Classification of Information systems

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Classification of Information Systems

- Organisational Hierarchy
- Organisational Levels
- Information Systems





Management Structures and Information Requirements

- Higher up the pyramid, the less structured the decision
 - Less defined
 - External orientation
 - More summarized information
 - Future oriented
 - Less frequent
 - Less accurate
- Lower down the pyramid, the more structured the decision
 - More defined
 - Internal orientation
 - More detailed information
 - Historical
 - More frequent
 - More accurate

Four General Kinds of IS

Operational-level systems

• support **operational managers** by monitoring the day-to-day's elementary activities and transactions of the organization. e.g. TPS.

• Knowledge-level systems

• support **knowledge and data workers** in designing products, distributing information, and coping with paperwork in an organization. e.g. KWS, OAS

Management-level systems

 support the monitoring, controlling, decision-making, and administrative activities of middle managers. e.g. MIS, DSS

Strategic-level systems

• support long-range planning activities of **senior management**. e.g. ESS

A Framework for IS

- Executive Support Systems (ESS)
- Management Information Systems (MIS)
- Decision Support Systems (DSS)
- Knowledge Work Systems (KWS)
- Office Automation Systems (OAS)
- Transaction Processing Systems (TPS)

Transaction Processing Systems (TPS)

Computerized system that performs and records the daily routine transactions necessary to conduct the business; these systems serve the operational level of the organization

- TYPE: Operational-level
- INPUTS: transactions, events
- PROCESSING: updating
- OUTPUTS: detailed reports
- USERS: operations personnel, supervisors
- DECISION-MAKING: highly structured

EXAMPLE: payroll, accounts payable

Typical Applications of TPS

		TYPE OF TPS SYSTEM			
	Sales/	Manufacturing!	Finance/	Human	Other types
	marketing	production	accounting	resources	(e.g., university)
	systems	systems	systems	systems	
Major functions	Sales management	Scheduling	Budgeting	Personnel recard	Admissions
of system	Market research	Purchasing	General ledger	Benefits	Grade records
	Promotion	Shipping/receiving	Billing	Cornpensation	Course records
	Pricing	Engineering	Cost accounting	Labor relations	Alumni
	New products	Operations		Training	
Major	Sales order	Materials resource	General ledger	Payroll	Registration system
application	information system	planning systems			
systems	Market research	Purchase order	Accounts	Employee records	Student transcript
	system	control systems	receivable/payable		system
	Pricing system	Engineering	Budgeting	Benefit systems	Curriculum class
		systems			control systems
		Quality control	Funds management	Career path	Alumni benefactor
		systems	systems	systems	system

Office Automation Systems (OAS)

Computer system, such as word processing, electronic mail system, and scheduling system, that is designed to increase the productivity of data workers in the office.

- •TYPE: Knowledge-level
- INPUTS: documents, schedules
- PROCESSING: document management,
- OUTPUTS: documents; schedules
- USERS: clerical workers

EXAMPLE: document imaging system

scheduling, communication

Decision Support Systems (DSS)

Information system at the management level of an organization that combines data and sophisticated analytical models or data analysis tools to support semi-structured and unstructured decision making.

- •TYPE: Management-level
- INPUTS: low volume data
- PROCESSING: simulations, analysis
- OUTPUTS: decision analysis
- USERS: professionals, staff managers
- DECISION-MAKING: semi-structured

EXAMPLE: sales region analysis

Characteristics of Decision-Support Systems

- 1. DSS offer users flexibility, adaptability, and a quick response.
- 2. DSS operate with little or no assistance from professional programmers.
- **3.** DSS provide support for decisions and problems whose solutions cannot be specified in advance.
- 4. DSS use sophisticated data analysis and modelling tools.

Management Information Systems (MIS)

Information system at the management level of an organization that serves the functions of planning, controlling, and decision making by providing routine summary and exception reports.

- •TYPE: Management-level
- INPUTS: high volume data
- PROCESSING: simple models
- OUTPUTS: summary reports
- USERS: middle managers
- DECISION-MAKING: structured to semi-structured

EXAMPLE: annual budgeting

Characteristics of Management information Systems

- 1. MIS support structured decisions at the operational and management control levels. However, they are also useful for planning purposes of senior management staff.
- **2.** MIS are generally reporting and control oriented. They are designed to report on existing operations and therefore to help provide day-to-day control of operations.
- 3. MIS rely an existing corporate data-and data flows.
- 4. MIS have little analytical capability.
- 5. MIS generally aid in decision making using past and present data.
- **6.** MIS are relatively inflexible.
- 7. MIS have an internal rather than an external orientation.

Executive Support Systems (ESS)

Information system at the strategic level of an organization that address unstructured decision making through advanced graphics and communications.

TYPE: Strategic level

- INPUTS: aggregate data; internal and external
- PROCESSING: interactive
- OUTPUTS: projections
- USERS: senior managers
- DECISION-MAKING: highly unstructured

EXAMPLE: 5 year operating plan

However, the world is not that straight forward

- A single software package like Microsoft Office or even an application like Microsoft Excel could be classified as any or all of the following: DSS, TPS, MIS, or ESS (albeit, a trivial ESS, DSS, etc.)
- When considering classification, consider how the tool is used, not what it could be used for.
- A tools meets a need posed by the enterprise
- A service is provided by the tool is a solution.