Data Warehousing Concepts

Lesson 1: Business Intelligence

Lesson Objectives

- In this lesson, you will learn:
  - What is Business Intelligence?
  - Need of Business Intelligence
  - Terms used in Business Intelligence
  - Components of Business Intelligence

What is Business Intelligence (BI)?

- The term BI was coined by Gartner group in 1993.
- It is an important component in today's business information systems environment.
- It is the process of turning data into knowledge and knowledge into business gains.
- It collects and stores data into meaningful information in order to achieve better and timelier business decisions.
- It is an end user's activity supported by various analytical and collaborative tools.

What is Business Intelligence (BI)?

- BI is used for enhancement and optimization of organizational performance and operation.

- It delivers critical business information to end-users.

- It supports internal enterprise users in the assessment.

- It is applied across disciplines, namely Finance, CRM, and SCM

- It encompasses all types of data such as RDBMS, text, hierarchical, audio, and video.

BI- Nutshell

- *Analyze* internal business activities to improve processes, increase efficiency, and reduce costs
- *Track* external market trends to understand customer behavior, improve relationships, identify opportunities, and increase competitiveness
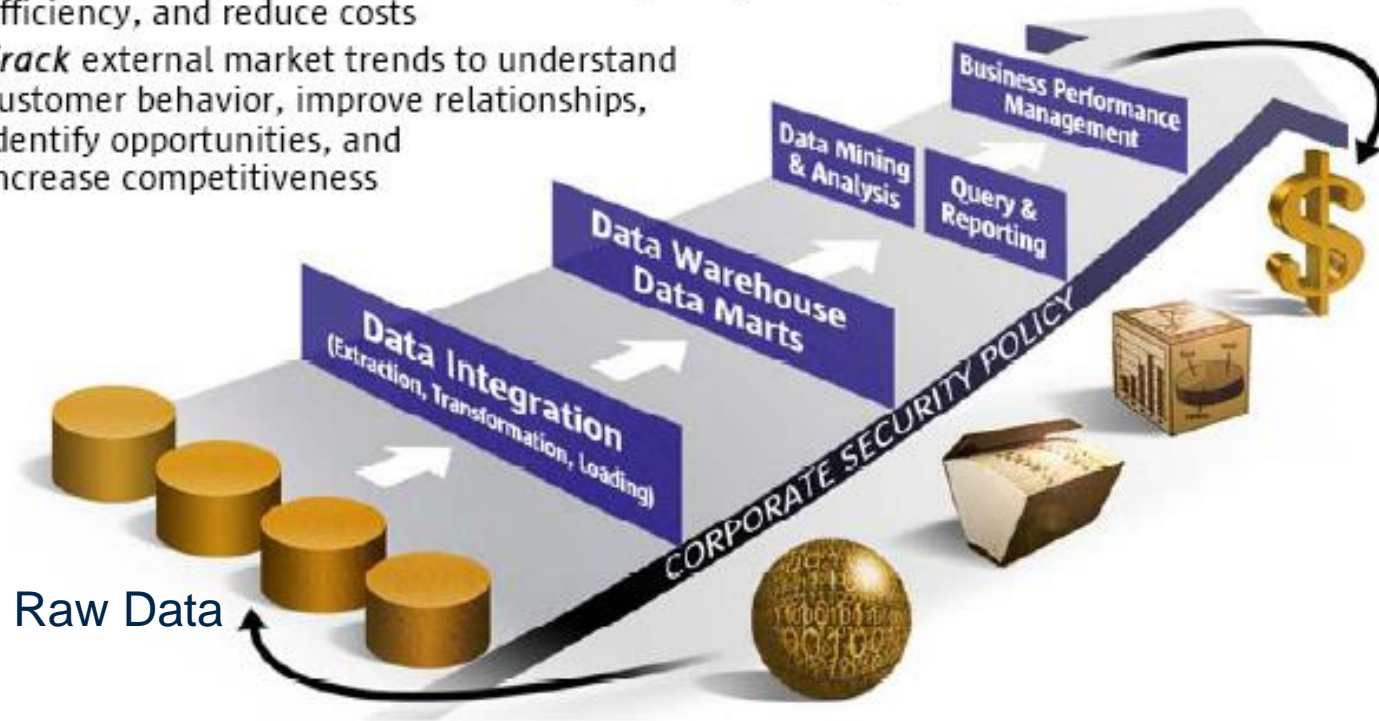

Raw Data

Figure 1. BIDW Overview

NEED FOR BI ….

PRODUCER WANTS TO KNOW ....

Which are our lowest/highest margin customers ?

Who are my customers and what products are they buying?

What is the most effective distribution channel?

What product prom--otions have the biggest impact on revenue?

Which customers are most likely to go to the competition ?

What impact will new products/services have on revenue and margins?

NEED FOR BI …

- Data, Data everywhere yet …
- I can't find the data I need
  - data is scattered over the network
  - many versions, subtle differences
- I can't get the data I need
  - need an expert to get the data
- I can't understand the data I found
  - available data poorly documented
- I can't use the data I found
  - results are unexpected
  - data needs to be transformed from one form to other

Why Business Intelligence?

