

Decision Support System

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Different types of Decisions

Decisions can be classified in terms of :

- Management Level: Strategic, management control, operational control
- Structuredness: Structured, Semistructured, Unstructured
- Negotiation: Negotiated decisions, Unilateral decisions
- Functional Areas: Marketing, Finance, Production, Personnel

Structured or unstructured

- Structured: established situation, programmable decision, situation fully understood, routine, specialized mfg. process
- Unstructured: emergent situation, creative decision, situation unclear, one-shot, general processes

Kinds of Decision Makers

Kinds of decision makers that you are likely to encounter in an organization.

a. Individual

A person (may vary in terms of training, experience, cognitive skills, intelligence and knowledge)

or A computer - factory automation, robotics, structured, programmable decisions in established, operational control contexts.

common traits

- can accept messages stated in some language
- possesses a reservoir of knowledge

Kinds of Decision Makers

Kinds of decision makers that you are likely to encounter in an organization.

b. Distributed, Multiperson

A team, group or organization.

common trait - No formal structure of authority.

- Team

Unilateral decision

Has deciding participants and supporting participants

- Group/Organization - negotiated decisions
- Group - comparable authority, meetings
- Organization - unequal authority, highly structured coordination

Phases in DM Process

Phases one would go through in a decision-making process.

a. Intelligence

b. Design

c. Choice

Phases in DM Process

- a. Intelligence - collecting, organizing knowledge alertness to occasions for decision
- b. Design - identification, examination of possible courses of action evaluation of expected outcomes for these
- c. Choice - applies authority to make selection, in face of internal/external pressures

Common Strategies in Guiding Decision-making processing

- a. **Optimizing**: select the course of action with the highest payoff/utility
 - cost/benefit of all alternatives
 - costly to perform
 - can't adequately measure utility
- b. **Satisficing**: select the course of action “good enough” to meet minimal set of requirements.
 - all alternatives not considered
 - limited time, effort, money to make decision
 - alternatives considered sequentially

Common Strategies in Guiding Decision-making processing

- c. **Elimination-by-aspects**: narrowing process, eliminating alternatives that fail with respect to one aspect.
 - may eliminate one that is “overall” superior to others in all but a single aspect
- d. **Incrementalism**: “muddling through” or “putting out fires”
 - successive comparison of alternatives, to find ways of removing shortcomings of present approach
- e. **Mixed scanning**: scanning: search, collection, processing, evaluating, weighing of information
 - degree varies with importance of decision
 - list the alternatives and reject those with “crippling objection”
 - continue until one alternative remains

Limitations in Making Decisions

Limitations that managers encounter in making decisions.

- a. Cognitive limits - human capacity for processing contents of immediate memory is limited to a maximum of 7 variables (handled simultaneously).
 - small long term memory
 - forgetting, erroneous recall
 - inundation or scarcity debilitation
 - erroneous processing

Limitations in Making Decisions

Limitations that managers encounter in making decisions.

- b. Economic limits - humans are expensive
- c. Temporal limits - human processing speeds are limited (increased pressure may cause decision maker to use an unwanted strategy).

Decision support needs and characteristics

Decision support needs and characteristics for various kinds of decision makers and decision making strategies.

- a. Decision makers need systems that solve problems that arise in the process of decision making.
- b. Systems that extend knowledge management capabilities
- c. Systems that coordinate distribute coordinated decision making
- d. Systems that offer advice, expectations, analysis

Purposes for Decision Support

Purposes for which decision support systems may exist.

