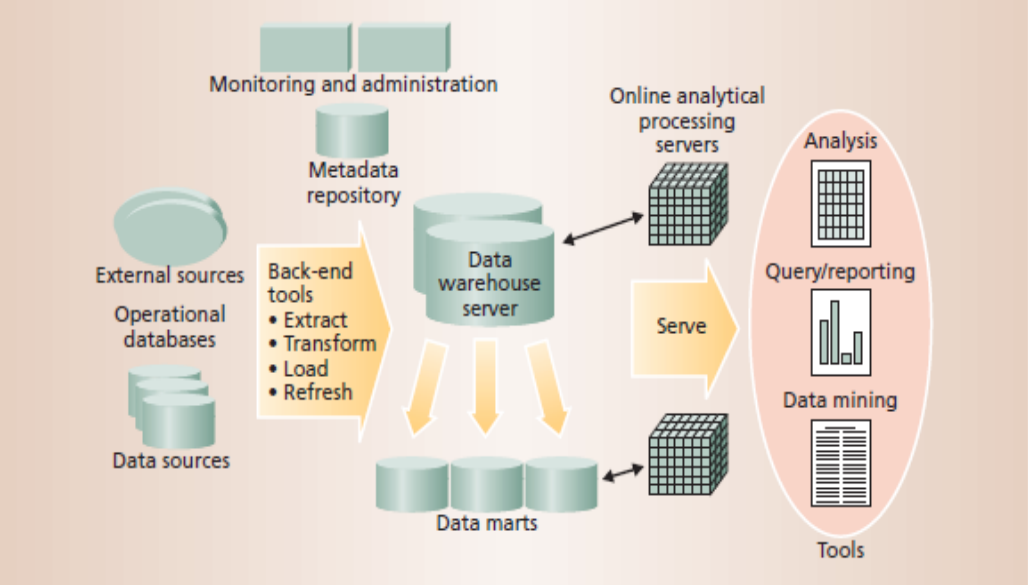
- Decision support systems (DSS) are interactive software-based systems created to help managers in decision-making by accessing large volumes of information in an organization.
- Information generated from various related information systems involved in organizational business processes, such as office automation system, transaction processing system, etc.
- DSS uses the summary information, exceptions, patterns, and trends using the analytical models.
- A decision support system helps in decision-making but does not necessarily give a decision itself.
- The decision makers compile useful information from raw data, documents, personal knowledge, and/or business models to identify and solve problems and make decisions.

• Database Design of Decision Support System:

- A successful decision support system is a complex creation with numerous components.
- Figure shows the



• Data Warehouse :

- **A data warehouse is a subject-oriented, integrated, time-variant and non-volatile collection of data in support of management's decision making process.**
- **Subject-Oriented**: A data warehouse can be used to analyze a particular subject area. For example, "sales" can be a particular subject.
- **Integrated**: A data warehouse integrates data from multiple data sources. For example, source A and source B may have different ways of identifying a product, but in a data warehouse, there will be only a single way of identifying a product.

- **Time-Variant**: Historical data is kept in a data warehouse. For example, one can retrieve data from 3 months, 6 months, 12 months, or even older data from a data warehouse. This contrasts with a transactions system, where often only the most recent data is kept. For example, a transaction system may hold the most recent address of a customer, where a data warehouse can hold all addresses associated with a customer.
- **Non-volatile**: Once data is in the data warehouse, it will not change. So, historical data in a data warehouse should never be altered.

