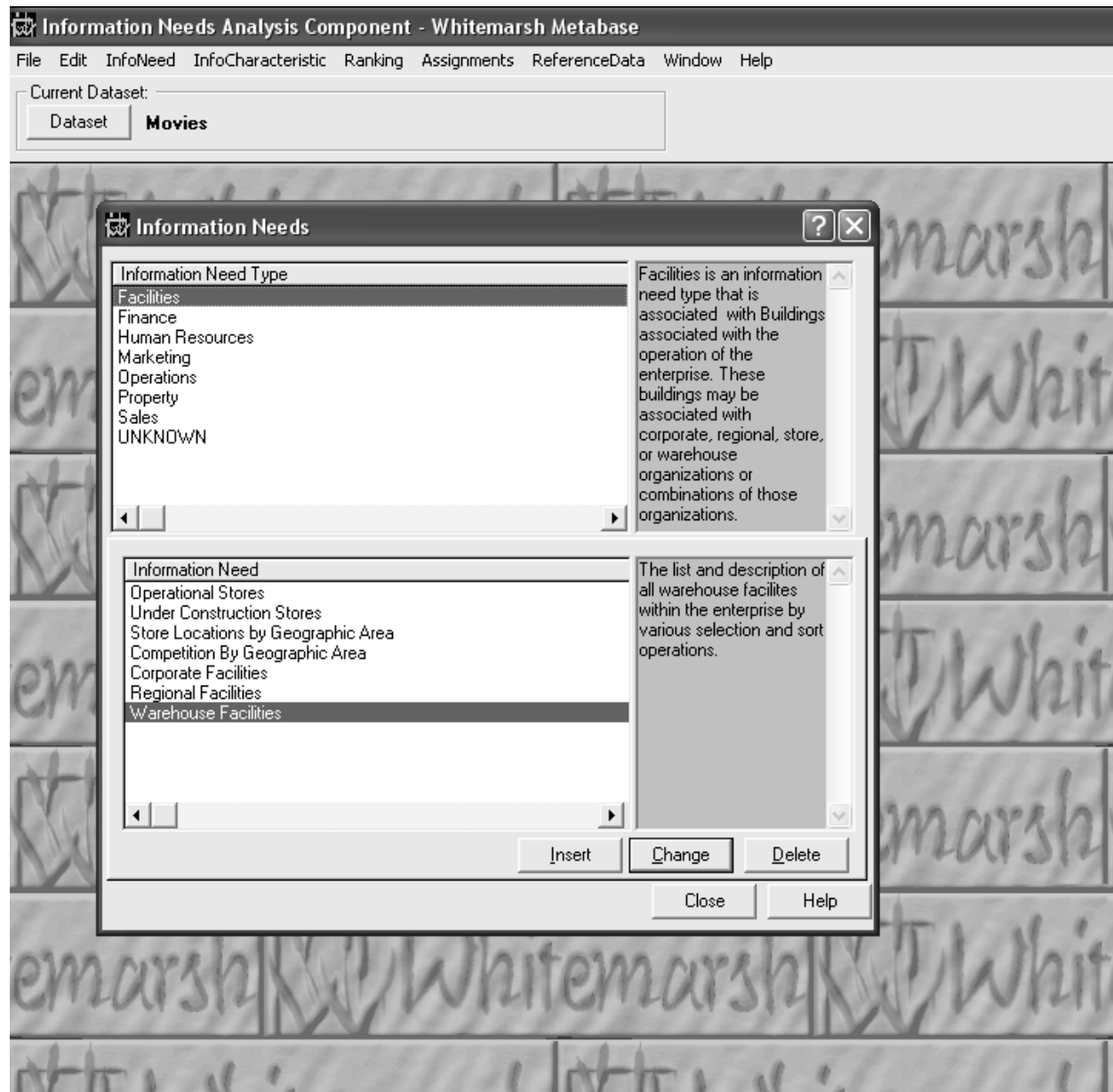


Figure 11. Information Needs list.

The update screen for Information Need is presented in Figure 12.



