

Information and It's Attributes- Processed data put in to meaningful and useful context. It May be text, audio, video, graphs, pictures etc. mere collection of data is not Information and mere collection of Information is not knowledge,

Information provides knowledge, aid in decision making, analyzing future and taking action in time.

Data- consist of fact, values, numbers, and results whereas; information is result of relation between data

Example: Spreadsheet consisting Roll numbers, name and marks of student in subjects namely English, Accounts- Data. Here, Information may be no of students obtained more than 50 marks in each subject, say 60%

Attributes:

- Availability (When needed),
- Mode (Easy, useful) {Text, Image} and Format (assist in decision, analyzing and taking action in time),
- Update (Refreshed/ updated fixed interval,
- Accuracy (Complete, adequate),
- Reliability (Imp for Decision making, correct decision),
- Quality (Correctness, highly required)

Information System:

An information system can be defined as a set of interrelated components (people, hardware, software, data, and network) that provides effective information to support decision- making and control in organization.

Characteristics of Computer Based Information Systems

- All systems work for predetermined objective.
- A system has a number of interrelated or interconnected subsystem and components. No system can work in isolation.
- If one subsystem or component fails, in most of the cases whole system doesn't work. However, It also depends on interrelation between subsystems.
- Different subsystem interacts with each other to achieve system's goal.
- Each subsystem may have individual objectives but objectives of the system as whole have higher priority.

Implication (Purpose/ Object) of Information system in Business

- Help manager in decision making and achieve organizational goals.
- Survive in extremely competitive environment using strength of well- designed Information system.
- Help to generate innovative ideas for solving Critical Problems.
- Knowledge gathered through information systems may use and utilized by manager in critical unusual situations.
- It can be integrated to formulate strategy of Action or Operation.

Expert System- Software

- Expert systems are extension of MIS/ DSS
- It is typically program/ software that uses artificial intelligence to solve problems of particular are requires expert knowledge,
- Expert systems remains supplements rather replacements for human experts.
- Example, expert system in area of Investment Portfolio management might ask user various question regarding amount of Investment, preference regarding specific types of investment, risk desire to take, and so on. Based on answers given by the Clients, it may suggest suitable portfolio.

Business Application of Expert System:

- **Accounting and Finance:** Forecasting model, tax advice and tax assistance, Investment advice
- **Marketing:** Sales quota, response s/w to customer inquiries, assisting with marketing timing decisions, determination of discount policies.
- **Manufacturing:** Process run, analysis of quality and provide corrective measure, cost efficient decisions, scheduling job-shop tasks, selecting transportation routes.
- **Personnel:** Applicant qualifications, providing employees assistance in filling forms

Benefits of Expert Systems:

- ES preserve knowledge that might lost because of death, resignation, retirement of expert of well-known company
- Expert system assists new employees (Novices) the way experienced professionals do.
- Expert Systems are not subject to human limitation viz. limited capacity to work or being emotional, unavailable, and so on.
- Expert systems can be effectively used as a strategic tool in areas of marketing the product, cutting the cost and improvement of the product.
- Expert systems are once programmed its cost efficient compared to human expert.

Difference between Executive IS and Traditional IS

Point of Difference	EIS	Traditional IS
Level of Management	Top level, Executive level	Lower
Nature of Information Access	Specific Issues, Problems and aggregate reports	Status reports
Nature of Information provided	Online tools and analysis	Offline Status reporting
Information Sources	External, less Internal	Internal
Information Format	Text and Graphics	Tabular
Nature of Interface	User-friendly	Computer Operator Generated



Transaction Processing System (TPS)

- Information system at lower / operational level of management
- Business activity such as sales, purchase, production, delivery, payments or receipts involves various transactions and these transactions are required to be organized as to generate required information for internal and external use.
- For Example, In case where sale of product various information capture in system viz. Billing status, customer information, inventory status and increase in account receivable balance. TPS will record and timely updating as and when required.

Activities involved in TPS:

- Capturing data and organizing in files or database;
- Processing files/ databases using application software;
- Generating information in form of reports; and
- Processing queries from various quarters of the organization.

TPS Principle components:

- **Inputs**- Source Documents (physical evidences, capturing of data, facilitating operation by communicating data, data which required record for future analysis. Electronic input (Swiping, bar code reader etc.)
- **Processing**- Use of journals and register to provide permanent and chronological record of input. Journal (recording financial accounting transactions Ex. Sales/ purchase journal), Register (record of other type of data, not directly related to accounting)
- **Storage**- Ledger and Files provide storage (both- computerized and manual systems) Ex- General Ledger, account receivable
- **Outputs**- Documents generated from system is output. X- Customer Invoice, Inventory record, Balance sheet.

