

KNOWLEDGE MANAGEMENT PROCESS IN DISTANCE LEARNING

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Knowledge Management in Distance Learning

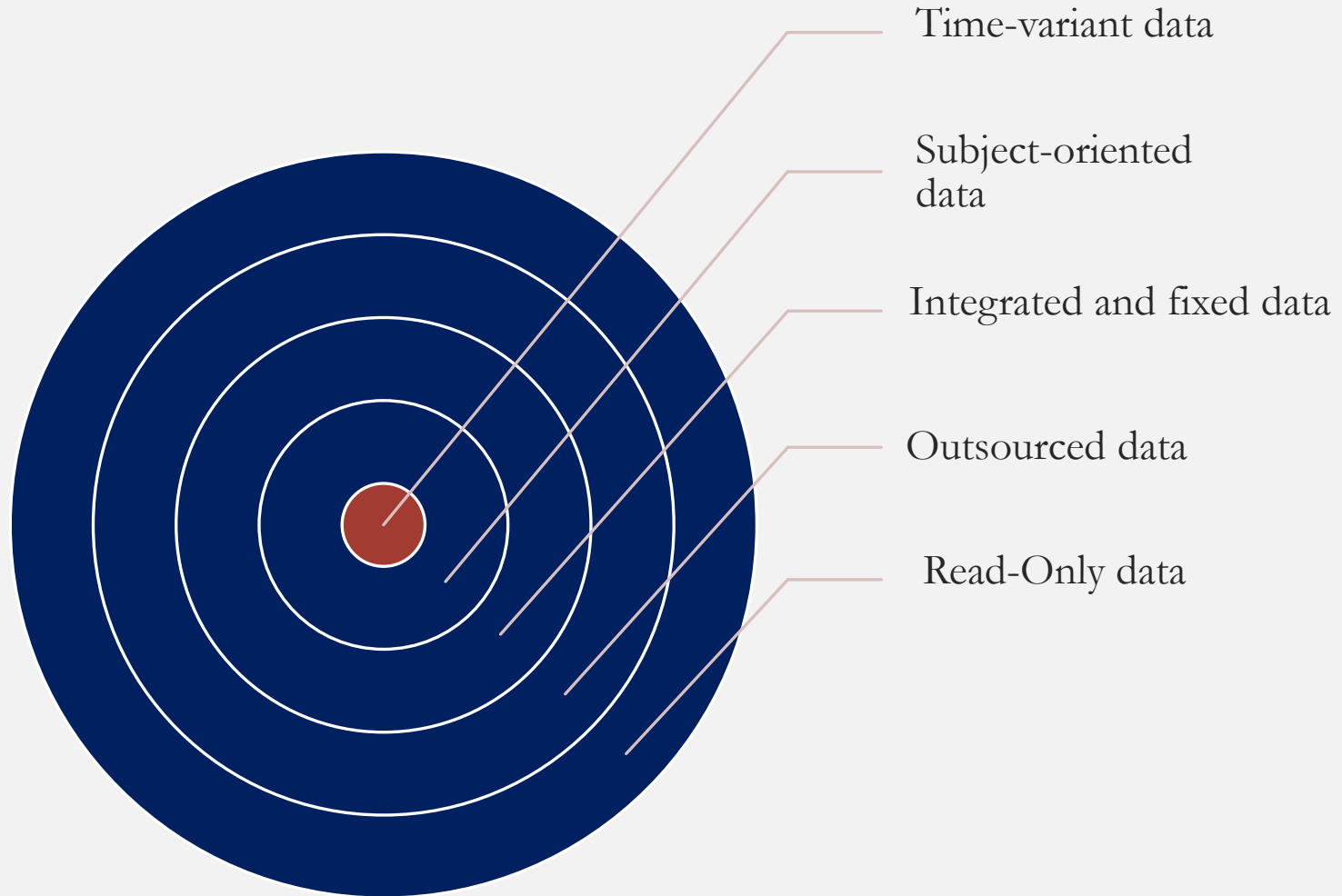
- Educational data is recorded in a relational database.
- Extract-Transform-Load(ETL) Process
 - ✓ The data is **extracted** from various data resources
 - ✓ Applying some data preprocessing, the data is **transformed**
 - ✓ The transformed data is **loaded** in a data warehouse.
- OLAP tools and some commercial./open-source software tools are used in distance education.

