

Module – 6.1

Introduction to Data Warehousing & BI

Course Topics

- **Module 1**
Introduction to Data Ware Housing & BI
- **Module 2**
Data Warehouse Architecture
- **Module 3**
Data Warehouse: D & F – Dimension & Fact Tables
- **Module 4**
Data Modelling
- **Module 5**
Building Data Ware House With ER Win

Course Topics

- **Module 6**
Introduction to Open Source ETL Tool – Talend DI 5.x
- **Module 7**
Building ETL Project With Talend DI Open Studio 5.x
- **Module 8**
Introduction to Data Visualization BI Tool – Tableau 9.x
- **Module 9**
Building Data Visualization BI Project With Tableau 9.x
- **Module 10**
An Integrated Data Ware Housing & BI Project

Objectives

At the end of this module, you will be able to

- Understand Data Ware Housing concepts
- Understand Data Modeling & ETL Tools
- Understand Business Intelligence concepts
- Understand Business Intelligence classification
- Understand Business Intelligence Tool

What is Data Warehouse – Definition By W.H. Inmon

Loosely Speaking

- A data warehouse refers to a database that is maintained separately from an organization's operational database

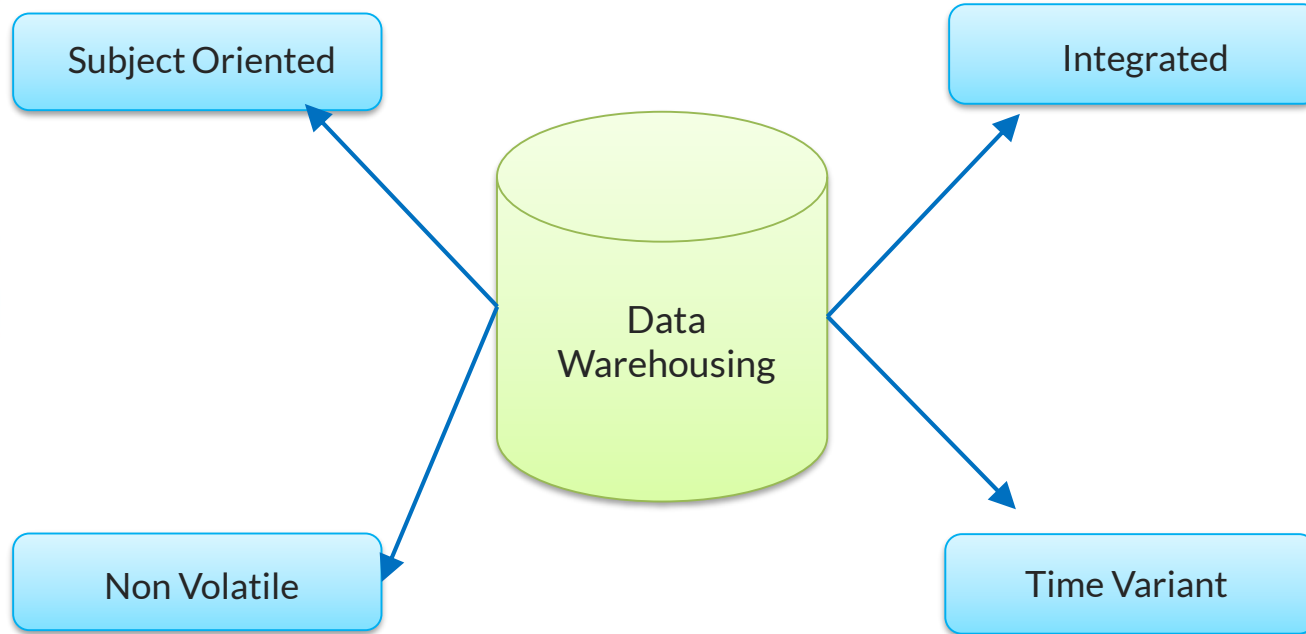
Officially Speaking

- “A data warehouse is a subject-oriented, integrated, time-variant, and nonvolatile collection of data in support of management's decision-making process.”



