MANAGEMENT INFORMATION SYSTEM

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Definition

- A Management Information System is an integrated user-machine system, for providing information, to support the operations, management, analysis & decision-making functions in an organization.

- The System utilizes computer hardware & software, manual procedures, models for analysis, planning, control & decision making and a database.

MIS

- MIS provides information to the users in the form of reports and output from simulations by mathematical models.

- The report and model output can be provided in a tabular or graphic form.

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Management Reporting Alternatives

- MIS provide a variety of information products to managers which includes 3 reporting alternatives:

  o Periodic Scheduled Reports

  o Exception Reports

  o Demand Reports and Responses

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Management Reporting Alternatives

- MIS provide a variety of information products to managers which includes 3 reporting alternatives:

  o Periodic Scheduled Reports: E.g. Weekly Sales Analysis Reports, Monthly Financial Statements etc.

  o Exception Reports: E.g. Periodic Report but contains information only about specific events.

 o Demand Reports and Responses: E.g. Information on demand.

MIS Model

Organizational Problem Solvers

Report Writing Software

Mathematical Models

Database

MIS

Data   **Information**

Environment

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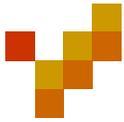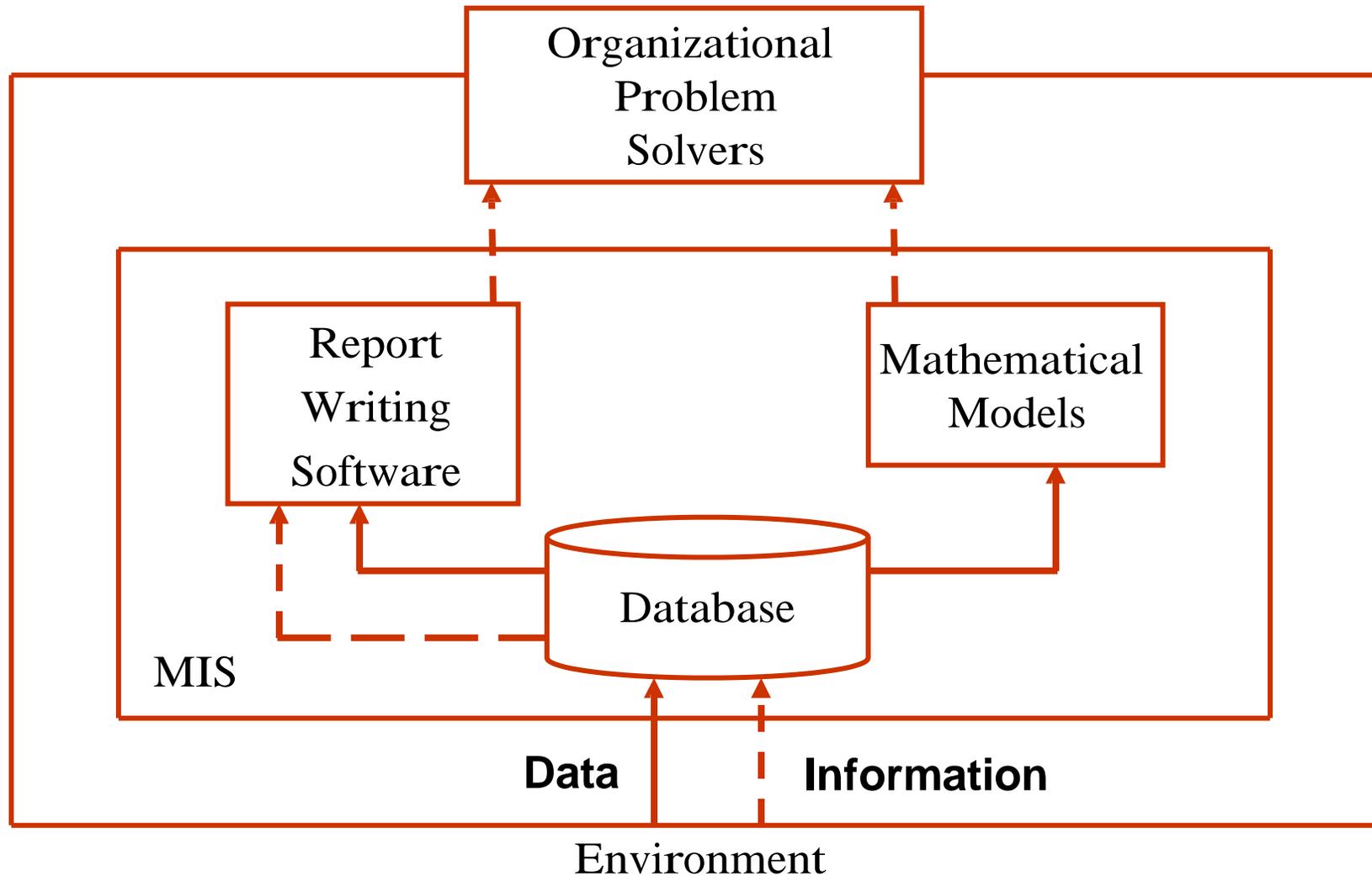
MIS Model…