Features of TPS

- Involves **large volume of data**, requires greater storage Capacity, objective to record all economic transaction with accuracy.
- TPS aims to **automating the basic operations** of the business enterprise, plays critical role in **day to day functioning**. Failure in TPS even for short period may disrupt enterprise. It is important source of up- to -date information regarding enterprise operation.
- It reduces work load, improves efficiency and automating operation, **Benefits easily measurable and tangible**.
- TPS is **basic source of internal information** for other information systems. Very important for tactical (middle level) and strategic decisions as well.

Management Information System (MIS)

MIS is designed to provide accurate, timely and relevant information to managers at different levels for decision- making purpose in form and format as required by information seeker.

MIS Support managers at different level of management viz. tactical (middle), strategic (Top), make managerial decisions to fulfill organizational goals. Nature of MIS at different levels has different flavors and they are available in form of reports, tables, graphs and charts or in presentation format using some tools. MIS at top level is much more comprehensive but is summarized compare to that middle level management.

- Making effective, structured reports relevant for decisions of day to day operations
- Assistance in solving structured and unstructured problems as and when circumstances demand

Characteristics of an effective MIS

- Management Oriented- for top, middle management for objective
- Management Directed- to design system, implemented system meets the specification of design sys.
- Integrated- all functional and operational information sub-systems are tied together, ability to generate more meaningful information to take decision, comprehensive view/ complete view.
- Common Data Flows- common input, processing, output and procedures and media whenever required.
- Heavy Planning Element- takes two-three years for establishments; MIS designer shall consider future enterprise objectives and requirement of information.
- Sub System Concept-
- Common Database
- Computerized – increase effectiveness, provides information quickly, accurate, Consistent.

Major Misconceptions of MIS

Computer based IS, Reporting System, Management Technique, bunch of Tech., Study of MIS is about Computers, More date in report generates results in more information to managers, accuracy plays vital role in reporting, MIS is an implementation of organizational system and procedures.

Constraints of MIS

- Non- Availability of experts
- Selection of sub-systems
- Non- standardized System
- Non- Cooperative Staff

Limitation of MIS

- Quality of output depends on input
- Tool that provides only information, not substitute manager
- Not flexible enough to update quickly
- Less useful for making non-programmed decision
- Effective decreases due to frequent changes in top management
- Cannot provide tailor-made information to meet every decision making requirement of executives

Decision Support System

1. DSS is computer based information stem specifically designed to assist manager in making semi-structures or unstructured decisions i.e. those situations that cannot be predicted in advance.
2. Interactive display, easy- to- use software, provide information to support decision making process
3. Examples: Sensitivity Analysis, What-if analysis, Risk Analysis.
4. Components of DSS (Database, User, Planning Language, Model base)

Characteristics of DSS

- Supports decision making cover all level of management
- User friendly
- Flexible and adaptable
- Focus on direction rather than data and information
- Used for structured, semi- structured and unstructured problems
- Mainly for decision making rather than communication decisions and training purpose.

Examples of DSS

1. Cost Accounting System- reduce cost of product, waste minimization, profit maximization, variance treatments
2. Capital Budgeting System- Investment decisions, NPV calculations, IRR calculations, consider non-financial factors viz. new technology benefits
3. Budget Variance System- variance report; prepare graphs, analysis, controlling techniques.
4. General Decision Support System- Question regarding specific problem, DSS analyses decision alternatives and present decision maker best suitable alternative

Executive Information Systems

EIS is extension of DSS which is information system that provides strategic information tailored to needs of executives to address unstructured decision making through advanced graphic and communication. EIS uses easy-to-use features like: Interactive functions touch screen, colorful graphics, standard templates etc.

Characteristics of EIS

- Serves information needs of top management
- Enable executives to extract summary data
- Rapid access to timely information
- Access to both internal and external Data
- Extensive online analysis tool like trend analysis, market conditions
- Easily given a DSS support for decision making

Principle while Designing EIS

- Easy to understand and collect
- Not add workload to managers or staff
- Reflect the balanced view of the organization's objective
- Encourage management and staff to share ownership of organization's objective
- EIS information must be available to everyone in organization
- Evolve to meet the changing needs i.e. flexible
- Performance indicator must reflect everyone's contribution and must be independent