W.H. Inmon

Data Warehouse Properties



Subject-Oriented

Data is categorized and stored by business subject rather than by application

OLTP Applications

Equity
Plans

Insurance

Loans

Shares

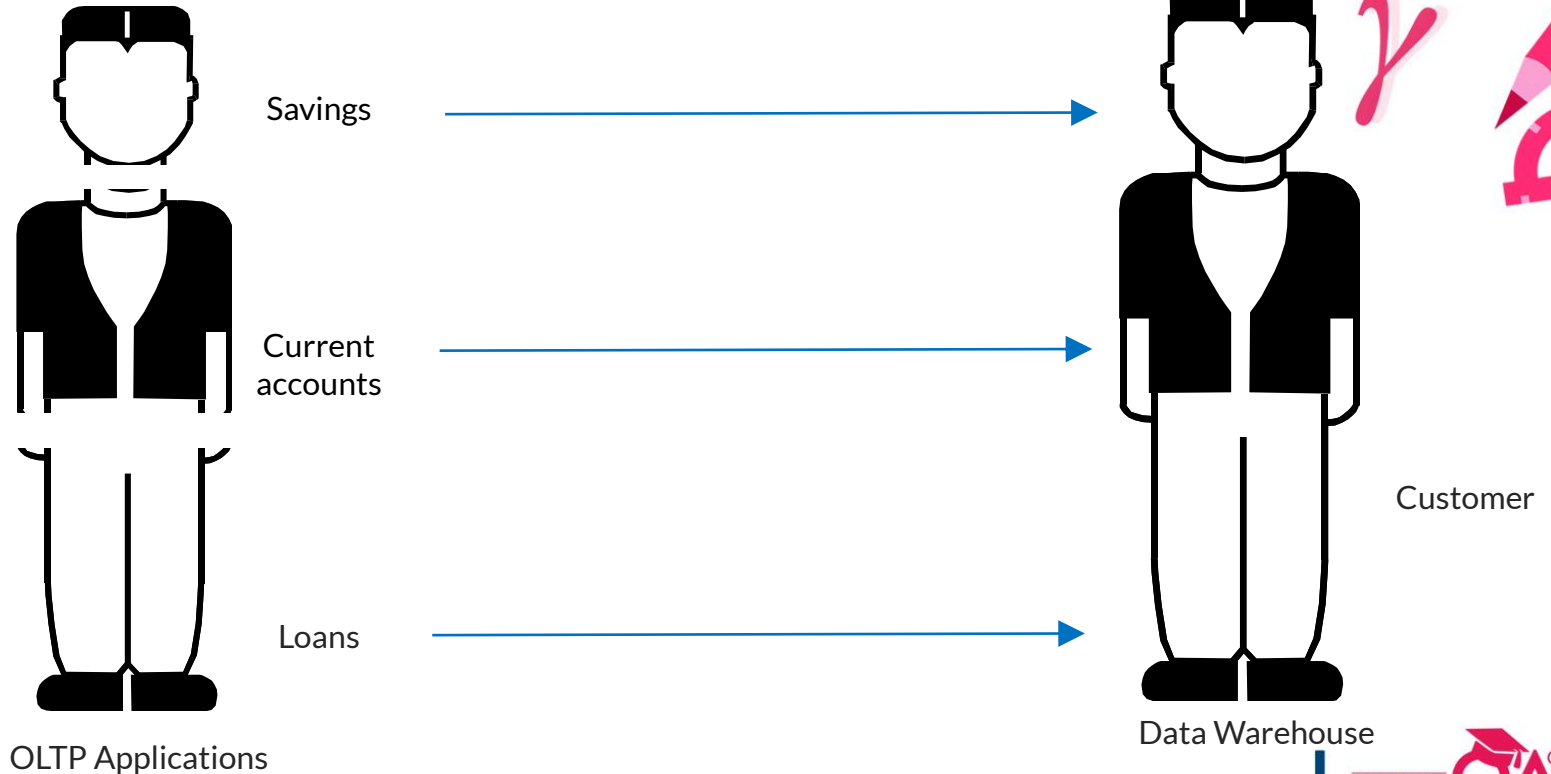
Savings

Data Warehouse Subject

Customer
financial
information

Integrated

Data on a given subject is defined and stored once.