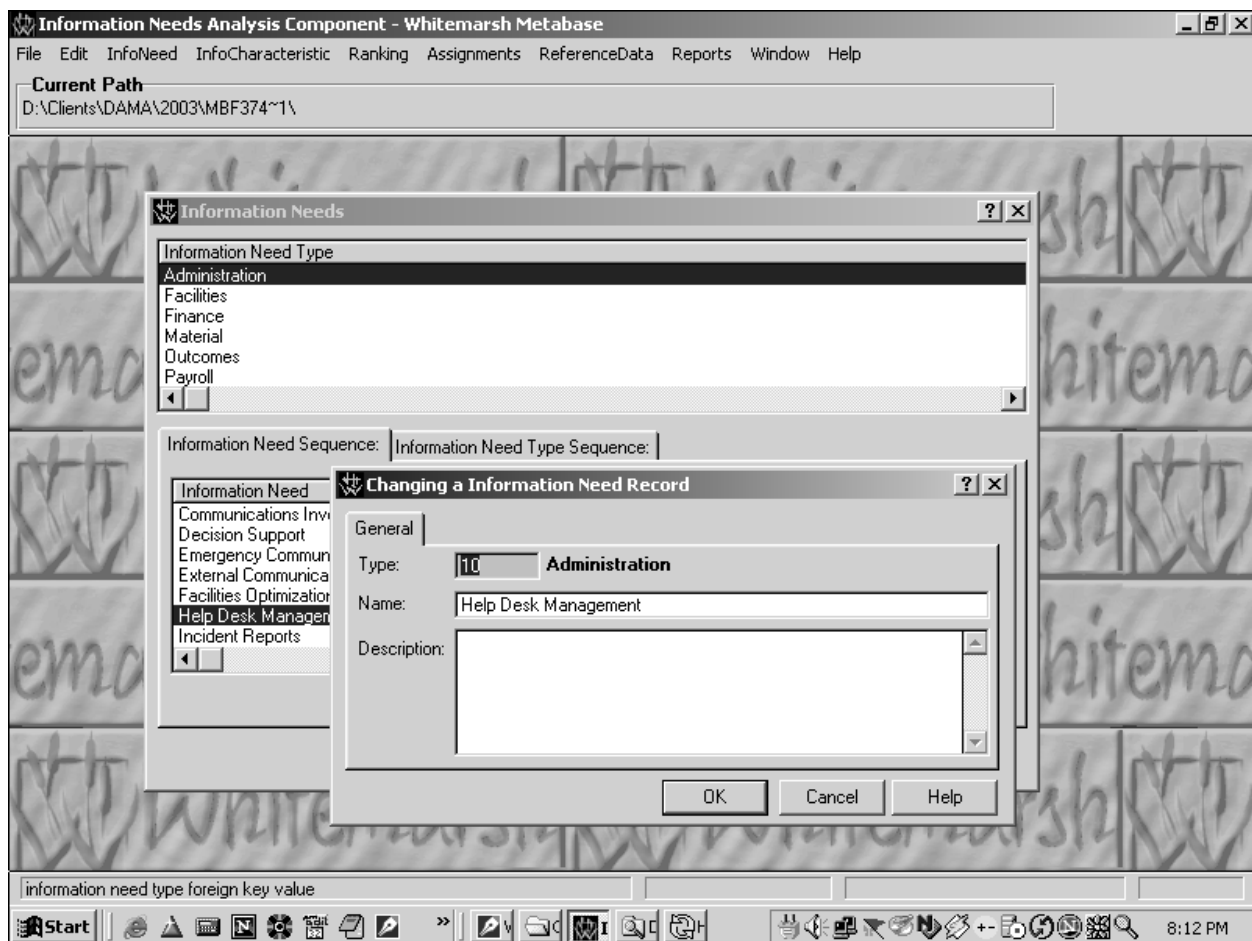


Figure 12. Information Need update screen.



6.3 Assignment Data

The assignment data processes consist of two screens:

- Mission Organization Functional Ranked Information Need Assignment
- Information Need Characteristic Assignment

6.3.1 Mission Organization Functional Ranked Information Need Assignment

The purpose of the Mission Organization Functional Ranked Information Need Assignment record is to record the fact that a particular information need is employed within a specific function that is performed by an organization to meet the objectives of a mission.

The assignment process consists of two steps. The first is to create the intersection record that exists at the bottom of Figure 13. Intersection records are created by tagging one entry from the upper left window and as many different records as appropriate from the upper right window. Then press the Build button. If the intersection of the two records is not already present then it will be created and will appear in the bottom window.