DATA WAREHOUSE

Data warehousing provides some architectures and tools for business executives to;

- systematically organize,
- understand,
- use their data in a strategic decision making.

DATA WAREHOUSE



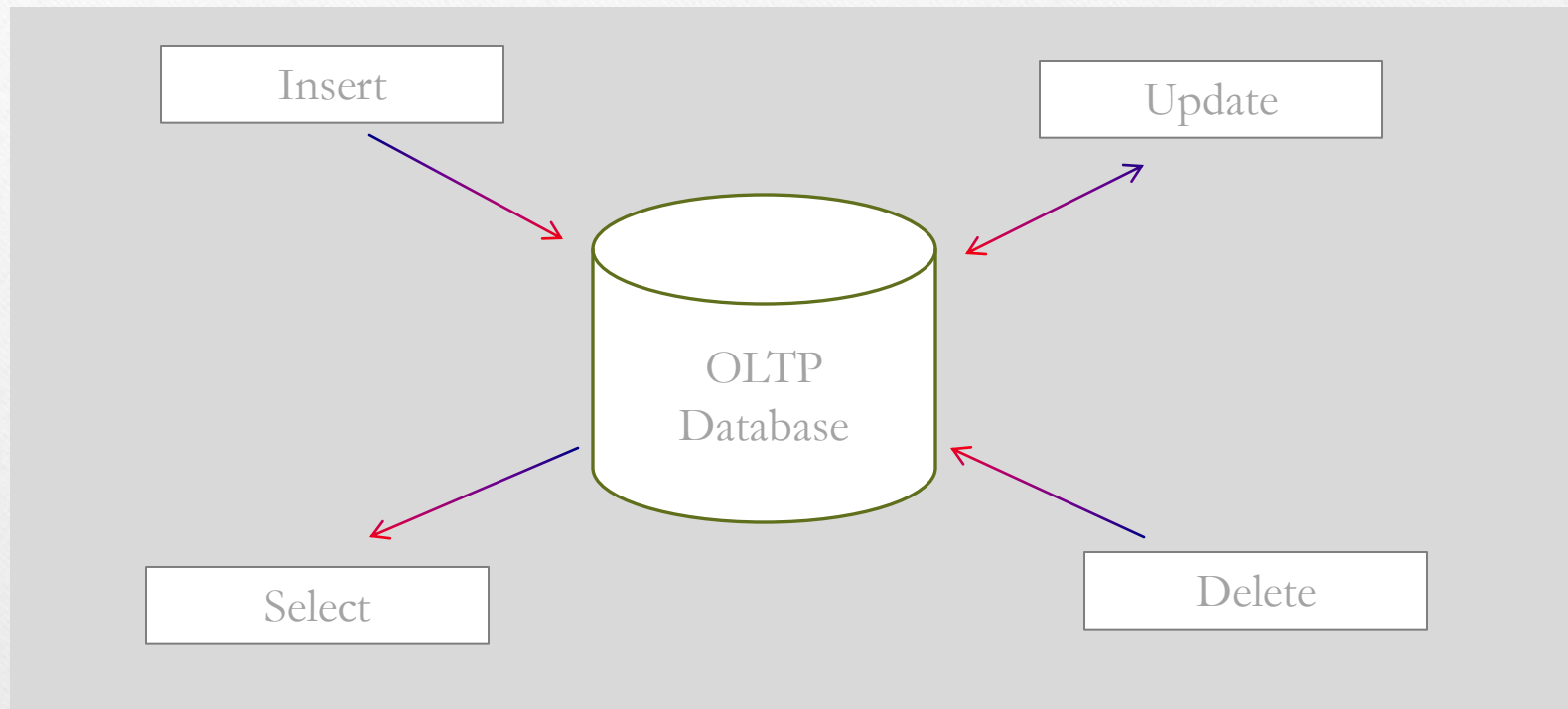
Database Management Systems

- OLTP
- OLAP

OLTP Systems (Online Transaction Processing)

- These are some operational systems that support daily organizational needs.
- They allow a daily data processing in organization.