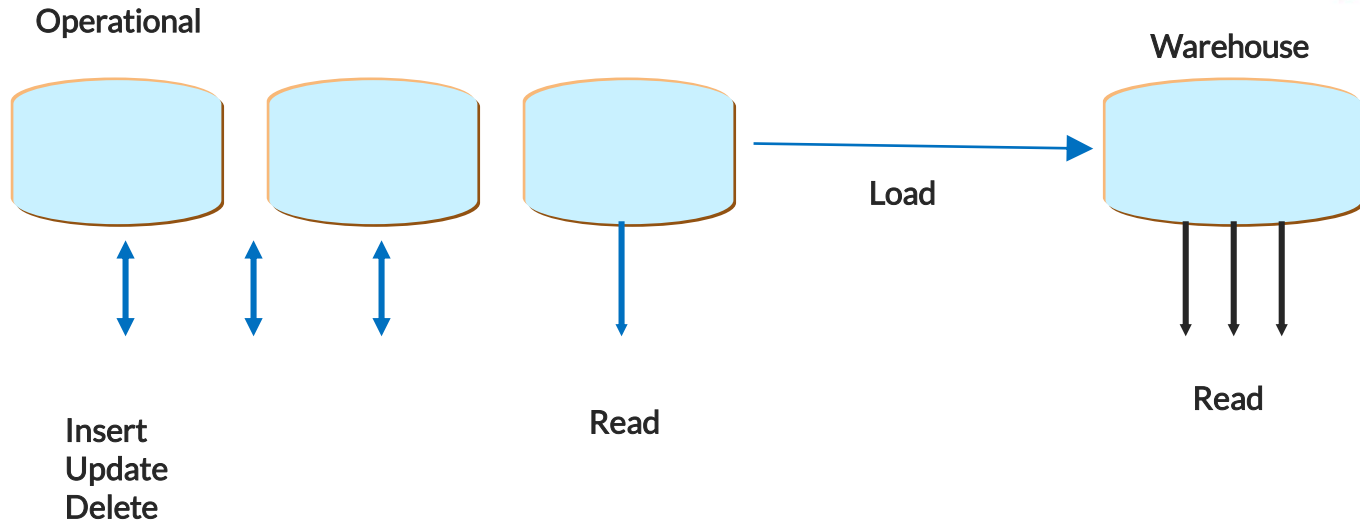
Time-Variant

Data is stored as a series of snapshots, each representing a period of time...