The second step consists of modifying the Rank of the intersection record. That is done by pressing the Update Rank button. The highlighted record then allows an update-in-place for the Rank Id field. Change its value and then press ENTER. Once ENTER is pressed the intersection record window refreshes to reflect the new rank value.

6.3.2 Information Need Characteristic Assignment

The information need characteristic assignment process is presented in Figure 14. It consists of identifying one information need in the upper left window and then tagging as many as appropriate characteristics in the upper right window. If the intersection of the two records is not already present then it will be created and will appear in the bottom window.



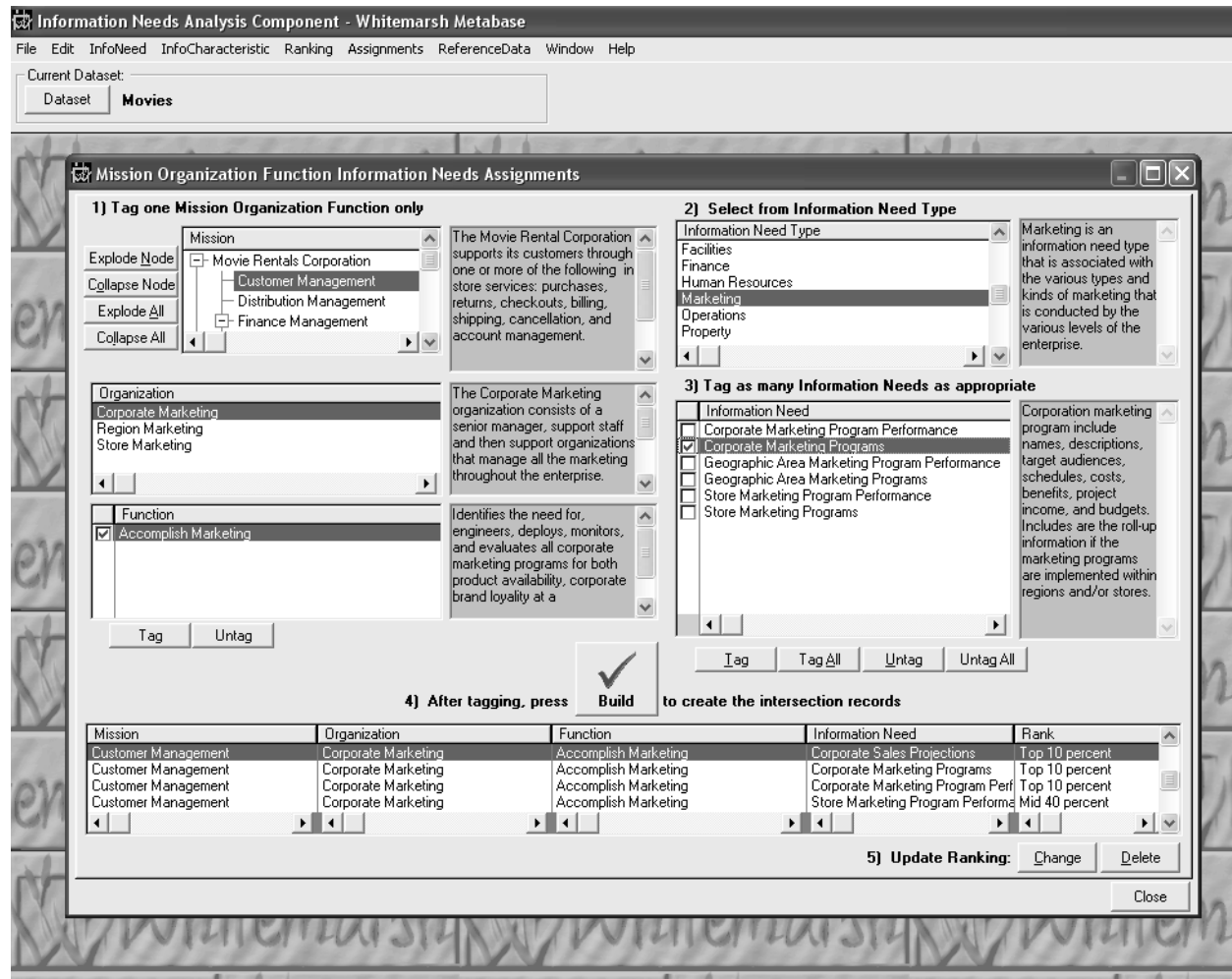


Figure 13. Mission Organization Function Information Need assignment.