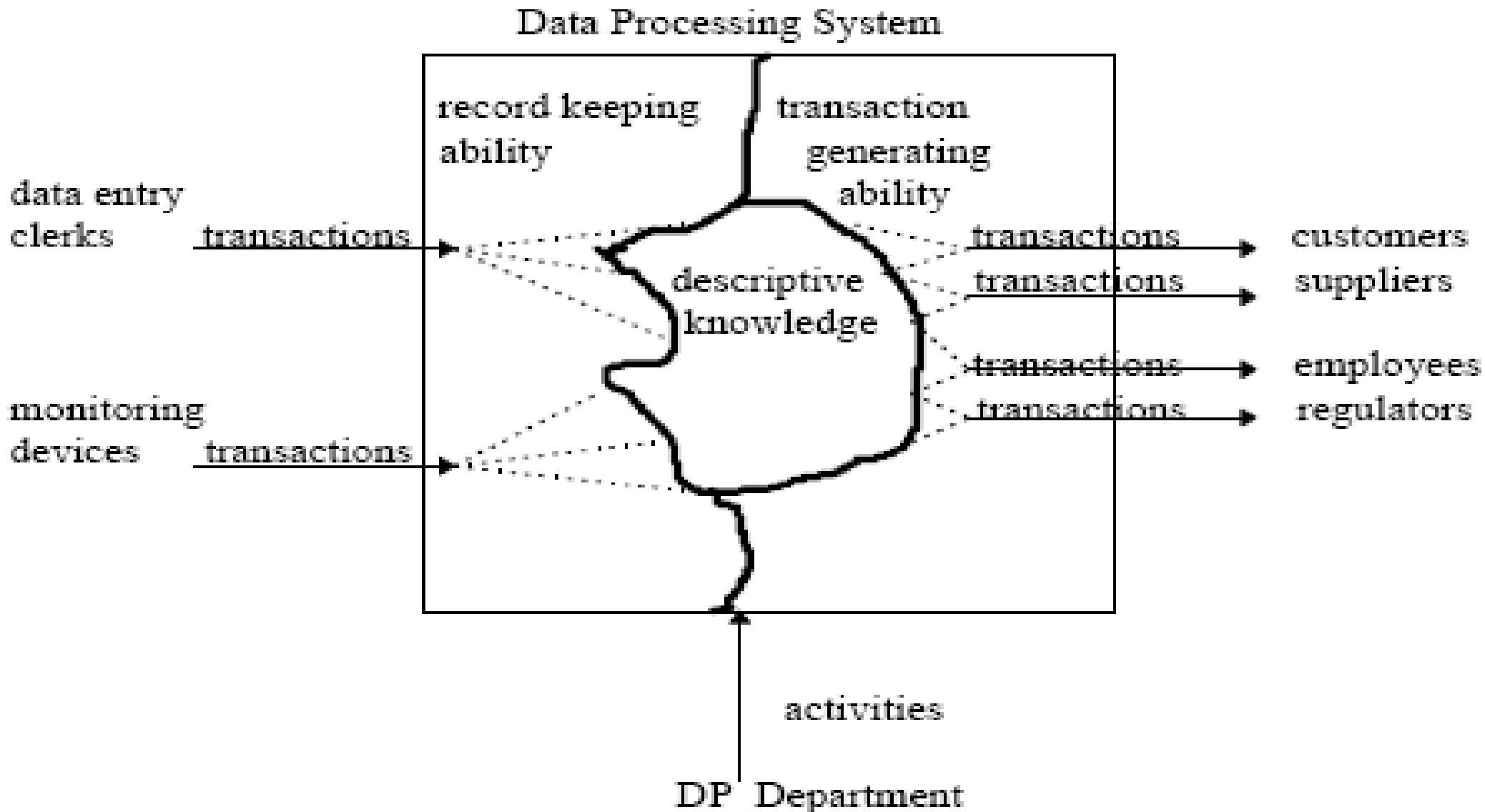
- a. Improve decision making ability of managers by allowing more or better decisions within constraints of cognitive, time and economic limits.
- b. Increase productivity of decision makers.
- c. Supplement one or more of a decision maker's abilities. (i.e. knowledge collection, formulation, analysis knowledge derivation and problem recognition)

Purposes for Decision Support

Purposes for which decision support systems may exist.

- d. Facilitate one or more of the decision-making phases (intelligence, design, choice)
- e. Facilitate problem solving flows
- f. Aid decision maker in addressing unstructured or semi-structured decisions
- g. Enhance a decision maker's knowledge management competence, supplementing human knowledge management (KM) skills with computer-based KM capabilities.

DSS >< computer-based data processing and management systems.



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