# DPBS(PG) College, Anoopshahr

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Data Mart

A **DATA MART** is focused on a single functional area of an organization and contains a subset of data stored in a Data Warehouse. A Data Mart is a small part of Data Warehouse and is designed for use by a specific department, unit or set of users in an organization. For example Marketing, Sales, HR or finance. It is often controlled by a single department in an organization.

Data Mart usually draws data from only a few sources compared to a Data warehouse. Data marts are small in size and are more flexible compared to a Data warehouse.
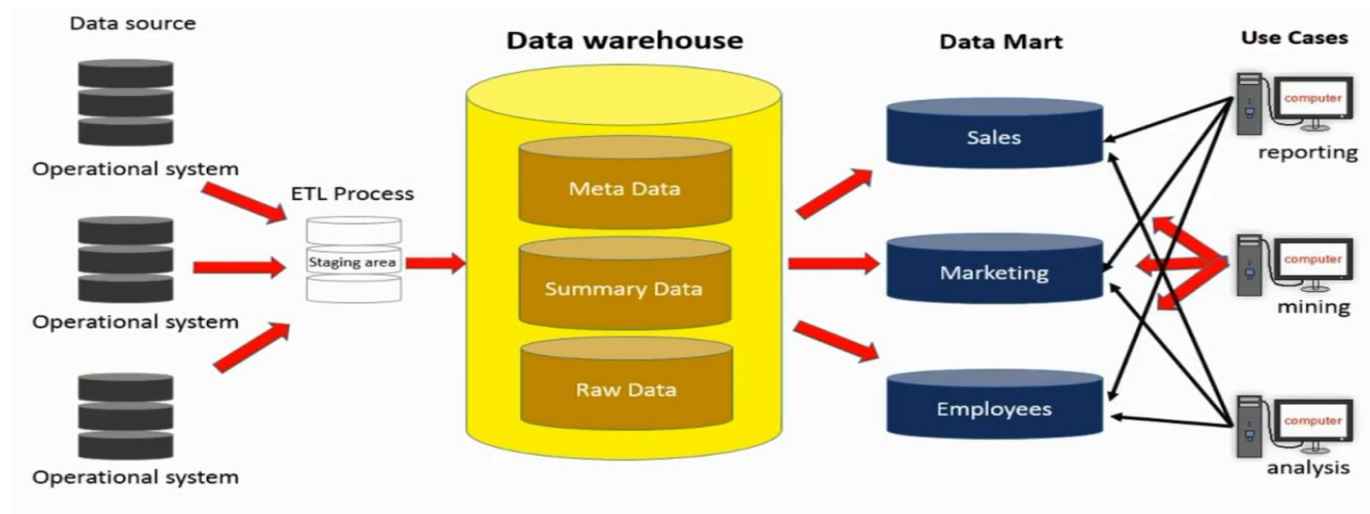
Need of Data Mart

