

# INTRODUCTION

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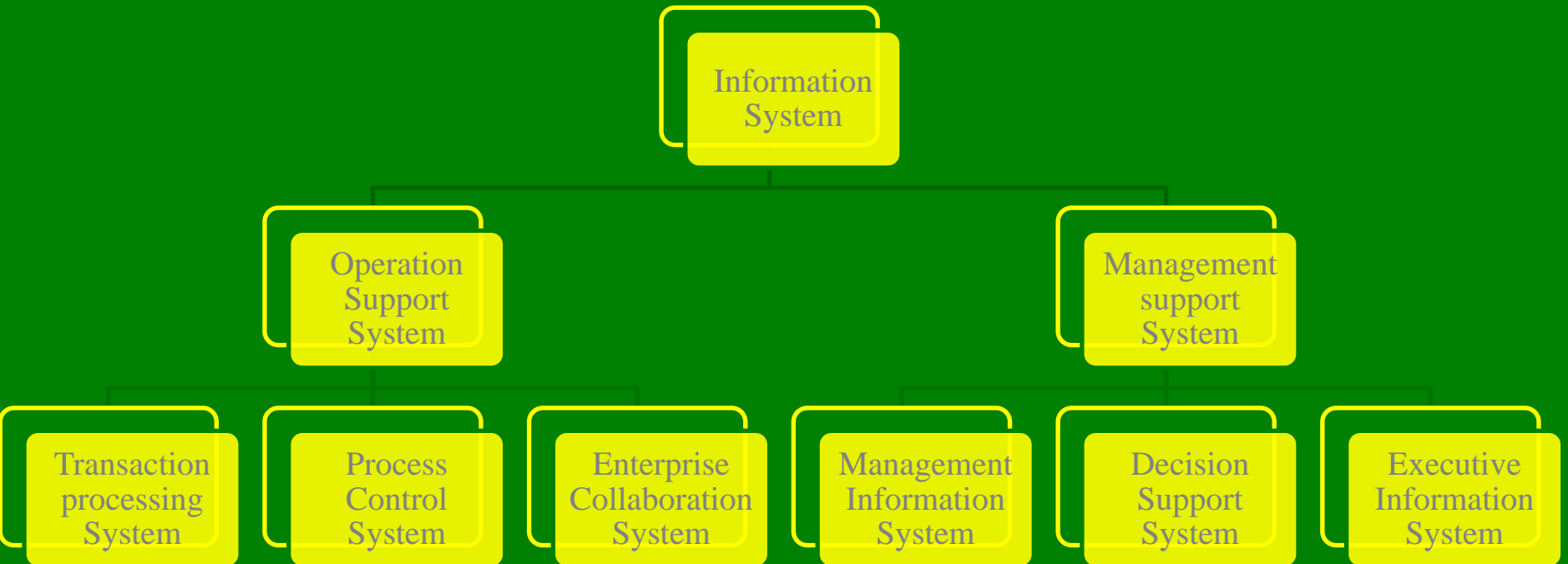
# Information System

- Mainly there are two types of information system one is manual and other is computerized. Manual system is along with paper, pen, various register, etc. Computerized system is often called Information Technology (IT) along with bellows.
- **Computer hardware technologies**, including microcomputers, midsize servers, and large mainframe systems, and the input, output, and storage devices that support them.
- **Computer software technologies**, including operating system software, Web browsers, soft-ware productivity suites, and software for business applications like customer relationship man-agement and supply chain management.
- **Telecommunications network technologies**, including the telecommunications media, processors, and software needed to provide wire-based and wireless access and support for the Internet and private Internet-based networks such as intranets and extra nets.

# Information System (cont....)

- **Data resource management technologies**, including database management system software for the development, access, and maintenance of the databases of an organization.
- **Foundation Concepts.** Fundamental behavioral, technical, business and managerial concepts about the components and roles of information systems. Examples include basic information system concepts derived from general systems theory, or competitive strategy concepts used to develop business applications of information technology for competitive advantage.

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- **Operation support system:** Information system has always been needed to process data generated by and used in business operations. Such operations support system produce a variety of information product for internal and external used.
- **Management support system:** When information system application focuses a providing information and support for effective decision making by managers, they are called management support system. It provide information and support for decision making and all types of managers and complex task.