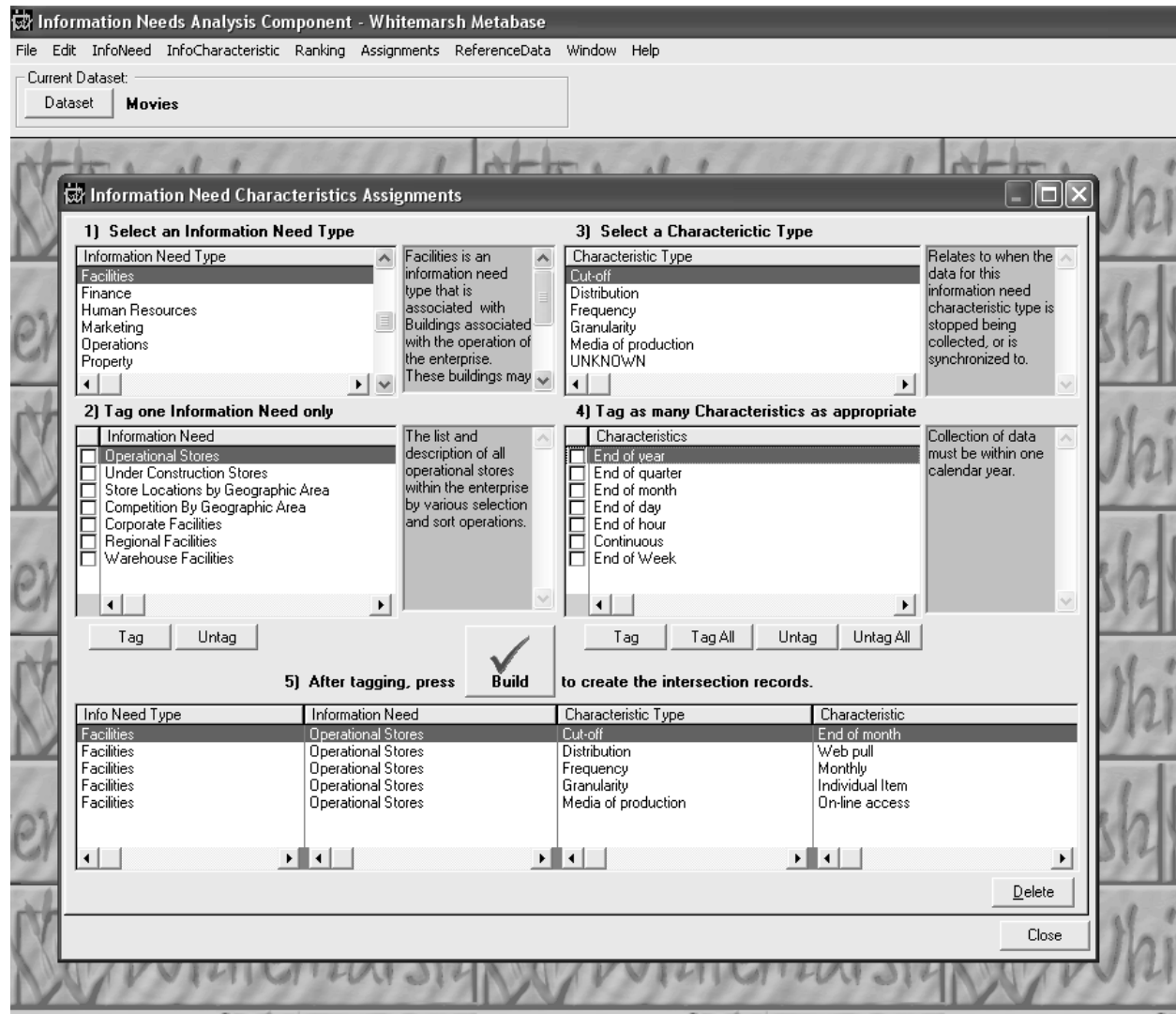


Figure 14. Information Need Characteristic assignment.



6.4 Reports

Reports are accomplished through access to a particular metabase database instance through commercial report writers such as Crystal Reports. Whitemarsh provides about 100 such report templates for Crystal Report access from the Whitemarsh website.