- Both data and information are entered from the environment.

- Database contains the data provided by the subsystem.

- The database contents are used by software that produces periodic and special reports as well as mathematical models that simulate various aspects of the firm's operations.

- The software outputs are used by persons who are responsible for solving the firm's problems.

COMPONENTS OF MIS

INPUT	PROCESSOR	OUTPUT	
DATA TO BE ARRANGED	CLASSIFY, SORT, SUMMARIZE, CALCULATE	ARRANGED DATA (Information)	INFORMATION SLICED TO MANAGEMENT SYSTEMS

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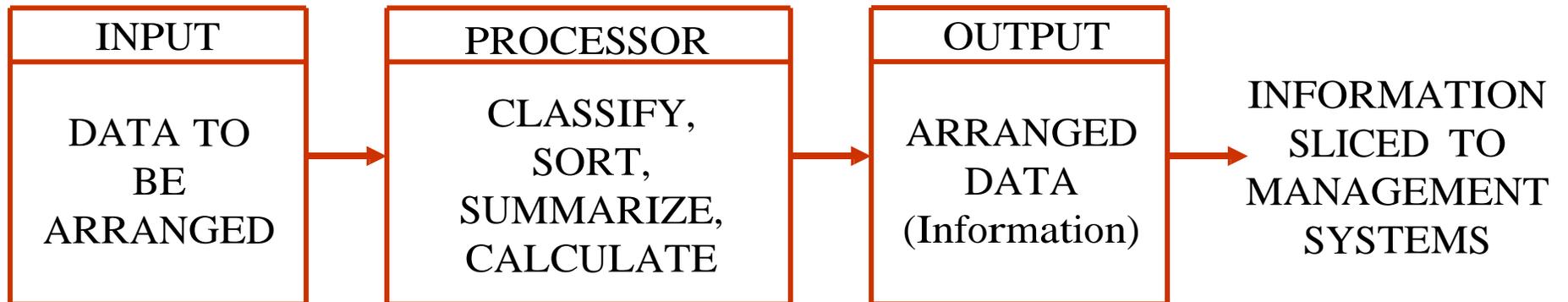
Process

Net contribution of many individual processes in the MIS design.

Conversion of Inputs into Outputs

Inputs

- Sales in units by each salesman for a period.

- Estimated sales in units of competitors.

- Economic conditions & trends.

Outputs

- Sale by Product
- Sales by Salesman
- Sales by Region, Salesman & Products.
- Sales Trend Analysis
- Sales Forecasts

MIS Characteristics

- Management Oriented/directed
- Business Driven
- Integrated
- Common Data Flows
- Heavy Planning Element
- Subsystem Concept
- Flexibility & Ease of Use
- Database
- Distributed Systems
- Information as a Resource

STRUCTURE OF MIS

Approaches

- Physical Components

- Information System Processing Functions

- Decision Support

- Levels of Management Activities

- Organizational Functions

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Based on Physical Components

- Hardware
- Software
- Database
- Procedures
- Operating Personnel
- Input & Output

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Based on Physical Components

- Hardware: E.g. CPU, Monitor, Keyboard, Printer etc.

- Software: E.g. System and Application S/W.

- Database: E.g. Data stored in files.

- Procedures: E.g. Manuals etc.

- Operating Personnel: E.g. Computer Operators, Programmers, System Analysts, System Manager etc.

- Input & Output: E.g. Printouts, Reports etc.

Based on Processing Functions

- To Process Transactions

- To Maintain Master Files

- To Produce Reports

- To Process Enquiries

- To Process interactive Support Applications

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Based on Processing Functions

- To Process Transactions: E.g. Making a purchase or a sale of a product.

