

Executive Information System And Data Warehouse

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Abstrak

Hal terpenting dalam suatu data warehouse adalah bahwa data warehouse tersebut dapat memuat semua informasi bisnis yang diperlukan oleh para penggunanya dengan akses yang cepat dan dapat diintegrasikan secara mudah dengan sistem yang lainnya. Sebelum merencanakan pembuatan suatu data warehouse, maka akan sangat diperlukan suatu konsep yang tepat dalam pembuatannya. Konsep tersebut akan memuat banyak hal, diantaranya adalah: operasionalisasi database, para pengguna, proses koneksinya, metadata, dan lain sebagainya.

Adapun executive information system (EIS) sendiri adalah suatu sistem informasi yang berdasarkan pada penggunaan data warehouse sebagai landasan dasar untuk sistem informasi manajerialnya. EIS ini sendiri dalam prakteknya sangat membantu pihak manajemen tingkat atas dalam penganalisaan data melalui pengaksesan data warehouse.

Kata kunci : *Data warehouse, informasi, konsep, EIS.*

1. Justifying the Data Warehouse

The data warehouse environment involves operational data (it is not really part of the data warehouse, but only important to it), atomic data, summarized data, and answers to specific queries. All are important in planning and designing a data warehouse.

An important part of data warehouse design is choosing an appropriate database structure. The structures used for transaction processing may not be well suited to data warehouses because the requirements of the two types of computing are quite different from one another. Data warehouses usually use the relational structure or the multidimensional structure.

Before planning any data warehouse, it is important to build a business case for the data warehouse project. This does not necessarily mean financial figure associated with tangible benefits or an internal rate of return calculated to three significant digits. The business case must, however, state such things as the types of data to be included in the data

warehouse, the kinds of decisions that will be made with the aid of that data, the ways those decisions are made without the data warehouse, and how decisions made with it (presumably better decisions) will benefit the organization.

The major elements of a data warehouse and the major external entities with which a data warehouse interacts include :

1. The transaction or other operational database from which the data warehouse is populated. External data is also fed into some data warehouses.
A key point to remember here is that transaction data feeds the data warehouse. The data warehouse gets a copy of the transaction data. It does not store transaction data directly.
2. A process to extract data from this database, or these databases, and bring it into the data warehouse.
This process must often transform the data into the database structure and internal formats of the data warehouse.
3. A process to cleanse the data, to make sure it is of sufficient quality for decision making purposes for which it will be used.
4. A process to load the cleansed data into the data warehouse database.
The four processes from extraction through loading are often referred to collectively as data staging.
5. A process to create any desired summaries of the data : precalculated totals, averages, and the like, which are expected to be requested often.
These are stored in the data warehouse along with the data imported from internal and external sources.
6. Metadata (equally is data about data).
It is useful to have a central information repository to tell users what's in the data warehouse, where it come from, who is in charge of it, and more. The metadata can also tell query tools what's in the data warehouse, where to find it, who is authorized to access it, and what summaries have been precalculated.
7. The data warehouse database itself.
This database contains the detailed and summary data of the data warehouse. Some people consider metadata to be part of the database as well. Others consider metadata to be outside the database. Either way, metadata are part of the data warehouse. Because the data warehouse is not used for processing individual transactions, its database does not have to be organized for transaction access and retrieval patterns (one record at a time, using any of several keys). Instead, it can be optimized for the very different access patterns used for analysis.

8. Query tools.
These usually include an end-user interface for posing questions to the database, in a process called On-Line Analytical Processing (OLAP). They may also include automated tools for uncovering patterns in the data, often referred to as data mining. A given data warehouse must have at least one of this two types and may have both.
9. The users for whom the data warehouse exists and without whom it would be useless.

The same concepts apply to a data mart, though each individual component would be more modest in scope. A data mart typically has fewer data sources because it deals with one subject area, meaning fewer data transformation issues to deal with and fewer conflicts among the sources, different names for the same data element, different data elements using the same name, different values for what should be the same data, and so forth. Since it is smaller, it is less demanding of computing resources, making performance tuning and optimization less critical. Since its user community will be smaller, it will require less training and support.

