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Chapter 1
Software Process

Topics

- The nature of software development
- System planning
- Systems for three management levels
- The software development lifecycle
- Development models and methods
- Problem statements for case studies (separate set of slides)

3. Systems for three management levels

- strategic
- tactical
- operational

Systems for three management levels

Level of decision making	***Focus of decision making***	***Typical IS applications***	***Typical IT solutions***	***Pivotal concept***
Strategic *(executive and senior management levels)*	*Strategies in support of organizational long-term objectives*	*Market and sales analysis, Product planning, Performance evaluation*	*Data mining, Knowledge management*	**Knowledge**
Tactical *(line management level)*	*Policies in support of short-term goals and resource allocation*	*Budget analysis, Salary forecasting, Inventory scheduling, Customer service*	*Data warehouse, Analytical processing, Spreadsheets*	**Information**
Operational *(operative management level)*	*Day-to-day staff activities and production support*	*Payroll, Invoicing, Purchasing, Accounting*	*Database, Transactional processing, Application generators*	**Data**

Transactional processing systems

- OnLine Transaction Processing (OLTP) systems
  - *Transaction* – a logical unit of work that accomplishes a particular business task and guarantees the integrity of the database after the task completes
  - Database technology
    - Concurrency control
    - Recovery
    - Business logic (vs application/control logic)
    - Security

Analytical processing systems

- OnLine Analytical Processing (OLAP) systems
  - *Analysis* of pre-existing historical data to facilitate decision making
  - Data warehouse technology
    - Summarizing
    - Packaging
    - Partitioning
  - Data marts
  - Data webhouse

Knowledge processing systems

- "Know-how" – intellectual capital accumulated through experience
- *Knowledge management* – to help organizations discover, organize, distribute and apply the knowledge encoded in information systems
  - Data mining
    - Association
    - Classification
    - Clustering
  - AI techniques → *predictive* rather than retrospective models

Review Quiz 1.3

1. Which level of decision making is primarily supported by the data warehouse technology?
2. What are the two main functions of transaction management in OLTP systems?
3. What kind of OLAP technology aims at supporting individual departments or business functions and stores only summarized historical data?
4. What is the main technology underpinning knowledge processing systems?