- **Transaction processing systems:** Process data resulting from business transactions, update operational databases and produce business documents. Examples: sales and inventory processing and accounting systems.
- **Process Control System:** Monitor and control industrial processes. Examples: petroleum refining, power generation and steel production system.
- **Enterprise Collaboration System:** Support team, workgroup, and enterprise communications and collaboration. Examples: e-mail, chat, and video conferencing group ware systems.

•**Management information systems.** Provide information in the form of pre-specified reports and displays to support business decision making. Examples: sales analysis, production performance, and cost trend reporting systems.

•**Decision support system:** Provide interactive ad hoc support for the decision-making other business professional. Examples: product pricing, profitability forecasting, and risk analysis system.

•**Executive information system:** Provide critical information from MIS, DSS, and other sources systems for easy access to analyses of business performance, action competitors, and economic developments to support strategic planning.



# Management + Information + System = Management Information System

- **Management** emphasizing the ultimate use of such information systems for managerial decision making rather than merely stressing on technology.
- Organized data is called **Information**.
- A **System** is simply a set of components that interacts to accomplish some purpose.

## **-:Definition of MIS:-**

The MIS is defined as a system which provides information support for decision making in the organization.

It is a computer-based system that provides flexible and speedy access to accurate data.

## **-:Field of MIS:-**

- Oil Exploration
- Space Exploration
- Weather Forecasting
- Market Analysis, etc.

## **-: Purpose of MIS :-**

- Good Business
- Better Performances
- Smooth Flow of Work
- Proper Tackling of Business Problem
- Overall Development

# -: Function of Management :-

- Planning
- Organizing
- Staffing
- Commanding
- Directing
- Motivation
- Controlling

# Disadvantages Of MIS

- Only provide to semi structured decision can not give any support unstructured.
- Not sophisticated logically
- Oriented to past data and information
- Long in design and development procedure
- Rigid and inflexible

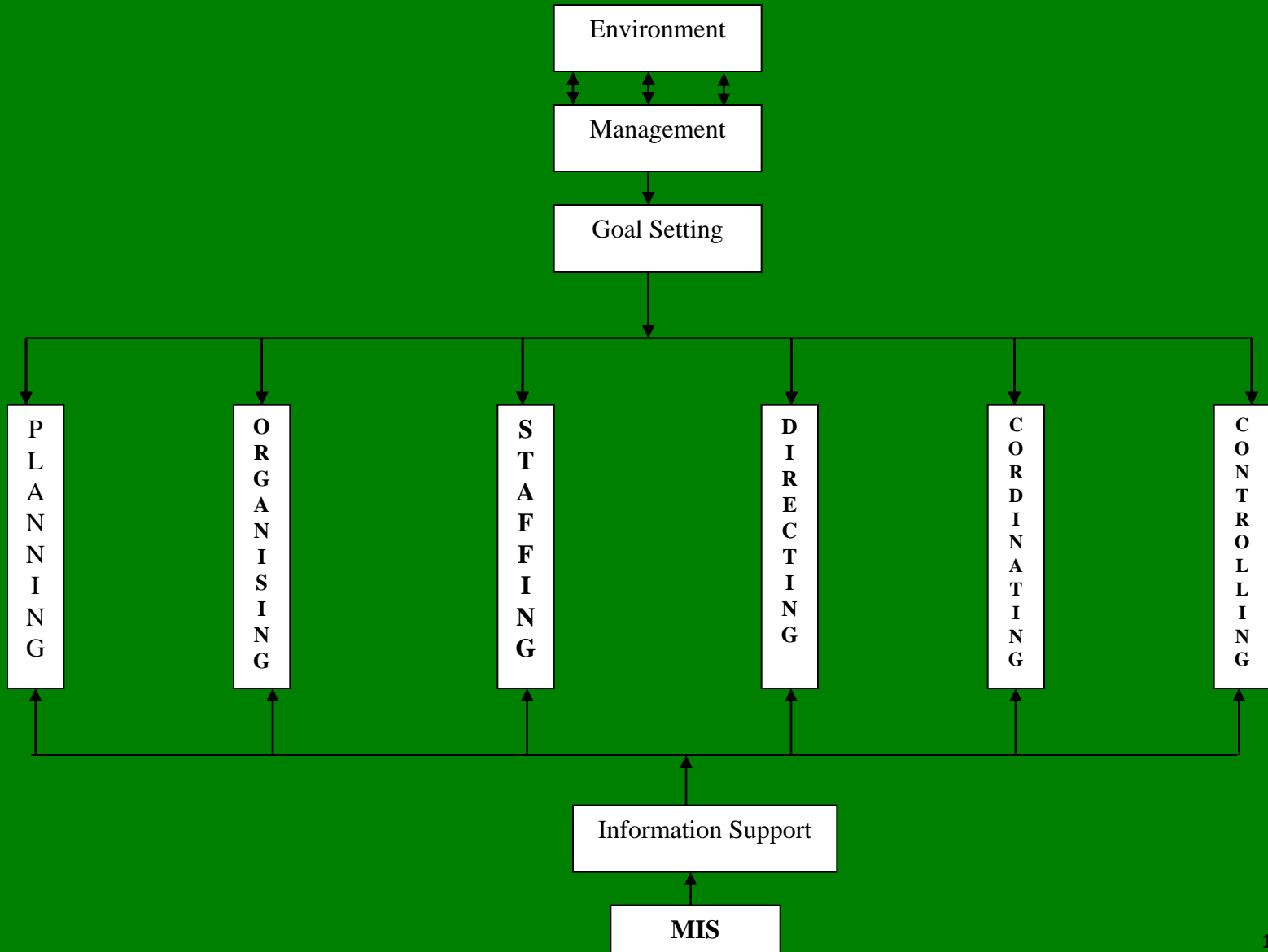
# What is the function of managers in a industry?

