Lecture 7

## Advantages and Application of Data Warehouse

What is Data Warehousing Meaning?

Definition:

Data Warehousing is the process of collecting, organizing, and managing data from disparate data sources to provide meaningful business insights and forecasts to respective users.

A data warehouse (DWH) is defined as a central repository of data stored from an extensive range of sources within and beyond the enterprise. It is a technology that combines structured, unstructured, and semi-structured data from single or multiple sources in order to deliver a unified view of data to analysts and business users for improved BI. Therefore, it is used for analytical and business reporting purposes, which helps in keeping past records and analyzing data to optimize business operations.

It is also important to differentiate between a database and a data warehouse as often people confuse the two. While a database is merely a conventional technique to store data, the latter is a type of database that's specially intended for data analysis. It stores everything in a single location from numerous external databanks.
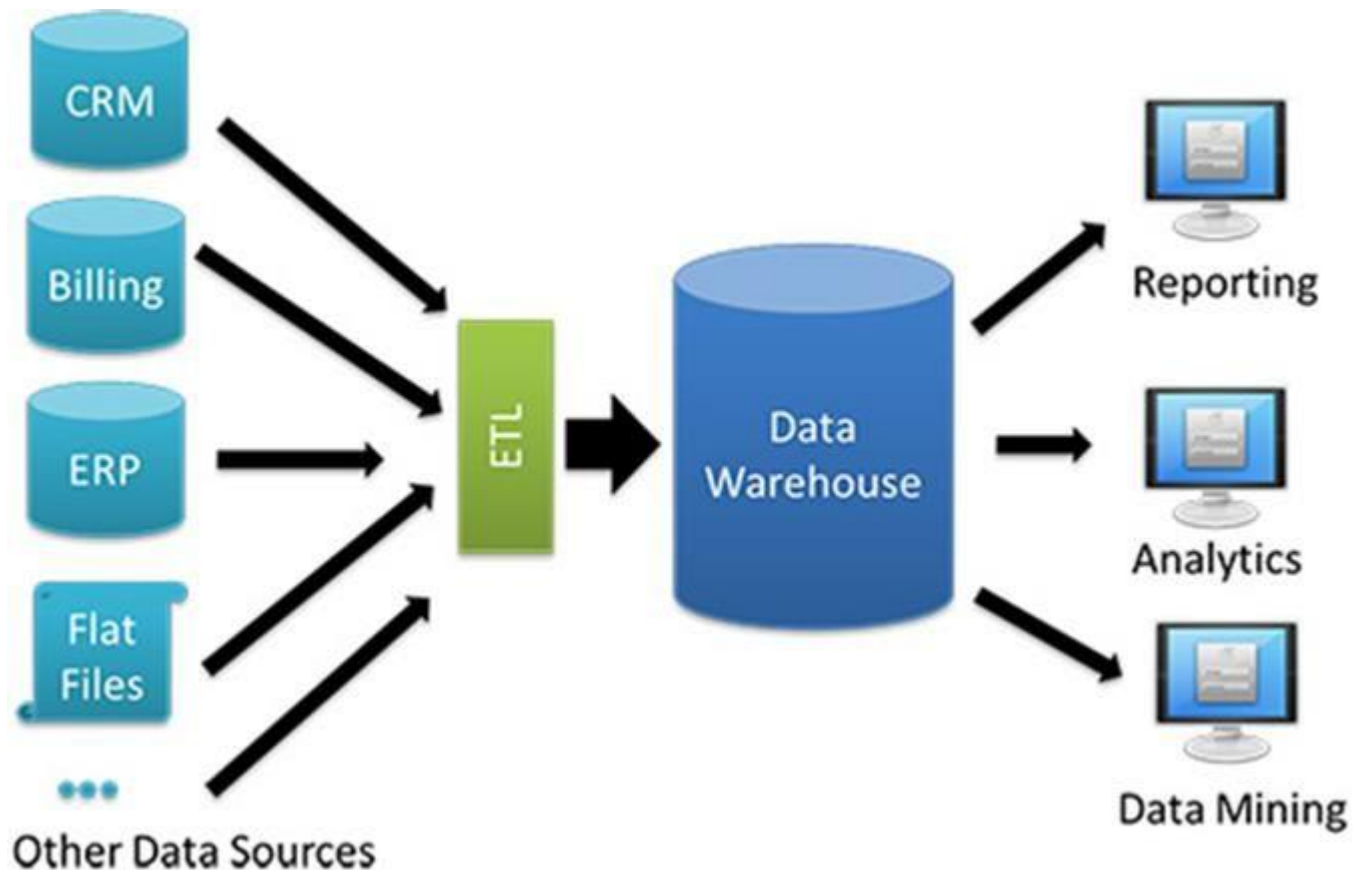
Data Warehouse Definition and Explanation (Source: Monitis Blog)

Data Warehouse Examples Explained

A data warehouse have numerous real-world applications in the corporate world. Here are a few examples of how they are used across various industries.

In retail:

For the retail industry, a good example would be a retail data mart that incorporates customer information from the cash registers, mailing lists, websites, and feedback cards. Similarly, another relevant example of the application is the health sector that uses it to access the patient's reports, share important data with insurance providers, predict outcomes, etc.

In healthcare:

In healthcare, these central repositories are used to record patient information from different units of the medical unit. This would include patient personal information, financial transactions with the hospital, and insurance data. All this is consolidated in the data warehouse and connected through the database schema.

In construction:

Similarly, in construction, the construction firms require data of every purchase made during the construction timeline. This purchase needs to be attributed to a source to make financial decisions. The same goes for the wages of contractual employees.

