COMPUTER BASED INFORMATION SYSTEMS

Technology Education

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Competencies

+ Distinguish among the six different systems
+ Explain the difference between data workers and knowledge workers
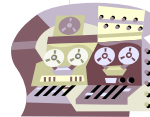

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Managing Data: Information Systems

+ Information systems
  + Software-based solutions used to gather and analyze information
+ Functions performed by information systems include
  + Acquiring data
  + Processing data into information
  + Storing data
  + Providing output options

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Computer-Based Information Systems

+ Transaction processing system (TPS)
+ Management information system (MIS)
+ Decision support system (DSS)
+ Executive support system (ESS)
+ Office support system (OSS) or office automation system (OAS)
+ Knowledge work system (KWS)

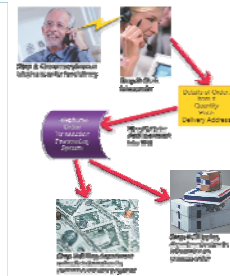
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Transaction Processing Systems
TPS

+ Tracks basic accounting activities and operations
+ Creates databases from routine operations
+ Also called data processing systems (DPS)

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Transaction Processing Systems
TPS

+ Keeps track of everyday business activities
+ Batch processing
+ Real-time processing

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Accounting Activities
TPS

- Sales order processing
- Accounts receivable
- Inventory control
- Accounts payable
- Payroll
- General ledger

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Management Information Systems
MIS

- Produces standardized reports
- Uses captured databases
- Integrates data across areas

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Technology Education — *11-9*

Management Information Systems
MIS

- Common Standardize Report Categories
  - Periodic – weekly, monthly, quarterly
  - Exception – unusual good or bad events
  - Demand –reoccurring, but upon request statistics

The Sports Company
Regional Sales Report

Region	Actual Sales	Target	Difference
Central	$166,430	$175,000	($8,570)
Northern	137,228	130,000	7,228
Southern	137,772	135,000	2,772
Eastern	152,289	155,000	(2,711)
Western	167,017	160,000	7,017

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Management Information Systems
MIS

- Provides timely and accurate information for managers to make business decisions
- Periodic report:
  - Details of transactions that occur during a period of time
- Exception report:
  - Show unusual conditions
- Demand report:
  - Consolidate detailed data

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Decision Support Systems
DSS

- Enables managers to get answers to unexpected, unstructured problems
- Group decision support system (GDSS)
  - Collectively supports DSS
  - Addresses large problems
- Analyzes data for decision makers

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Decision Support Systems
DSS

- Unanticipated questions
  - Different from transaction process system and management information systems
  - Analysis tool for helping provide answers to non-recurring problems

Decision Support Systems (DSS)

+ Help managers develop solutions for specific problems

DSS - Parts

+ User
  + Someone who makes decisions
  + Could be you
+ System software
  + Operating system
  + Easy to use
+ Data
  + Internal & external
+ Decision models
  + analytical capabilities

DSS - Data

+ DSS System Software
  + Internal database
    + Sales Forecasting
    + Summaries, Budgets
  + External data
    + Trade, Government
    + Economics
    + Census

DSS - Decision Models

+ Strategic
  + Top-level managers--long-range planning
+ Tactical
  + Middle managers--control work of organization
+ Operational
  + Lower-level managers--evaluating day-to-day activities

Executive Support Systems
ESS

+ Designed for top management
+ Consists of sophisticated software
+ Access to company's performance

Executive Support Systems
ESS

+ Designed for top management
+ Ease of use
  + Condensed text and graphics
+ Compare the company's performance to external competitive data

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Other Information Systems
OSS and KWS

- Assist employees in day-to-day tasks
- Improve communications
- Information workers
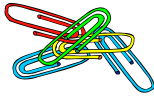 - Data workers
  - Knowledge workers

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Office Support/Automation Systems
OSS/OAS