- *Top management level*
  - (i) To determine the objective of business.
  - (ii) Planning.
  - (iii) Policy.
- *Middle management level*
  - (i) Looking After the department activities.
  - (ii) Providing MIS
  - (iii) Preparing short term department planning.
- *Lower Management Level*
  - (i) Insuring instructions to the workers .
  - (ii) Arranging necessary materials, tools and equipment for workers.
  - (iii) Arranging training to the workers.

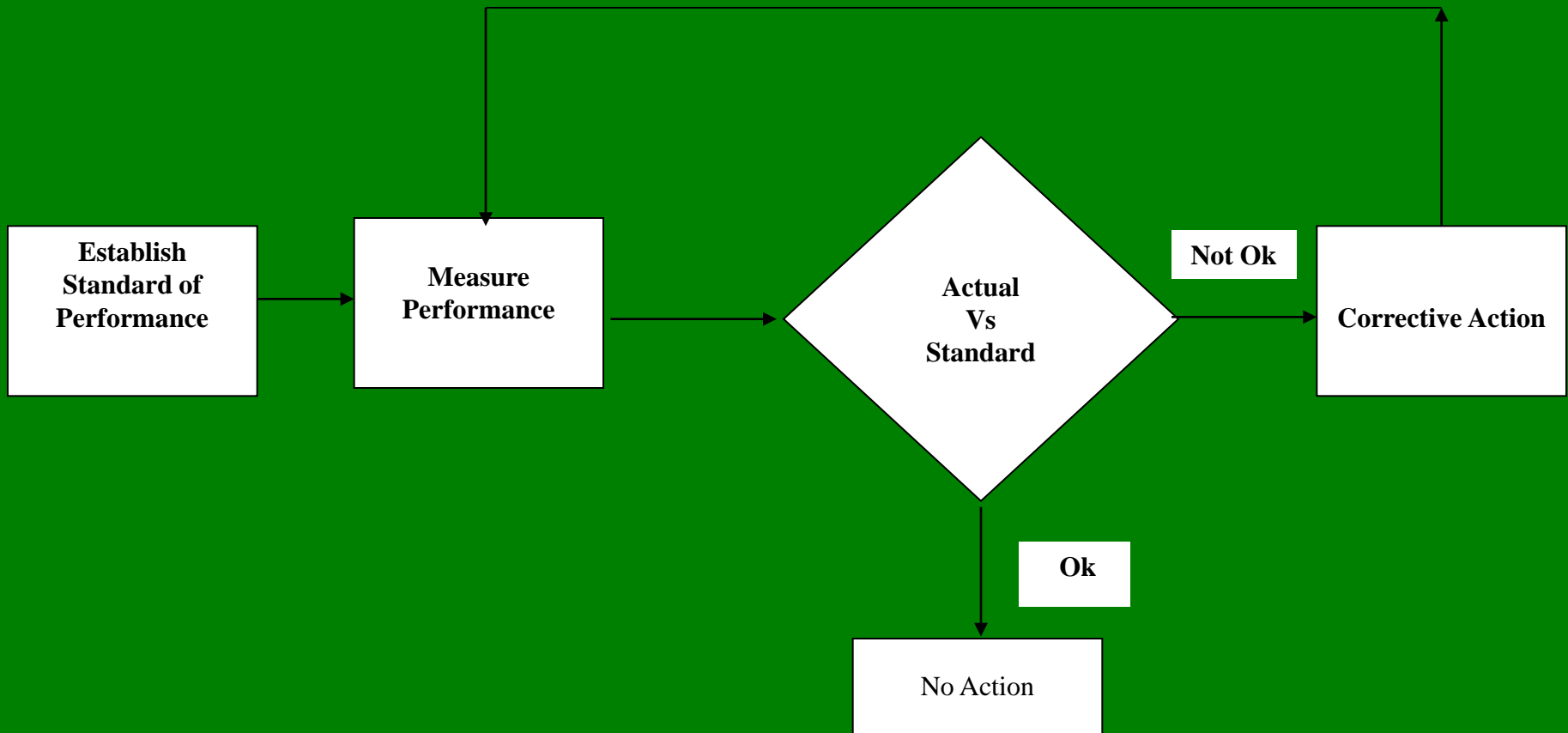
- **Goal:** The goals are long term aims to be achieved by the organization.
- **Objective:** The objectives are relatively short-term milestone to be accomplished.
- **Target:** The target generally refers to physical achievements in the organization.