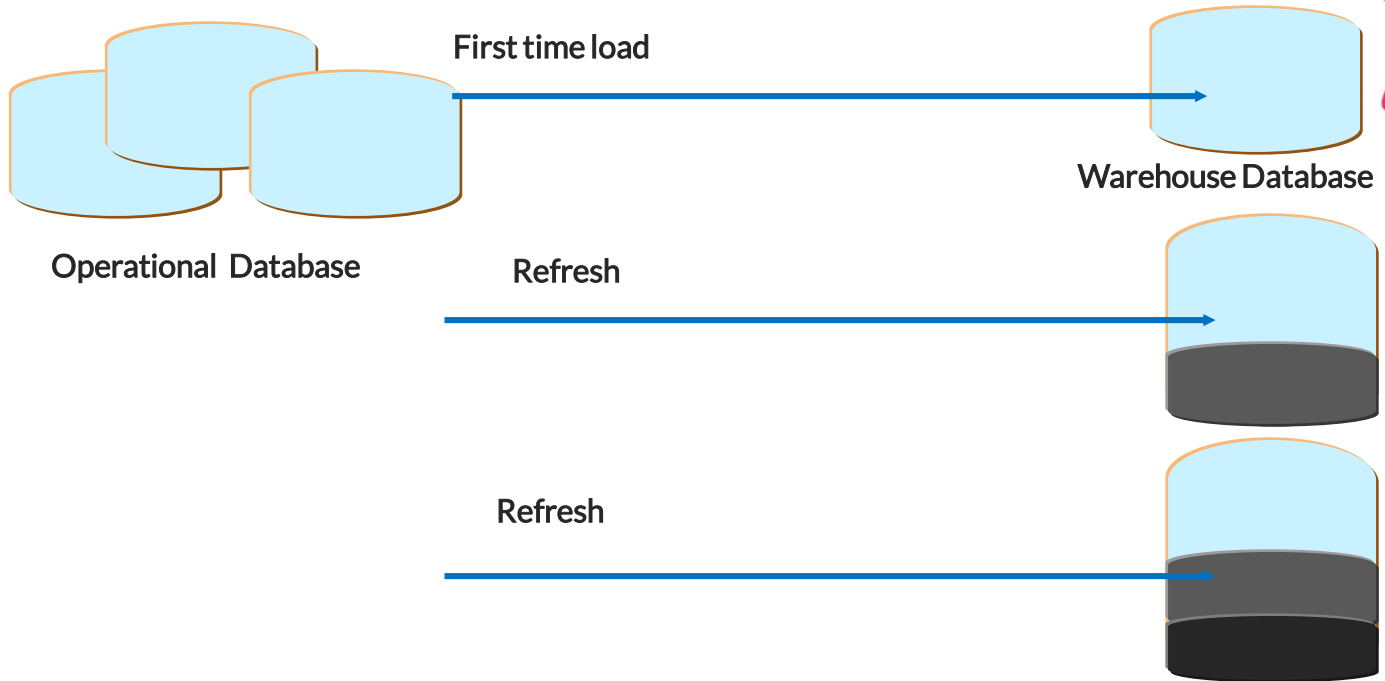
TIME	DATA
Jan-97	January
Feb-97	February
Mar-97	March
Jan-97	January

Nonvolatile

Typically data in the data warehouse is not updated or deleted.



Changing Data



What is Data Warehouse – Definition By Ralph Kimball

Officially Speaking

“Data warehouse is the conglomerate of all data marts within the enterprise. Information is always stored in the dimensional model.”



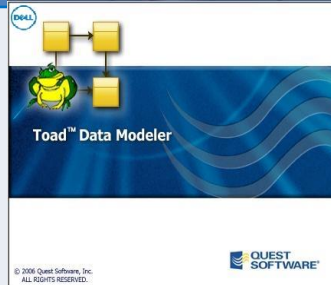
Ralph Kimball

Inmon Vs Ralph Kimball

Characteristics	Inmon	Kimball
Business Decision Support Requirements	Strategic	Tactical
Data Integration Requirement	Enterprise Wide Integrator	Individual Business Requirement
Data Structure Requirement	Data that meet multiple and varied information needs and non-metric data	KPI, Business Performance Measure & Scorecards Requirements
Persistency of Data in Source System	Source Systems have high rate of change	Source Systems are quite stable
Skill Sets	Bigger Team of Specialists	Small Team of Generalists
Time Constraint	Longer Time Required	Urgent delivery as this is subjective
Cost to Build	High Start-up Costs	Low Start-Up Costs

Data Ware Housing Products

Entity Relationship / Schema Modeling



Data Integration / ETL



Oracle Data Integrator

ORACLE

What is Data Warehouse Categories Type?