• Basics of Data Warehouse:

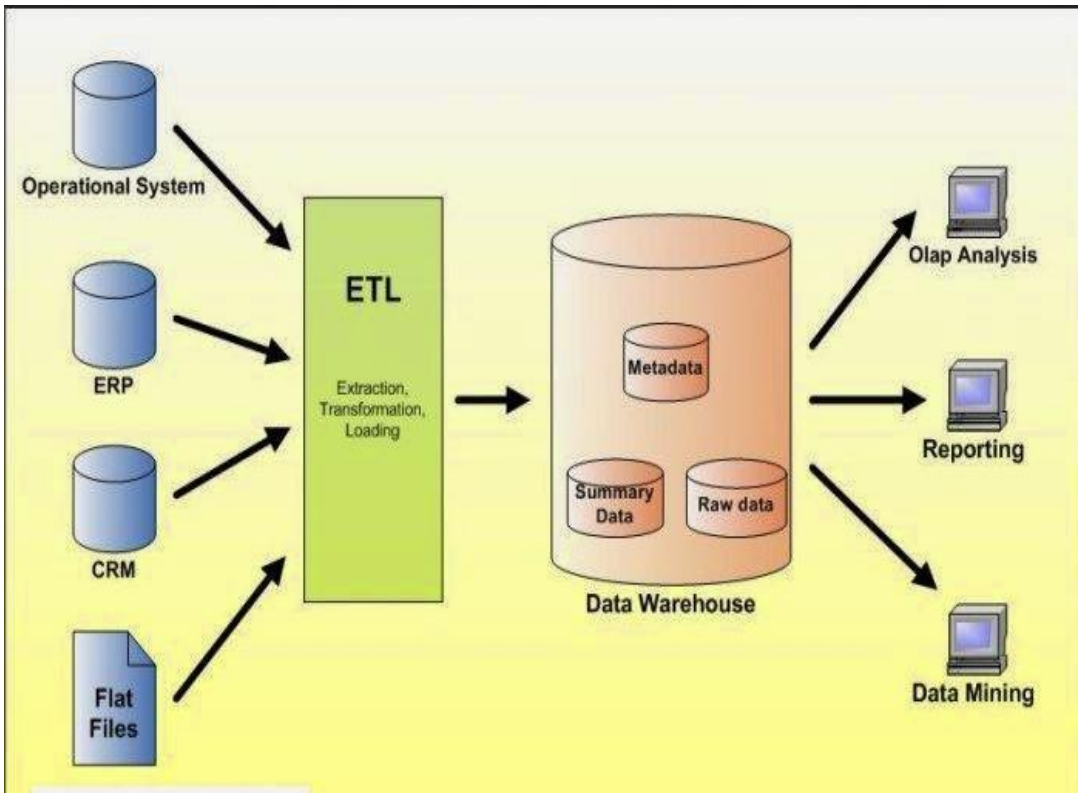
- A data warehouse (DW or DWH), is a system used for reporting and data analysis.
- DWs are central repositories of integrated data from one or more disparate sources.
- They store current and historical data and are used for creating analytical reports for knowledge workers throughout the enterprise.
- There is no frequent updating done in a data warehouse.
- It possesses consolidated historical data, which helps the organization to analyze its business.
- A data warehouse helps executives to organize, understand, and use their data to take strategic decisions.
- Data warehouse systems help in the integration of diversity of application systems.
- A data warehouse system helps in consolidated historical data analysis.

❖ Data Mart:

- A data mart is a repository of data that is designed to serve a particular community of knowledge workers.
- The goal of a data mart, however, is to meet the particular demands of a specific group of users within the organization, such as human resource management (HRM).
- Generally, an organization's data marts are subsets of the organization's data warehouse.
- A data mart tends to be tactical and aimed at meeting an immediate need.

❖ OLAP

- OLAP means many different things to different people.
- Online Analytical Processing (OLAP) is a technology that is used to create decision support software.
- OLAP enables application users to quickly analyze information that has been summarized into multidimensional views and hierarchies.
- OLAP is computer processing that enables a user to easily and selectively extract and view data from different points of view.



Data Warehouse, OLAP & Data Mining.

➢ Benefits of OLAP:

- Fast access, calculations, and summaries of an organization's data.
- Support for multiple user access and multiple queries.
- The ability to handle multiple hierarchies and levels of data.
- The ability to pre-summarize and consolidate data for faster query and reporting functions.
- The ability to expand the number of dimensions and levels of data as a business grows.