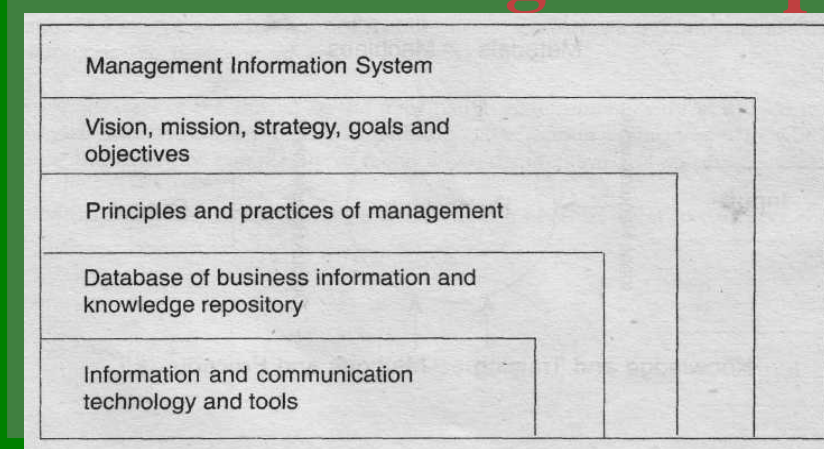
# Management & Management Information System



# Management as a Control System



# MIS as a Logical depiction/representation



MIS primarily focuses on providing appropriate information support for all functions in a business organization. This information support is required by personnel operating at different levels in the organization. In order to meet this objective, MIS is logically organized in form of different layers.

At the base of the logical structure are the information and communication technology and tools. The next layer is that of the database consisting of business information and knowledge storage area. In order to make appropriate use of these two layers principles and practices of management are used. This forms the next layer. In order to provide industry specific and user friendly information support, industry specific science, technology and social sciences linkage is necessary. These layers in turn need to be perfectly blended with the vision, mission, strategy, goals and objectives of the business organization. This is the next logical layer of the MIS. Based on these layers the top layer consisting of MIS setup in a business organization operates. Very often the major focus tends to be on the top layer of MIS. It needs to be emphasized that this top layer is in a position to meet the

# MIS as a Physical depiction

- MIS is expected to meet the information support requirements of a variety of functions in the organization. It has to provide information support for the operating staff, middle management personal as well as top management. The MIS has to deal with a wide variety of information requirement ranging from simple transaction processing reports to complex decision support information. The manner in which the information is presented is also varies according to the position and function in the organization. Considering this complexity, the physical depiction of MIS in a layered format can be describe as follows:

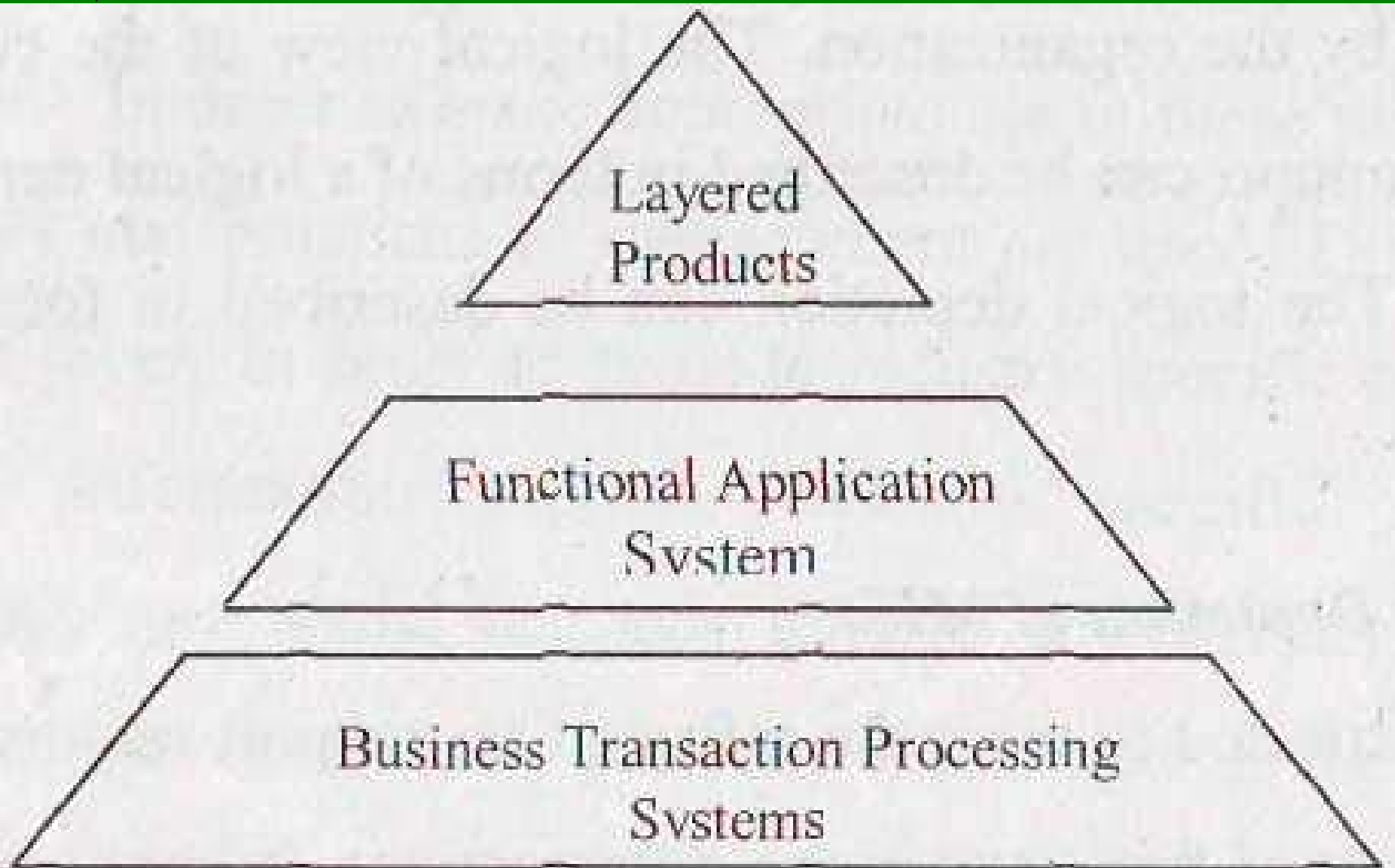


Fig.: The Physical depiction of Information systems

# Cont.....

- **Business Transaction Processing Layer:** At the base of the MIS is a strong business transaction processing layer. The layer deals with day to day business transaction. It handles activities relating to capturing, validating, processing, storing and reporting of business transaction. This layer is very critical as all other layers of the system setup in an organization depend on the business transaction processing layer for inputs that are used for further processing.
- **Functional Application Systems:** The second layer consists of functional application systems that address the basic information support requirements of individual functions like marketing, materials, accounting, manufacturing etc. Some of the functional systems are mission critical systems since they involve conformance to statutory requirements or are critical for smooth operations of the business.
- **Layered Products:** On top of the functional application systems are the "layered products" that extract data and information from the underlying layers of functional application systems and the base layer of business transaction processing. Typical examples of the layered products are executive information systems, business intelligence systems, decision support systems, electronic dashboards, score cards etc. The layered products make use of underlying layers of MIS to extract, refine and present actionable information.