- Data workers
  - Secretaries
  - Clerks
  - Entry Specialists

- Office support or automation systems (OSSs or OASs)
  - Project managers
  - Video conferencing systems, voice messaging, email
- Support of individuals, management and functions
  - Data workers
    - Distribute and communicate
    - Managing and scheduling documents

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Technology Education
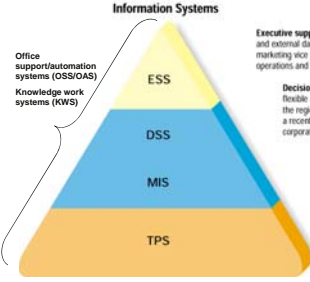
Other Information Systems
KWS

- Knowledge workers
  - Engineers
  - Scientists
  - Designers

- Knowledge work systems (KWSs)
  - Use specialized systems
  - CAD/CAM by engineers
  - Creative illustration, landscaping
- Support of individuals, management and functions
  - Knowledge workers
    - Create new information
    - Specialized, research and development information

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Computer-Based Information Systems

Information Systems

Office support/automation systems (OSS/OAS)
Knowledge work systems (KWS)

- ESS
- DSS
- MIS
- TPS

Executive support systems (ESS) use internal data from MIS and TPS and external data to support top-level managers. At HealthWise, the marketing vice president uses his ESS to view current marketing operations and to develop long-term marketing strategies.

Decision support systems (DSS) use data from TPS and a set of flexible analytical tools to support middle managers. At HealthWise, the regional sales managers use the DSS to evaluate the impact of a recent national promotion campaign on regional sales and corporate profit.

Management information systems (MIS) use data from the TPS to support middle-level managers. At HealthWise, regional sales managers use their MIS reports to monitor weekly divisional sales and to compare actual sales to established sales goals.
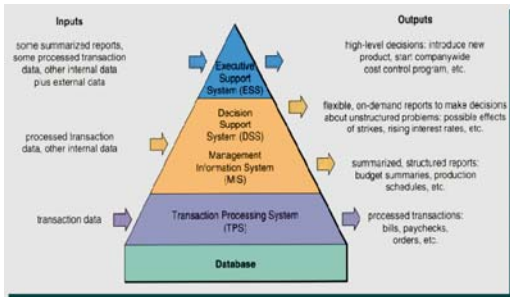
Transaction processing systems (TPS) record day-to-day transactions to support middle managers. At HealthWise, production supervisors use their TPS to record and to monitor current inventory levels and production line output.

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Three Levels of Information Systems

Inputs — Outputs

some summarized reports, some processed transaction data, other internal data plus external data → **Executive Support System (ESS)** → high-level decisions: introduce new product, start companywide cost control program, etc.

processed transaction data, other internal data → **Decision Support System (DSS)** / **Management Information System (MIS)** → flexible, on-demand reports to make decisions about unstructured problems: possible effects of strikes, rising interest rates, etc.

→ summarized, structured reports: budget summaries, production schedules, etc.

transaction data → **Transaction Processing System (TPS)** → processed transactions: bills, paychecks, orders, etc.

Database

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FAQs

- What is an information system and what types of information systems are used in business?
- Which information system produces summarized, structured reports?
- What system is used for solving unanticipated decisions?
- Which system would be used by a company CEO?

Discussion Questions

- Define the following terms - TPS, MIS, DSS, ESS, OAS and KWS.
- What is the purpose of a transaction processing system?
- Describe one of the information systems listed above.
- What system is used for producing standardized reports?

Participation Question

Decision support systems (DSS) are used for solving _____ problems and producing analysis reports.

A. routine

B. transaction

C. industry-trend

D. structured

E. unstructured

Participation Question

Which information system is for producing standardize reports from the internal databases?

A. Transaction processing systems (TPS)

B. Management information system (MIS)

C. Decision support systems (DSS)

D. Executive support systems (ESS)

E. Knowledge work systems (KWS)