All this data will be recorded in a data store and later used for business visualizations to estimate the overall spending of the company on a single construction site.

In finance:

Banks, insurance firms, trading firms, and others related to the finance sector need accurate data at all times. This is only possible when the data in the databases is validated properly and appropriately connected with other tables in the database.

These are just some examples of how data warehouses are used widely in different industries and for varying purposes. Since they are just an organized store of data, they can serve many purposes for the end-user.

Types of Data Warehouses (DWH)?

There are three main types of data warehouses (DWH) mainly used in enterprise systems. They are:

1. **Enterprise Data Warehouse (EDW):** As a centralized data warehouse, EDW provides a holistic approach to organize and present data.
2. **Operational Data Store (ODS):** ODS is a data store suited for when neither the OLTP nor a DWH can support a business's reporting requirements.
3. **Data Mart:** A data mart is designed for departmental data, such as sales, finance, and supply chain.

Benefits For Organizations

Now that we are aware of how they work, it is time to know the benefits of data warehouses and how exactly they can help your business grow and scale. Whether you own a digital marketing agency or have a traditional brick and mortar setup, data warehousing can yield several benefits for your business.

Below are 7 key benefits of data warehousing for your business:

1. Saves Time

In the modern fast-paced world of cut-throat competition, your capacity as a business to swiftly make refined decisions is essential to outpace your opponents.

A DWH provides you access to all your required data in a matter of minutes, so you and your employees don't have to

dread an approaching deadline. All you need to do is deploy your data model to acquire data within seconds. Most warehousing solutions allow you to do that without using a complex query or machine learning.

With data warehousing, your business won't have to rely on the 24/7 availability of a technical expert to troubleshoot problems associated with retrieving information. This way, you can save plenty of time.

2. Improves Data Quality

The refined quality of data helps guarantee that your company's policies are based on precise information about your corporate exertions.

With data warehousing, you can transform data from multiple sources into a shared arrangement. Consequently, you can ensure the reliability and quality of your corporate data. This way, you can identify and remove replica data, inadequately recorded data, and misinformation.

Implementing a data quality management program can be both costly and exceptionally laborious for your company. You can easily use a data warehouse to eliminate a number of these annoyances while saving money and boosting your organization's overall efficiency.

After all, poor data quality is a burden for your business and can decline the overall efficiency of your plans.

3. Improves Business Intelligence

You can use a data warehouse to gather, assimilate, and derive data from any source all through your business undertakings. As a result, your BI will improve by leaps and bounds, owing to the capability of effortlessly consolidating data from distinct sources.

Let's face it: cross-referencing numerous databanks can be tough, and at times, unmanageable. But, with a data warehouse in place, everyone on your team can have an integrated understanding of all the relevant information in a timely manner.

An EDW allows your sales and marketing teams to track and identify which of your targets are dynamic and have accounts on social networking websites. So, if you're running a promotion that targets females in their mid-twenties working in the beauty industry, your team can fetch profiles of your target audience using your data lake within seconds. They won't even have to cross-reference worksheets and databanks.

4. Leads to Data Standardization and Consistency

Another important benefit of using central data stores is the standardization of big data. Your business can benefit from a data storage or data mart in a similar arrangement. As data warehousing stores data from diverse sources, such as a transactional system, in a consistent fashion, each source will generate outcomes that are synchronized with other sources. This guarantees improved quality and homogeneity of data. Consequently, you and your team can feel assured that your data is correct, which will result in more cognizant corporate decisions.

5. Enhances Return on Investment (ROI)

According to a report by the International Data Corporation (IDC), using a data warehouse generates an average [5-year ROI of 112 percent](#) with an average payback period of 1.6 years.

It empowers you to increase your overall ROI by harnessing the value and acumen implanted within numerous databanks. As you increasingly make use of the information consolidated and systematized within the a central store, you achieve more out of your investment.

Thus, you can elucidate, enumerate, and validate the efficiency of your initiatives to higher management in terms of improved ROI.

6. Stores Historical Data

As a data warehouse allows you to store large volumes of historical data from operational systems, you can easily investigate different time phases and inclinations that can be ground-breaking for your company. Thus, With the right and real-time data in your hands, you can make superior corporate decisions concerning your business strategies.

Moreover,Predicting the results of your business processes is a significant aspect of being a resourceful business person. It can be challenging to forecast the future without a tangible understanding of your historical achievements and letdowns.

For example, suppose you own a fashion brand. You plan to launch a promotional campaign for your new clothing line. Setting up a central repository enables you to access and

analyze historical data from your previous campaigns in order to identify which approach worked the best, and how you might emulate it in upcoming promotions.

You can't expect to store and analyze such comprehensive past data in any conventional databank. Thus, using a EDW gives you an advantage in your business procedures.

7. Increases Data Security

Did you know that data-related complications cost a large number of businesses more than a whopping five million dollars every year?

But, with data warehousing, you can save yourself from the hassle of additional data security.

As a business that deals with customer information regularly, your first and foremost priority is to protect your existing and prospective consumers' information. Hence, to evade all future nuisances, you take all the indispensable actions to escape data breaches. Using a warehousing solution, you can keep all your data sources consolidated and appropriately protected. This will significantly decrease the threat of a data breach.

A data warehouse allows improved security by offering cutting-edge safety characteristics erected into its set-up. Consumer information is a valuable resource for any company. But once safety becomes a problem, this information becomes your main burden.

Bottom-line

These are just a few advantages that data warehousing has to offer for your business. It provides you with improved business intelligence, robust decision support, superior business practices, and effective analytics processing.

Reference

https://www.astera.com/type/blog/data-warehouse-definition/