- BI is required to meet the following business needs:
  - To support the process of exploring data, relationships existing within data, and trends
  - To make more accurate and more informed decision making
  - To provide timely and accurate information to better understand your organization and to make more informed, real-time decisions
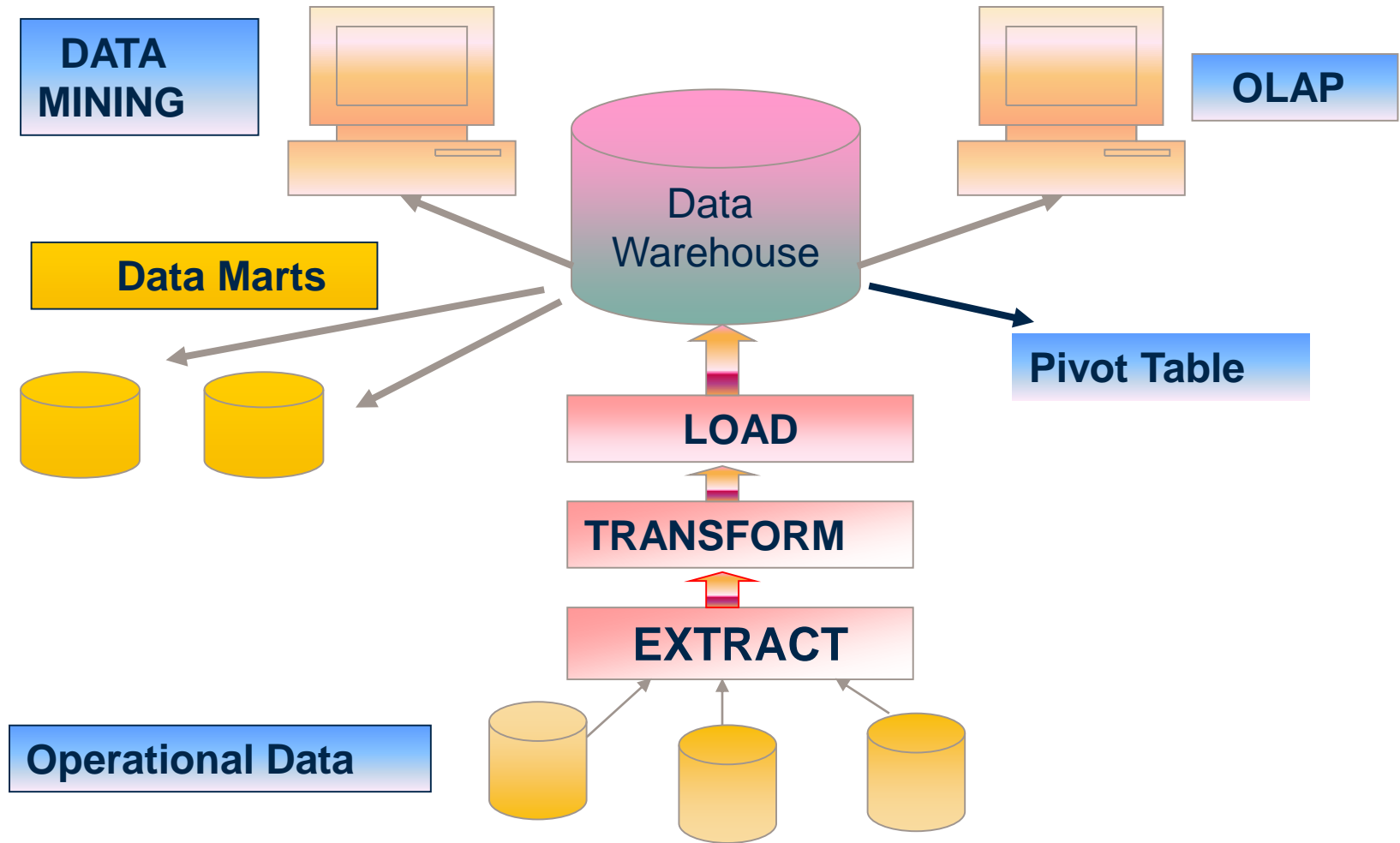
Why Business Intelligence?

- Data Analysis is a huge and crucial part of Business Intelligence.

- Many organizations need to know the overall performance and the way its business is functioning.

- BI is used to gather past as well as present data.

- Modern BI systems are capable of managing large amount of unstructured data.

Frequently used BI Terms

- Let us discuss some of the frequently used BI terms:
  - Relational Database (RDB)
  - Relational Database Management System (RDBMS)
  - Example: Informix, Microsoft SQL Server, Oracle.
  - Online Transaction Processing (OLTP)
  - Online Analytical Processing (OLAP)

Diagrammatic Representation

DATA MINING

OLAP

Data Marts

Data Warehouse

Pivot Table

LOAD

TRANSFORM

EXTRACT

Operational Data

Summary

- In this lesson, you have learnt:
  - BI helps to extract information from data.
  - BI helps organizations in making real time decisions.
  - Components of BI are given below:
    - Data Warehouse
    - OLTP
    - OLAP
    - ETL tools
    - Data marts
    - Reports
    - Pivot table

Summary

Review Questions

- Question 1: This a huge and crucial part of Business Intelligence.
  - Option 1: Data collection
  - Option 2: Data analysis
  - Option 3: Data availability

- Question 2: OLAP Analysis is not the part of BI presentation.
  - True / False

- Question 3: ___ operation converts data to format required by data warehouse.

Review Question: Match the Following

1. pulling the data from external and operational data sources	A. OLAP Analysis
2. part of BI presentation	B. RDB
3. Software for relational database	C. Extract
	D. OLTP
	E. RDBMS