Information processing, analytical processing & data mining are the three types of data warehouse applications that are discussed below:

Information Processing

A data warehouse allows to processing for the data. The data can be processed for querying, basic statistical analysis, reporting using crosstabs, tables, charts, or graphs and many more information presentation layer.

Analytical Processing

A data warehouse supports analytical processing for do some analysis for the data. The data can be analyzed by basic OLAP operations, including slice-and-dice, drill down, drill up, and pivoting with summary table.

Data Mining

Data mining talking about more finding hidden patterns and associations, constructing analytical models, performing classification and prediction for the data. These mining results can be visualized via visualization tools.

What is Business Intelligence?c

Business intelligence (BI) is the set of techniques and tools for the transformation of raw / production and operational data into meaningful and useful information for business analysis purposes for various level.

Business intelligence (BI) systems based on Data Warehouse technology, which gathers information from a wide range of company's operational systems. Data loaded to data ware house which is integrated and cleaned which allows credible information for the end business user for actual business uses.

Business intelligence (BI) allows the information discovery and analysis, making it possible for decision-makers at all levels of an organization to more easily access, understand, analyze, collaborate, and act on information, anytime and anywhere with real access of the production LIVE or offline data.

What is Business Intelligence?

Business intelligence (BI) talks about how traditional data which transform into the BI which have multiple initiatives to measure, manage, and improve on the performance of individuals, processes, teams, and business units for the specific business area.

During the operation of business, the following questions must be asked. The functions of monitoring, analyzing, and planning delve into these questions as follows :

- What has happened?
- What is happening?
- Why?
- What will happen?
- What do we want to have happen?

What is Business Intelligence Tools?

Spreadsheets – These interactive applications that manage information into a visual format, organized by rows and columns with specific graphs and pivot table features.

Reporting and Querying Software – These tools extract, sort and summarize data. There is a variety of software programs used to present this data, including open-source and commercial software types.

Online Analytical Processing – This processing approach quickly answers analytical queries that are multi-dimensional. The types of applications included in this processing include business reporting, marketing, budget and forecasting.

Data Mining – Data mining is the bridge between statistics and computer science. It is used to uncover patterns in large sets of data.

What is Business Intelligence Tools?

Process Mining – This process management technique logs various events to determine business processes. Process mining provides techniques and tools that will discover control, data, process and social structures from event logs.

Digital Dashboards – A single-page interface in real-time that show at-a-glance information.

Decision Engineering – A framework that utilizes the best practices for organizational decision making. It helps businesses make decisions based on a variety of business approaches.

Business Performance Management – Management and analytic processes that manage a business' performance to achieve short- and long-term goals.

What is Business Intelligence Categories?

Strategic Business Intelligence: Management collaborates and agrees on a strategy and a method in which they would like to see information presented, for example, in maps, scorecards, reports, or dashboards.

Now that you have your strategy defined, it is imperative that you do something with the data that you have collected

Analytical Business Intelligence: Once Strategic BI sets the foundation in the form of key performance metrics, then Analytical BI is employed to identify the source of an issue once it has been uncovered.

Tools like analytic dashboards, OLAP, predictive analytics, and ad hoc queries are utilized to determine the location or the cause of a major problem.

What is Business Intelligence Categories?

For example, if profits are declining, is it because of low sales or increasing expenses? If customer churn rates are on the rise, is it because of poor product quality, or lack of success in customer loyalty initiatives?

Operational business intelligence, sometimes called real-time business intelligence, is an approach to data analysis that enables decisions based on the real-time data companies generate and use on a day-to-day basis. Typically, the data is queried from within an organization's enterprise applications

Data virtualization is any approach to data management that allows an application to retrieve and manipulate data without requiring technical details about the data, such as how it is formatted or where it is physically located

Business Intelligence Products



Questions

Survey

Your feedback is important to us, be it a compliment, a suggestion or a complaint. It helps us to make the course better!

Please spare few minutes to take the survey after the webinar

Thank You!