- Data Mart helps to enhance user's response time due to reduction in volume of data
- It provides easy access to frequently requested data.
- Data mart are simpler to implement when compared to corporate Datawarehouse. At the same time, the cost of implementing Data Mart is certainly lower compared with implementing a full data warehouse.
- Compared to Data Warehouse, a datamart is agile. In case of change in model, datamart can be built quicker due to a smaller size.
- A Datamart is defined by a single Subject Matter Expert. On the contrary data warehouse is defined by interdisciplinary SME from a variety of domains. Hence, Data mart is more open to change compared to Datawarehouse.
- Data is partitioned and allows very granular access control privileges.
- Data can be segmented and stored on different hardware/software platforms.
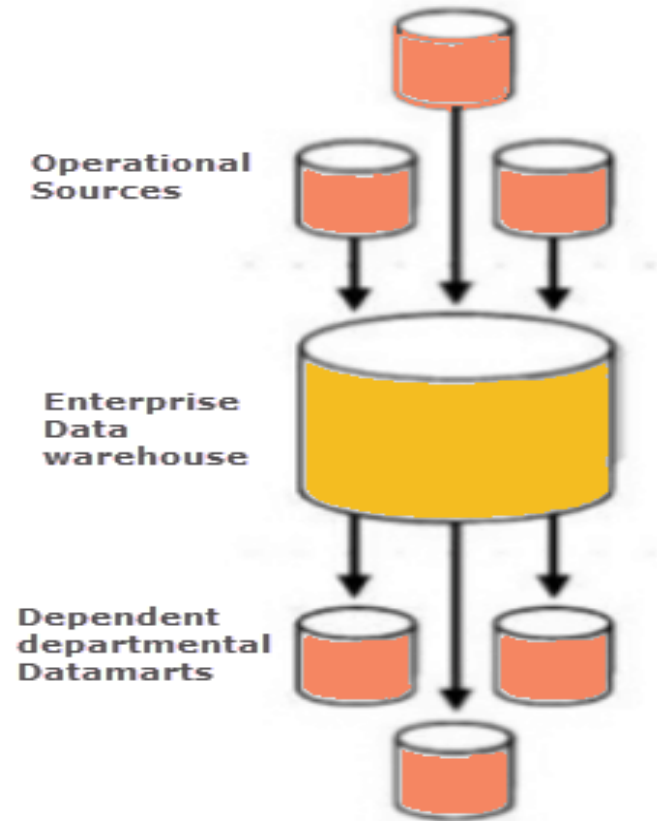
Type of Data Mart

There are three main types of data marts are:

1. **Dependent**: Dependent data marts are created by drawing data directly from data warehouse whereas operational, external or both sources store data in data warehouse.
2. **Independent**: Independent data mart is created without the use of a central data warehouse.
3. **Hybrid**: This type of data marts can take data from data warehouses or operational systems.

Dependent Data Mart

A dependent data mart allows sourcing organization's data from a single Data Warehouse. It offers the benefit of centralization. If you need to develop one or more physical data marts, then you need to configure them as dependent data marts.

Dependent data marts can be built in two different ways. Either where a user can access both the data mart and data warehouse, depending on need, or where access is limited only to the data mart. The second approach is not optimal as it produces sometimes referred to as a data junkyard. In the data junkyard, all data begins with a common source, but they are scrapped, and mostly junked.

Operational Sources

Enterprise Data warehouse

Dependent departmental Datamarts

Independent Data Mart

An independent data mart is created without the use of central Data warehouse. This kind of Data Mart is an ideal option for smaller groups within an organization.

An independent data mart has neither a relationship with the enterprise data warehouse nor with any other data mart. In Independent data mart, the data is input separately, and its analyses are also performed autonomously.

Implementation of independent data marts is antithetical to the motivation for building a data warehouse. First of all, you need a consistent, centralized store of enterprise data which can be analyzed by multiple users with different interests who want widely varying information.
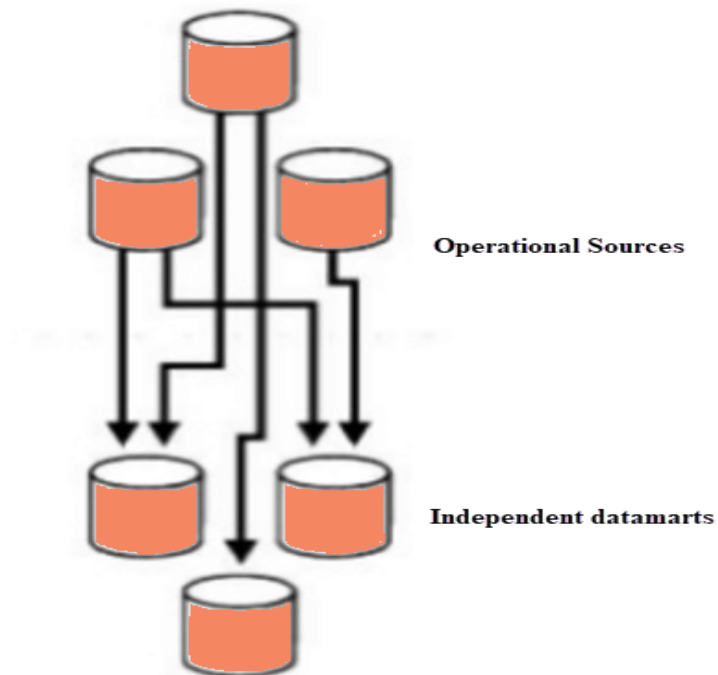
Hybrid data Mart:

