The Role of Management Information System (MIS) in Organization/Departments

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Information is critical

The information we have
is not what we want,
The information we want
is not the information we need,
The information we need
is not available
Information is a Resource

- It is scarce
- It has a cost
- It has alternative uses
- There is an opportunity cost factor involved if one does not process information
Why need Information?

To ensure effective and efficient decision - leading to prosperity of the Organization.
System

- **System**: A set of components that work together to achieve a common goal. Computer-based Information Systems take data as raw material, process it, and produce information as output.
## Components of an Information System

<table>
<thead>
<tr>
<th><strong>Data</strong></th>
<th>Input that the system takes to produce information.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware</strong></td>
<td>A computer and its peripheral equipment: input, output, and storage devices. Hardware also includes data communication equipment.</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td>Sets of instructions that tell the computer how to take data in, how to process it, how to display information, and how to store data and information.</td>
</tr>
<tr>
<td><strong>Telecommunications</strong></td>
<td>Hardware and software that facilitate fast transmission and reception of text, pictures, sound, and animation in the form of electronic data.</td>
</tr>
<tr>
<td><strong>People</strong></td>
<td>Information systems professionals and users who analyze organizational information needs, design and construct information systems, write computer programs, operate the hardware, and maintain software.</td>
</tr>
<tr>
<td><strong>Procedures</strong></td>
<td>Rules for achieving optimal and secure operations in data processing. Procedures include priorities in running different applications on the computer and security measures.</td>
</tr>
</tbody>
</table>
# Characteristics of Information System Capabilities

<table>
<thead>
<tr>
<th>Capability</th>
<th>Orientation</th>
<th>Level</th>
<th>Focus</th>
<th>Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS</td>
<td>Data</td>
<td>Operational</td>
<td>Task, Efficiency</td>
<td>Structured</td>
</tr>
<tr>
<td>MIS</td>
<td>Information</td>
<td>Management control</td>
<td>Resource</td>
<td>Structured</td>
</tr>
<tr>
<td>DSS</td>
<td>Decision</td>
<td>All, strategic</td>
<td>Alternatives</td>
<td>Unstructured</td>
</tr>
<tr>
<td>OAS</td>
<td>Productivity</td>
<td>Operational</td>
<td>Task, Efficiency</td>
<td>Structured</td>
</tr>
<tr>
<td>EIS</td>
<td>Problem</td>
<td>Executive</td>
<td>Status, Problem</td>
<td>Flexible, easy</td>
</tr>
<tr>
<td>AI/ES</td>
<td>Knowledge</td>
<td>Operational</td>
<td>Problem</td>
<td>Structured</td>
</tr>
<tr>
<td>IOS</td>
<td>Data</td>
<td>Operational</td>
<td>Task, Efficiency</td>
<td>Structured</td>
</tr>
</tbody>
</table>
Types of Information Systems

- Operational Level
  - Sales and Marketing
  - Manufacturing and Production

- Management Level
  - Finance and Accounting

- Strategic Level
  - Senior Managers

- Groups Served
  - Middle Managers
  - Operational Managers
  - Human Resources
Types of Information Systems

- **Operational-level systems** support operational managers by keeping track of the elementary activities and transactions of the organization, such as sales, receipts, cash deposits, payroll, credit decisions, and the flow of materials in a factory.

- **Management-level systems** serve the monitoring, controlling, decision-making, and administrative activities of middle managers. The principal question addressed by such systems is this: Are things working well?

- **Strategic-level systems** help senior management tackle and address strategic issues and long-term trends, both in the firm and in the external environment.
Types of Information Systems

- Strategic Level Systems
  - 5-Year Sales Trend Forecasting
  - 5-Year Operating Plan
  - Profit Planning
  - Personnel Planning

- Executive Support Systems (ESS)

- Management Information Systems (MIS)

- Decision-Support Systems (DSS)

- Transaction Processing Systems (TPS)

- Operational Level Systems
  - Order Processing
  - Material Movement Control
  - Payroll, Accounts Payable
  - Employee Recordkeeping

- Management Level Systems
  - Sales Management
  - Sales Region Analysis
  - Inventory Control
  - Production Scheduling
  - Annual Budgeting
  - Profitability Analysis
  - Relocation Cost Control
  - Contract Cost Analysis

- Functional Areas
  - Sales and Marketing
  - Manufacturing and Production
  - Finance and Accounting
  - Human Resources
**Transaction Processing System:**

Basic business systems that serve the operational level. A computerized system that performs and records the daily routine transactions necessary to the conduct of the business.

**Management Information System**

- Serve middle management
- Structured and semi-structured decisions
- Provide reports on firm’s current performance, based on data from TPS
- Past and Present Data
- Internal Orientation
- Provide answers to routine questions with predefined procedure for answering them
- Typically have little analytic capability
Decision Support System

• Serve middle management

• Support non-routine decision making
  
  • E.g. What is impact on production schedule if December sales doubled?