OLTP Systems (Online Transaction Processing)



Some Applications on Records

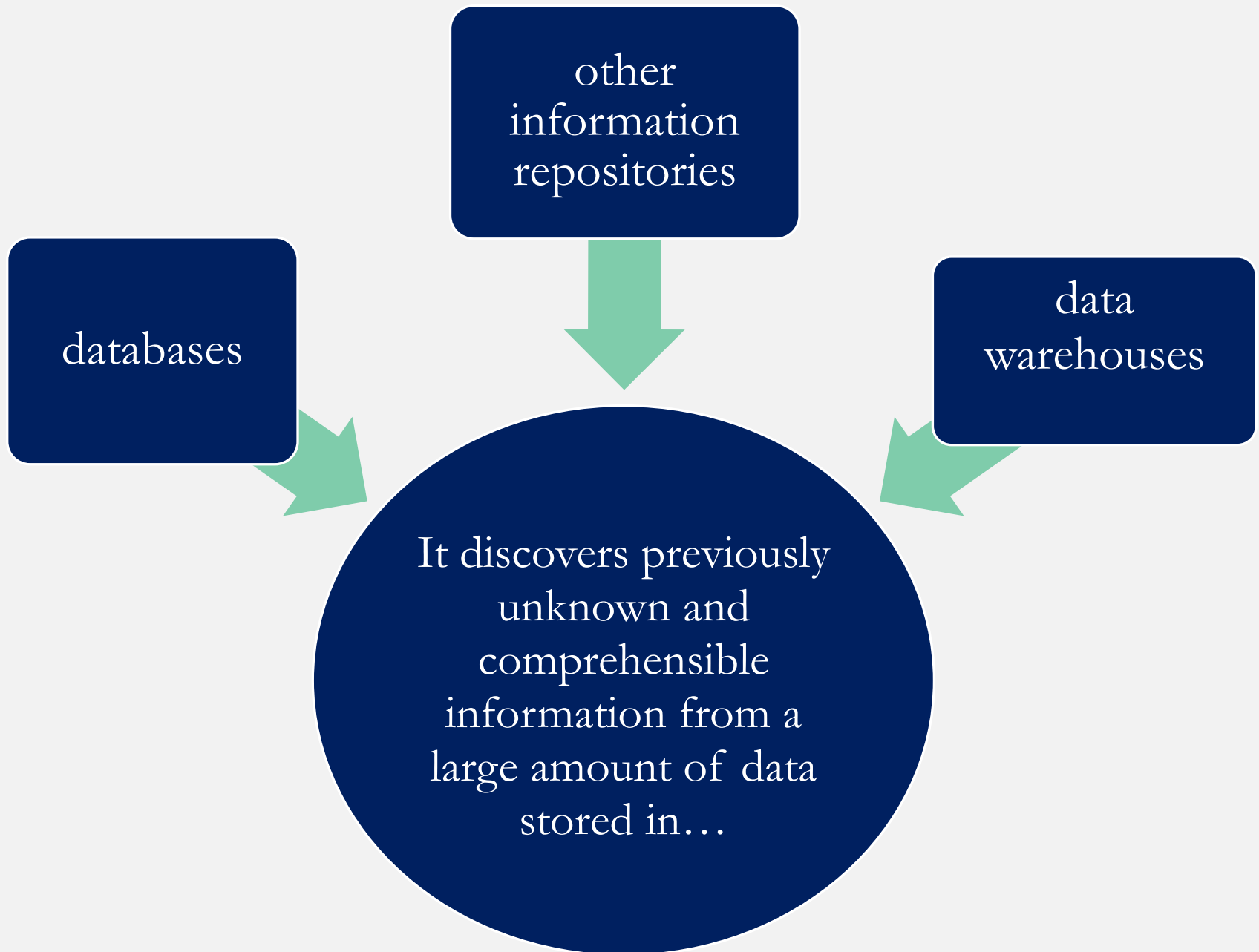
OLAP Systems (Online Analytical Processing)

- It is a data analysis and query system on databases
- OLAP tools enable users to analysis multidimensional data.
- OLAP and data warehouses complete eachother. While data warehosuses are storing significant data, OLAP provides some analyzing applications on them

