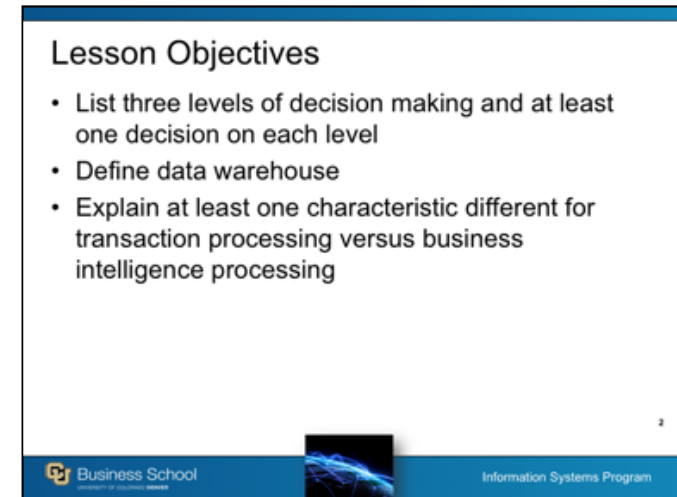


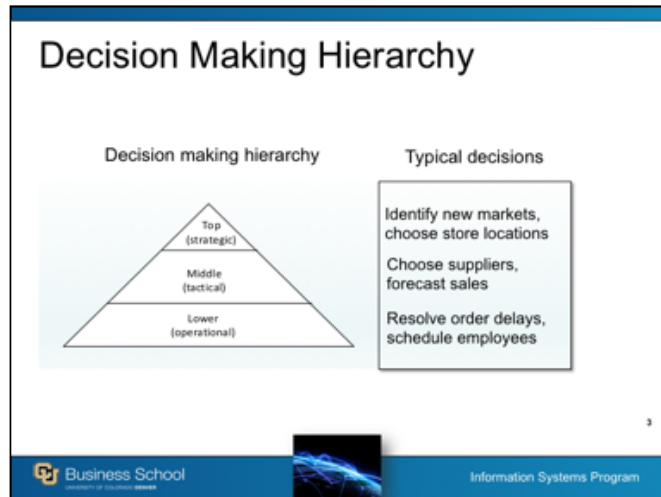
Welcome to Lesson 6 of Module 2 on the Introduction to Databases and DBMSs

-Covers basic concepts of data warehouse processing

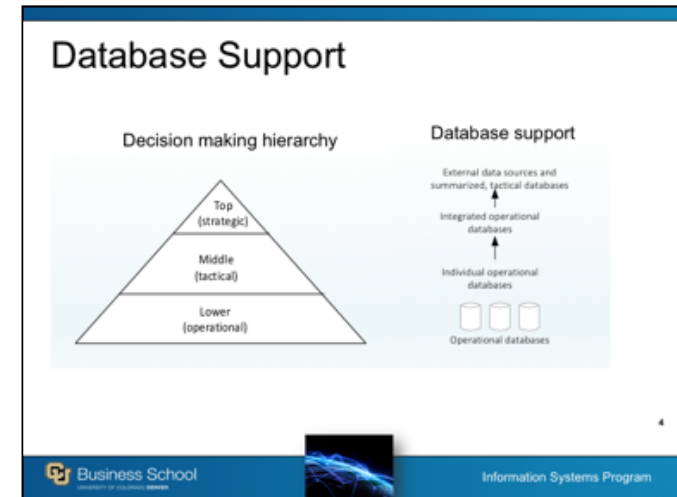
-Database management systems are vital technology to modern organizations

How do data warehouses affect your life?





Lower-level management deals with short-term problems related to individual transactions. Periodic summaries of operational databases and exception reports assist operational management. Middle management relies on summarized data that are integrated across operational databases. Middle management may want to integrate data across different departments, manufacturing plants, and retail stores. Top management relies on the results of middle management analysis and external data sources. Top management needs to integrate data so that customers, products, suppliers, and other important entities can be tracked across the entire organization. In addition, external data must be summarized and then integrated with internal data.



Operational databases directly support major functions such as order processing, manufacturing, accounts payable, and product distribution. The reasons for investing in an operational database are typically faster processing, larger volumes of business, and reduced personnel costs.

Operational databases provide the raw materials for management decision-making as depicted in the slide. Lower-level management can obtain exception and problem reports directly from operational databases. However, much value must be added to leverage the operational databases for middle and upper management. The operational databases must be summarized and integrated to provide value for tactical and strategic decision-making. Integration is necessary because operational databases often are developed in isolation without regard for the information needs of tactical and strategic decision-making.

Data Warehouse Characteristics

- Essential part of infrastructure for business intelligence
- Logically centralized repository for decision making
 - Populated from operational databases and external data sources
 - Integrated and transformed data
 - Optimized for reporting

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Definition:

- Central repository: populated from operational databases and external data sources
- Many transformations to clean, standardize, and integrate
- Summarized: no need to identify individual transactions although transaction details may be useful for flexible data analysis; summary data for optimizing reporting

Comparison of Environments

- Transaction processing
 - Primary data in operational databases
 - Large volumes of transactions with relatively small amounts of data per transaction
 - Some reporting requirements for operations
- Business intelligence processing
 - Secondary data from operational databases
 - Substantial processing for transformations and integration
 - Large volumes of data for reporting

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Transaction processing:

- Operational databases: for daily business
- Decisions: involve details of products, customers, shipments, manufacturing
- High volumes of transactions with small amounts of data per transaction

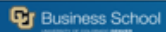
Business intelligence:

- Integrated and summarized data: difficult to directly use operational data
- Decisions: broad view of customers, products, production, marketing
- Transformation processing typically offline (non working hours)
- Reporting during the day with large volumes of data per report

Summary

- Data warehouse processing supports tactical and strategic decision making
- Business intelligence processing evolution since mid 1990s
- Different DBMS features for business intelligence support

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This course focuses on databases for operations and skills fundamental to both types of processing.

Courses 2 and 3 cover data warehouse design and DBMS features