- To Maintain Master Files: E.g. For preparing an employee's salary, required data items are Basic Pay, Allowances, Deductions etc.

- To Produce Reports: For e.g. Specific or Adhoc reports

- To Process Enquiries: For e.g. Regular or Adhoc enquiry.

- To Process interactive Support Applications: E.g. Applications designed for planning, analysis and decision making.

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Based on Output For Users

- Transaction Documents or Screens

- Preplanned Reports

- Preplanned Inquiry Responses

- Adhoc Reports & Inquiry Responses

- User-machine Dialog Results

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MIS Support for Decision Making

- Structured / Programmable Decisions
- Unstructured / Non-Programmable Decisions
- Semi-Structured Decisions

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MIS Support for Decision Making

- Structured / Programmable Decisions:
  - o Decisions that are repetitive, routine and have a definite procedure for handling them.
  - o For e.g. Inventory reorder formula, Rules for granting Credit.
- Unstructured / Non-Programmable Decisions:
  - o Non-routine decision in which the decision maker must provide judgment, evaluation, and insights into the problem definition.
 - o For e.g.
- Semi-Structured Decisions:
  - o Decision where only part of the problem has a clear cut answer provided by an accepted procedure.

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Based on Management Activities

LEVEL	COMMENTS
Strategic Planning	Deals with long range considerations. Definitions of Goals, Policies & General Guidelines Charting Course for Organization. Determination of Organizational Objectives
Management Control & Tactical Planning	It has medium term planning horizon. Acquisition of resources, Acquisition Tactics, Plant Location, New Products. Establishment & Monitoring of Budgets
Operational Planning & Control	It is related to short-term decisions for current operations. Effective & efficient use of existing facilities & resources to carry out activities within budget constraints

Based on Organizational Functions

ORGANIZATIONAL FUNCTIONS

Columns: Sales & Marketing, Production, Logistics, Personnel, Finance & accounting, Information Processing, Top Management

ACTIVITIES

- Strategic Planning
- Management Control
- Operational Control
- Transaction Processing

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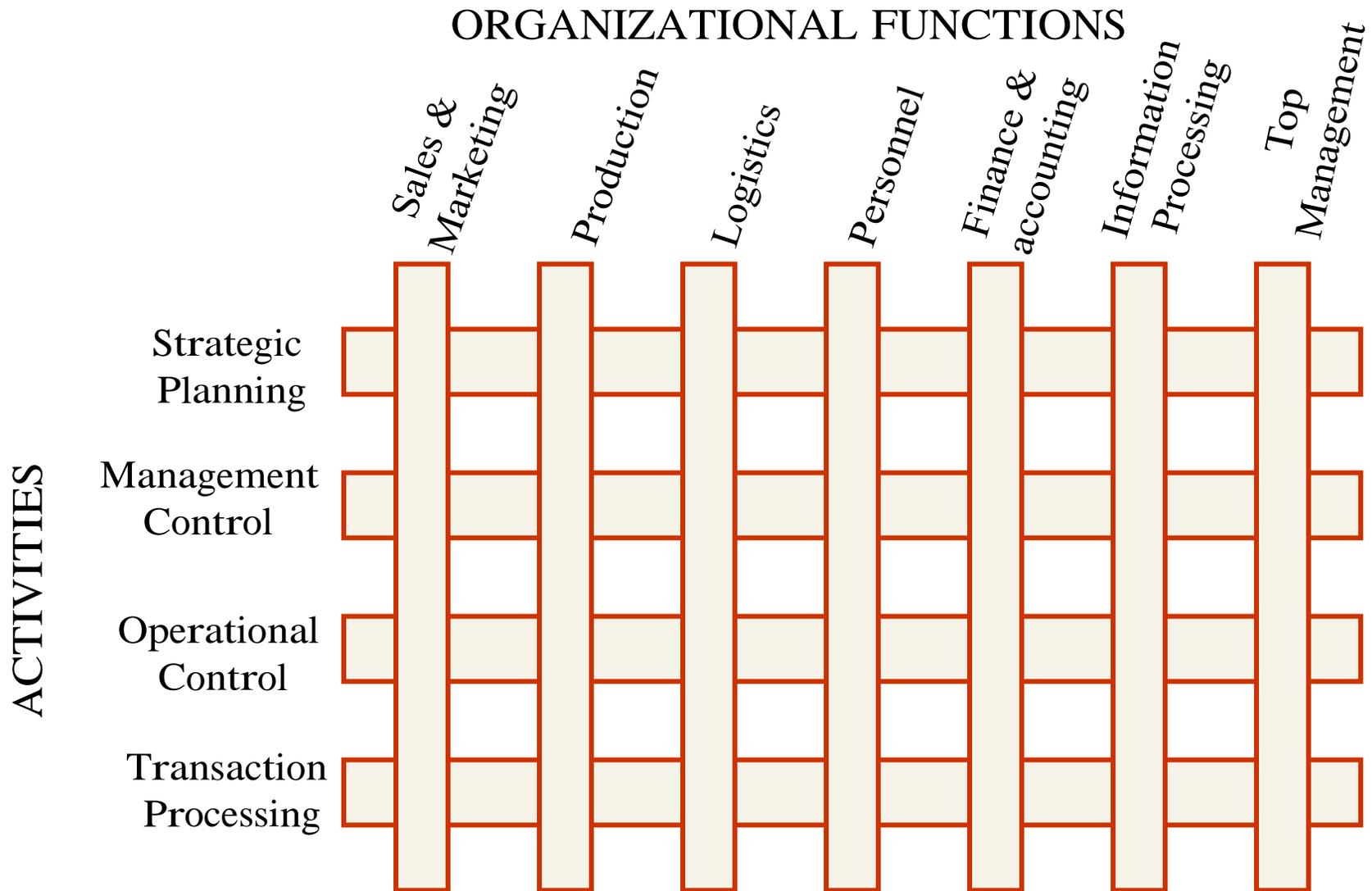
Based on Organizational Functions