A hybrid data mart combines input from sources apart from Data warehouse. This could be helpful when you want ad-hoc integration, like after a new group or product is added to the organization.

It is best suited for multiple database environments and fast implementation turnaround for any organization. It also requires least data cleansing effort. Hybrid Data mart also supports large storage structures, and it is best suited for flexible for smaller data-centric applications.
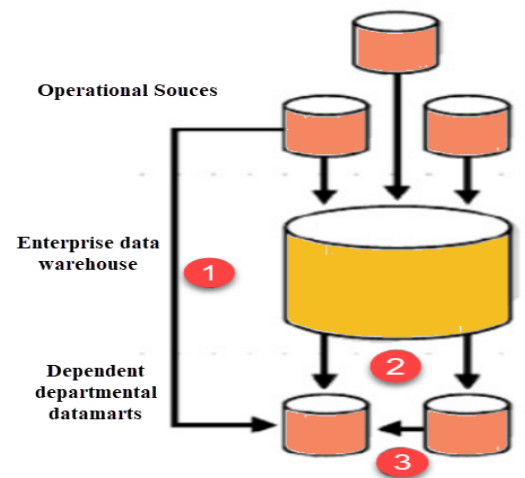
Steps in Implementing a Datamart

Implementing a Data Mart is a rewarding but complex procedure. Here are the detailed steps to implement a Data Mart:

Designing

Designing is the first phase of Data Mart implementation. It covers all the tasks between initiating the request for a data mart to gathering information about the requirements. Finally, we create the logical and physical design of the data mart.

The design step involves the following tasks:

- Gathering the business & technical requirements and Identifying data sources.
- Selecting the appropriate subset of data.
- Designing the logical and physical structure of the data mart.

Data could be partitioned based on following criteria:

- Date
- Business or Functional Unit
- Geography
- Any combination of above

Data could be partitioned at the application or DBMS level. Though it is recommended to partition at the Application level as it allows different data models each year with the change in business environment.

Products and Technologies required for designing a Data Mart

You need a relational database management system to construct a data mart. RDBMS have several features that are required for the success of a Data Mart.

- **Storage management:** An RDBMS stores and manages the data to create, add, and delete data.
- **Fast data access:** With a SQL query you can easily access data based on certain conditions/filters.
- **Data protection:** The RDBMS system also offers a way to recover from system failures such as power failures. It also allows restoring data from these backups incase of the disk fails.
- **Multiuser support:** The data management system offers concurrent access, the ability for multiple users to access and modify data without interfering or overwriting changes made by another user.
- **Security:** The RDMS system also provides a way to regulate access by users to objects and certain types of operations.

Advantages of Data Mart

- Data marts contain a subset of organization-wide data. This Data is valuable to a specific group of people in an organization.
- It is cost-effective alternatives to a data warehouse, which can take high costs to build.
- Data Mart allows faster access of Data.
- Data Mart is easy to use as it is specifically designed for the needs of its users. Thus a data mart can accelerate business processes.
- Data Marts needs less implementation time compare to Data Warehouse systems. It is faster to implement Data Mart as you only need to concentrate the only subset of the data.
- It contains historical data which enables the analyst to determine data trends.

Disadvantages of Data Mart

- Many a times enterprises create too many disparate and unrelated data marts without much benefit. It can become a big hurdle to maintain.
- Data Mart cannot provide company-wide data analysis as their data set is limited.

Reference:

https://www.guru99.com/data-mart-tutorial.html