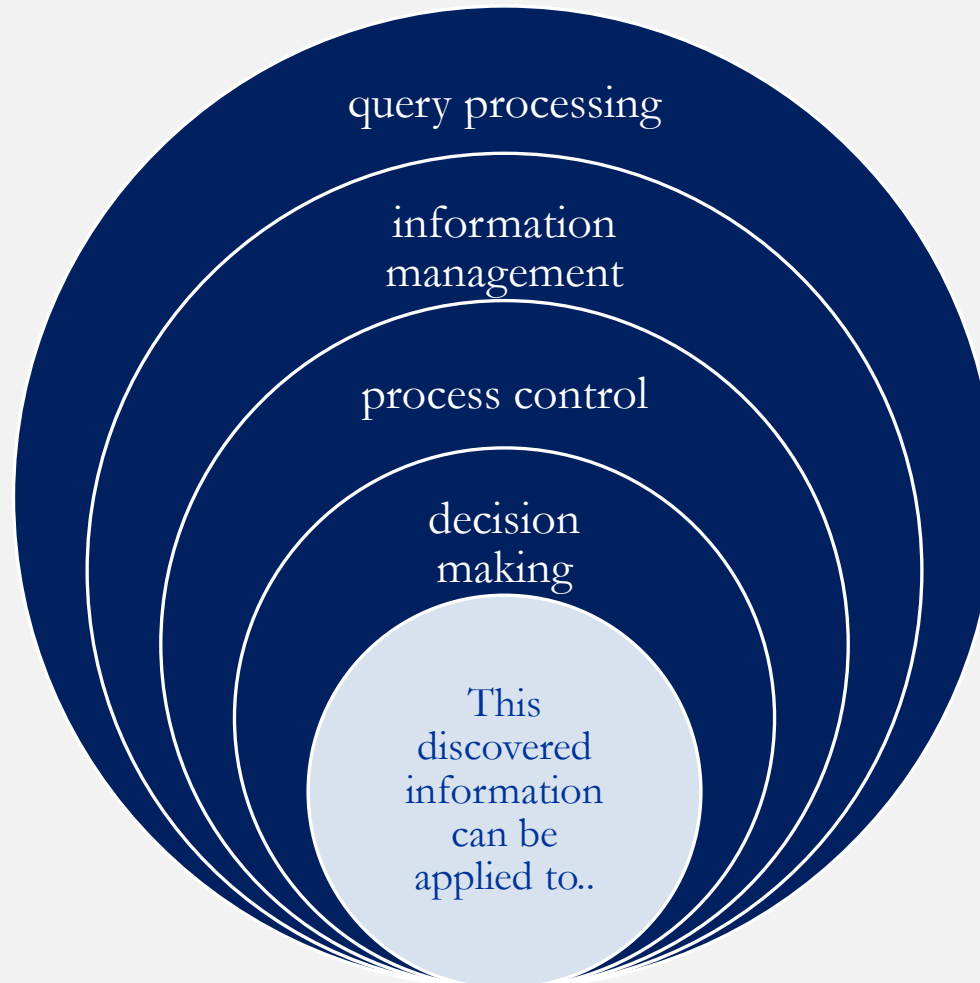
DATA MINING

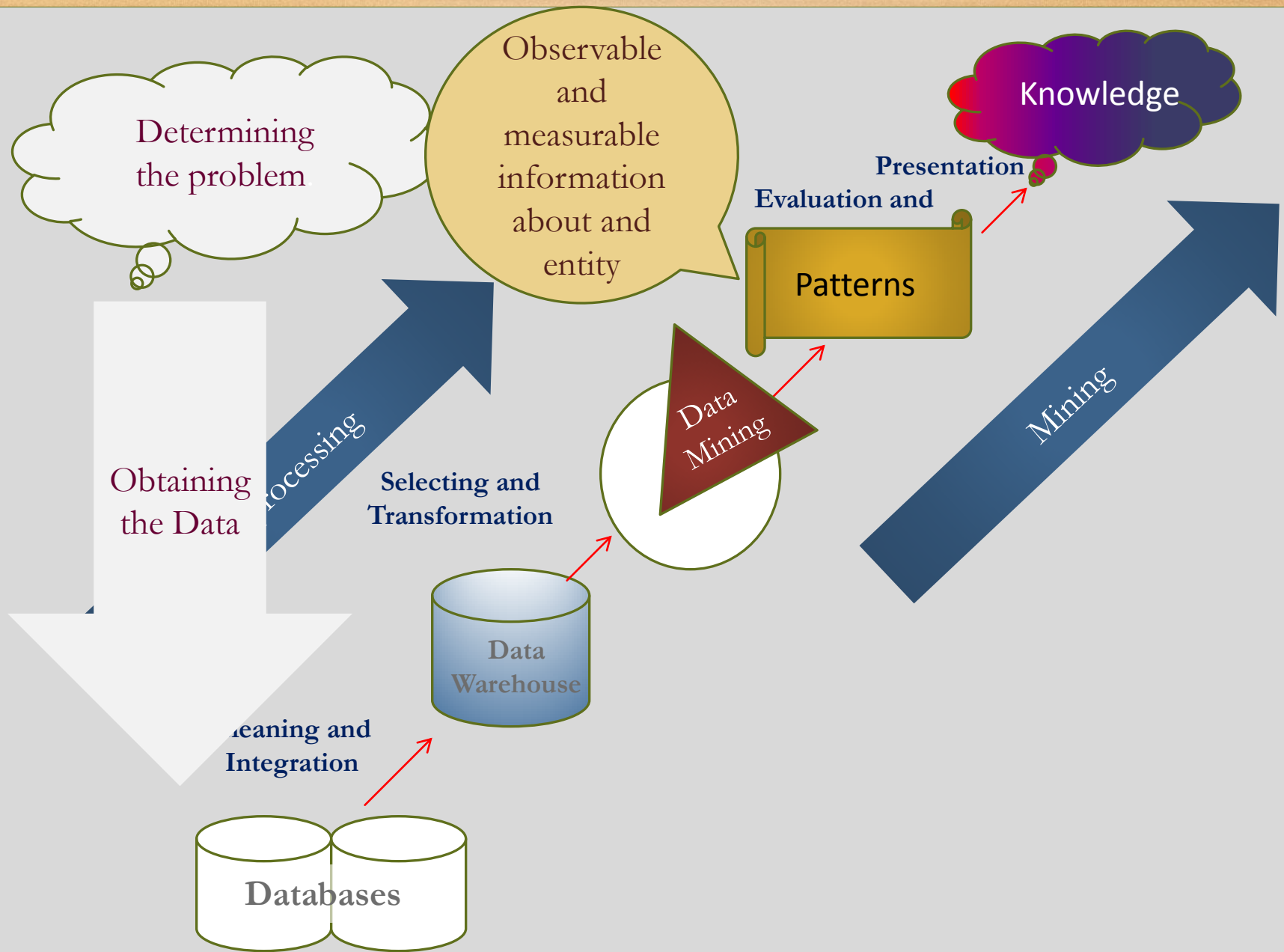


It is a process



When Do We Apply This Discovered Information?





Data Mining as a Step in The Process of Knowledge Discovery

Preprocessing Steps:

1. **Data Cleaning :** To remove noise and inconsistent data
2. **Data Integration:** To combine multiple data source (If it is necessary)
3. **Data Reduction:** To decrease the size of relevant data by merging, reducing, compressing, sampling and generalizing.
4. **Data Transformation:** To transform and consolidate data into appropriate forms for a mining process by performing summary or aggregation operations

Data Mining Methods

MODELS

WORKING AREA

SAMPLE APPLICATIONS

Descriptive Models

- Concept Description
- Clustering

Customer Profile for cross-selling

Market Segmentation

Predictive Models

- Classification
- Prediction

Diagnosing Disease and errors

Estimating Duration Of Contracts

Explanatory Models

- Association
- Characterization

Market- Basket Analysis

Success Factor of Websites

**To measure of the quality of distance learning
and the students'success, the following
attributes can be applied in some data mining
methods such as classification and clustering.**

Some Applied Attributes:

- The attendance frequency of a student
- Age
- Mid-term score
- Homework score
- Final exam score
- The following rate of the course-content by students
- The frequency of sending message