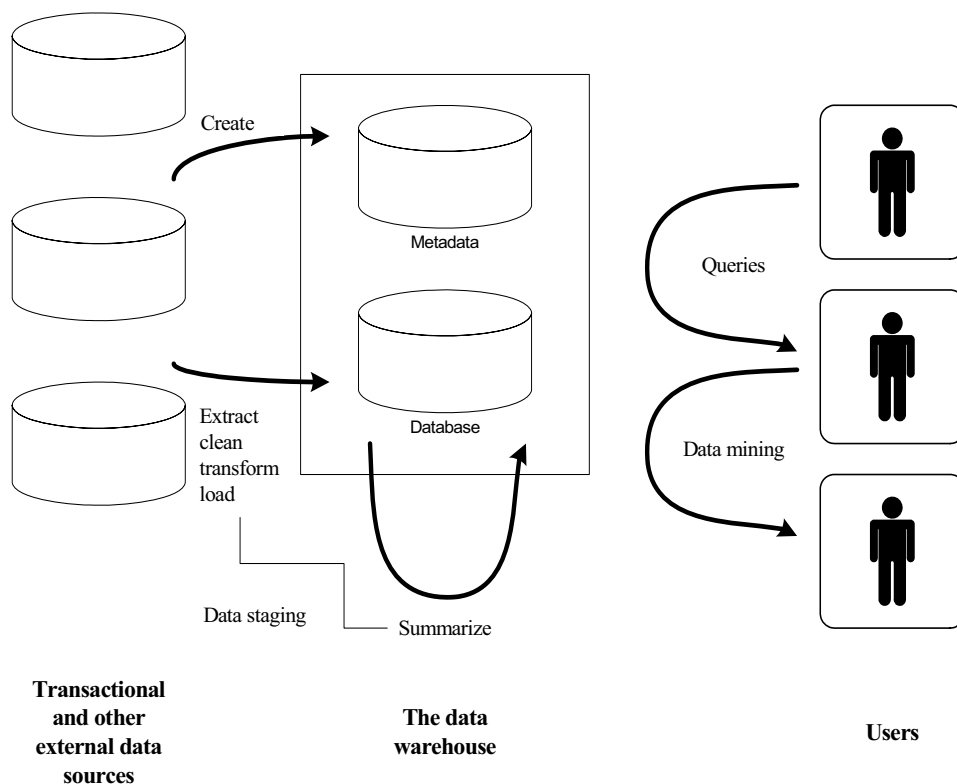


Figure 1. Data Warehouse Architecture

2. Executive Information Systems (EIS) and Data Warehouse

Since the people at the top level of an organization are known as executives, such systems came to be called *Executive Information Systems (EIS)*. A data warehouse is an excellent foundation for an EIS. The data warehouse is tailor-made for the needs of the EIS analyst. Once the data warehouse has been built, the job of the EIS is infinitely easier than before. With a fully populated data warehouse in place, the analyst can be in a proactive stance, not an eternally reactive stance, with regards to meeting management's needs.

The reason for which an executive wants to use an EIS leads directly to the capabilities that the system must provide. Gaining computer literacy might allow the user to manipulate data directly, perhaps by providing a spreadsheet or query capability. Sending a signal may require little beyond highly visible use of something. Facilitating change generally involves communication capability. Boosting personal work efficiency, and solving specific problems, depend on software tailored either to the executive's existing work bottlenecks or the specific problems in question. This is the usual reason for data warehouse development.

In the on-line mode of operation, the EIS is essentially an easy to use query system tied to a database. The query is coded ahead of time by professional programmers. Systems of this type can be linked directly to the live corporate database or to a static data warehouse.

In off-line mode of operation, a wide range of possible queries is issued to the database during a period of light system load such as the early hours of the morning. Data are extracted and screens prepared for display. When a user asks for specific information, the corresponding screen is retrieved immediately from the EIS screen database and displayed. No computation is required, other than interpreting the condensed form in which the screen is stored.

Summary

A data warehouse is a collection of a wide variety of corporate data, organized and made available to end users for decision making purposes. A smaller collection, usually relating to one specific aspect of an organization, is called data mart.

Data warehouses are used by managers and knowledge workers who require access to this data for analyzing the business and planning its future. These needs are usually unstructured, often unpredictable. The data warehouse provides flexibility to meet those needs. Knowing what these needs are, and how the data warehouse will meet them, is a critical first step in any data warehousing project.

The data warehouses consists of multiple elements. The operational databases that feed it are at one side, the users who access it at the other. In between are the data warehouse database and a metadata database that describes the content of the data warehouse database. These are connected by processes which extract data from the operational databases for the data warehouse database, transform it and clean it as required, create any desired summaries, and create the necessary metadata.

An executive information system (EIS) is an information system that provides information to top executives to support their decision making needs. Reason for using EIS include solving specific problems in decision making or control, boosting the executive's personal work efficiency, facilitating change in the organization, sending a signal to subordinates, and gaining computer literacy.

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