Sub system	Involves	Transaction Processing	Operational Control	Management Control	Strategic Planning
Sales and Marketing	Activities related to promotion and sales of products or services.	Sales orders, promotion orders etc.	Hiring and training of sales force, day to day scheduling of sales and promotional efforts, periodic analysis of sales volumes	Comparison of overall performance against marketing plan	Consideration of new markets and new marketing strategies ,Customer,Competitor Analysis

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EDP and MIS

- EDP:
  - These systems process mostly clerical and supervisory type of applications related to record keeping, processing of large volume of data and generation of authentic and accurate reports for operational management.
  - These systems offer cost reduction by saving upon manpower and time resource.
  - These serve as information source to operational management and assist in operational control and planning.
  - Application Uses: Payroll, Inventory control, Production, Costing, Purchase and Logistics.

An Example

- A typical EDP application for ledger accounting that consists of modules for data storage of account vouchers and generation of accounting reports such as ledgers, trial balance, profit & loss account etc. The primary objective of the application is book keeping.

- The motive of this application is to ease the clerical functions and assist in operational control.

EDP/MIS/DSS

- EDP was first applied to the lower operational levels of the organization to automate the paperwork.

- Characteristics:
  - A focus on data, storage, processing and flows at the operational level.
  - Efficient transaction processing.
  - Scheduled and optimized computer runs.
  - Integrated files for related jobs.
  - Summary reports for management.
  - EDP level of activity in many firms has become an efficient facility for transaction processing.

EDP/MIS/DSS…

- MIS:
  - An information focus, which is aimed at middle managers.
  - A structured information flow.
  - Integration of EDP by business functions.
  - Inquiry and report generation with a database.
  - When controls are incorporated in an EDP application, then these are upgraded to MIS applications.

EDP/MIS/DSS…

- DSS:
  - It is focused higher in the organization with an emphasis on the following characteristics:
    - Decision focused
    - Aimed at top managers and executive decision makers.
    - Emphasis on flexibility, adaptability and quick response.
    - User initiated and controlled.
    - Support for the personal decision making styles of individual managers.

Pitfalls in MIS Development

- Organization does not have a reliable management system

- Organization has not defined its mission clearly

- Organization's objectives have not been specified

- Management lacks interest in MIS development process & relies solely on MIS development's specification.

- Communication gap exists between MIS development team and the management

- MIS development team is incompetent

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MIS AS A COMPETITIVE ADVANTAGE

- Barriers to Entry
- Distribution Channels
- Switching Costs
- Lower Production Costs
- Product Differentiation
- Quality Management
- The Value Chain

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