• Often use external information as well as information from TPS and MIS

• Processing is interactive in nature

• Output in form of Decision analysis

• Example: Contract Cost Analysis
ESS (Executive Supporting system)

• Support senior management – Strategic Level
• Address non-routine decisions requiring judgment, evaluation, and insight
• Incorporate data about external events (e.g. new tax laws or competitors) as well as summarized information from internal MIS and DSS
• User "seductive" interfaces; Users' time is a premium
• What if capabilities abound
• Input in form of Aggregate data
• Processing is interactive and output in form of projections
• Examples
  • ESS that provides minute-to-minute view of firm’s financial performance as measured by working capital, accounts receivable, accounts payable, cash flow, and inventory.
  • 5-year operating plan
The various types of systems in the organization have interdependencies. TPS are major producers of information that is required by many other systems in the firm, which, in turn, produce information for other systems. These different types of systems are loosely coupled in most business firms, but increasingly firms are using new technologies to integrate information that resides in many different systems.
MIS - Definition and Concept

Right Information

To the right person
At the right place
At the right time
In the right form
At the right cost

The three sub-components

Management, Information and System
- together bring out the focus clearly & effectively.

• System emphasizing a fair degree of integration and a holistic view;
• Information stressing on processed data in the context in which it is used by end users;
• Management focusing on the ultimate use of such information systems for managerial decision making.
A management information system (MIS) is a system of collecting, processing, storing, disseminating, and utilizing data in the form of information needed to carry out the functions of management.

Today, the term is used broadly in a number of contexts and includes (but is not limited to):

- Decision support systems,
- Resource and people management applications,
- Enterprise Resource Planning (ERP),
- Supply Chain Management (SCM),
- Customer Relationship Management (CRM),
- Project management and database retrieval applications
Outputs of MIS

• Scheduled reports
  – Produced periodically, or on schedule (daily, weekly, monthly)

• Key Indicator Report
  – Summarizes the previous day’s critical activities

• Demand Report
  – Gives certain report at manager's request

• Exception Report
  – Automatically produced when a situation is unusual or requires management action
Historic Development of MIS

- Usage was started in 1960 but very limited.
- In 1970 DSS was Introduced.
- In 1990’s strategic system was uses.

- **EDP** : Focused on Data
- **OAS** : Focus on communication
- **MIS** : Focus on Information
- **DSS** : Focus on Decision support
- **ESS** : Focus on decision support for top management
- **AI** : Focus on self learning
Users of MIS

- **Clerk**: Clerk can use the MIS for a quick search & reporting the same data to high-level.

- **Assistant**: With the help of MIS can collecting and organizing the data and conducting a rudimentary analysis of Integrating the data.

- **Managers**: MIS provide action oriented information can be used strategic weapon to counter the threats to business, make business more competitive.
Sample MIS Report

Demand Report Example

<table>
<thead>
<tr>
<th>Sales Rep ID</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR</td>
<td>42,345</td>
</tr>
<tr>
<td>GWA</td>
<td>38,950</td>
</tr>
<tr>
<td>SAK</td>
<td>22,100</td>
</tr>
<tr>
<td>JWN</td>
<td>12,350</td>
</tr>
</tbody>
</table>

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Impact of MIS

- Management of marketing, finance, production and personnel becomes more efficient, the tracking and monitoring becomes easy.
- Helps in understanding of business itself, MIS begins with definition of data and its attributes – uses data dictionary and brings common understanding of terms and terminology in organization.
- MIS calls for systemization of business operations – leads to streamlining of operations, brings discipline in its operations everyone is required to follow.
- Since the goals of MIS are driven from organization goals, it helps indirectly pulling everyone in organization towards corporate goals by providing relevant information to the people in organization.
- MIS helps to monitor results and performances.
- MIS provides alerts, in some cases daily, to managers at each level of the organization, on all deviations between results and pre-established objectives and budgets.
- IT enabled MIS is partly responsible for the PARADIGM shift (A change, a new model,) from support to contributing to an organizations profitability.
Manufacturing MIS

Inputs to the Manufacturing MIS
• Strategic plan or corporate policies.
• The TPS:
  – Order processing
  – Inventory data
  – Receiving and inspecting data
  – Personnel data
  – Production process
• External sources
Manufacturing MIS Subsystems and Outputs

- Design and engineering
- Master production scheduling
- Inventory control
- Manufacturing resource planning
- Just-in-time inventory and manufacturing
- Process control
- Computer-integrated manufacturing (CIM)
- Quality control and testing
Human Resource MIS

Concerned with all of the activities related to employees and potential employees of the organization.

Inputs to the Human Resource MIS

• Strategic plan or corporate policies

• The TPS:
  – Payroll data
  – Order processing data
  – Personnel data

• External sources
System and subsystem of HRIS

✓ Staffing
  a. personal record keeping system
  b. employee skill inventory system
  c. Forecasting personal requirement system

✓ Training and development
  a. performance appraisal planning
  b. succession planning

✓ Compensation
  a. salary forecasting
  b. incentives planning

✓ Governmental reporting
• Personal application form
• Appointment letter
• Attendance and leave record
• Appraisal form
• Wage and salary agreement
• Record of sources of recruitment
• Industry data on manpower skills performance.
• Bio-data.
• Production data.

Data resources of HRIS
Marketing MIS

Supports managerial activities in product development, distribution, pricing decisions, and promotional effectiveness.

Inputs to Marketing MIS

• Strategic plan and corporate policies
• The TPS
• External sources:
  – The competition
  – The market
Marketing MIS Subsystems and Outputs

- Marketing research
- Product development
- Promotion and advertising
- Product pricing
Accounting MISs

• Provides aggregated information on accounts payable, accounts receivable, payroll, and other applications
THANK YOU