# PEOPLE & ORGANIZATION

# What is Organization?

- An organization is defined as a collection of individuals working together in a division of labour to achieve a common goal.

People+ Division of labour+ Specialized task+ Common goal= Organization



## -:Characteristics Of Organization:-

1. Organization is deliberately and consciously created human group.
2. Organization have some objectives or set of objectives.
3. Every organization has some specified norms and standard of behavior.

# -: Organization Behavior :-

- Organization behavior is the study and application knowledge about how people act within organization. It can be also defined as branch of the social sciences that seeks to build theories that can be applied to predicting, understanding and controlling behavior in work organization.

## **-:Corporate Culture:-**

Corporate culture is created naturally and automatically. Every time people come together with a shared purpose, culture is created. This group of people could be a family, neighborhood, project team, or company. Culture is automatically created out of the combined thoughts, energies, and attitudes of the people in the group.

# Power

- The term 'Power' may be defined as the ability to exert influence. A person how power, it means that he is able to change behavior or attributes of other individuals.

## Power

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graph TD; Power[Power] --> Formal[Formal]; Power --> Personal[Personal];
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### Formal

Based on individual position in an organization

### Personal

It is a power that comes from an individuals unique characteristics.

# SYSTEM & MODEL

# What is system?

A system is simply a set of components that interacts to accomplish some purpose.

Ex: Human Body.

# -: Component of System :-

- Hardware
- Software
- Data
- People
- Present Scenario

- **Open System:** System that interact with their environments are open system.
- **Close System:** System that do not interact with their environment is called closed system.



# What is Environment?

The area beyond the boundaries is called the environment in which the system operates.

# What is Model?

- A model is an abstract representation of a set of process. Models are created to gain a better understanding of actual entity. During software requirement analysis, models are created as a replica of the system to built. The model focuses on what the system must do, but not on how it does.

# Levels of Models

- **Schematic Model:**

The schematic model are used to express the overview of the system, rather than providing the operating details. The schematic models typically prevent a overall view of a given system.

- **Data Flow Model:**

The data flow model describe “ what ” happens within a system. These model general represent a flow of information, energy or materials.

- **Static Model:**

The static model describe a pair of relationship. The pair could be that activity and time.

- **Dynamic Model:**

The dynamic models often describe a business system that is operating in a constantly changing environment.

# Models of Organizational System

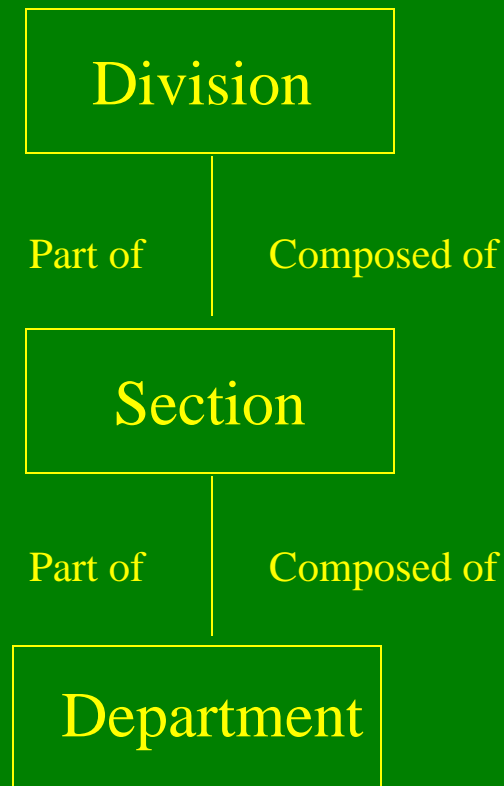
Information model is an abstract representation of an organization.

- The physical model that provides source and *application of information, methods of collection, physical creation storage and retrieval of information.*
- The logical model that views the information from the *user's angle.* It provides a structural information model that is easy to understand and use.

# Types of Model

- There are two types of models:
  1. **Functional Model:** The functional model describes the computations that take place within a system. In this model three types of functions are there
    - Input
    - Process
    - Output
  2. **Behavioral Model:** Behavioral models are used to describe the overall behavior of the system. Two types of behavioral models are found:
    - **Data-flow models** describe the data processing in the system.
    - **State machine models** describe how the system reacts to events.

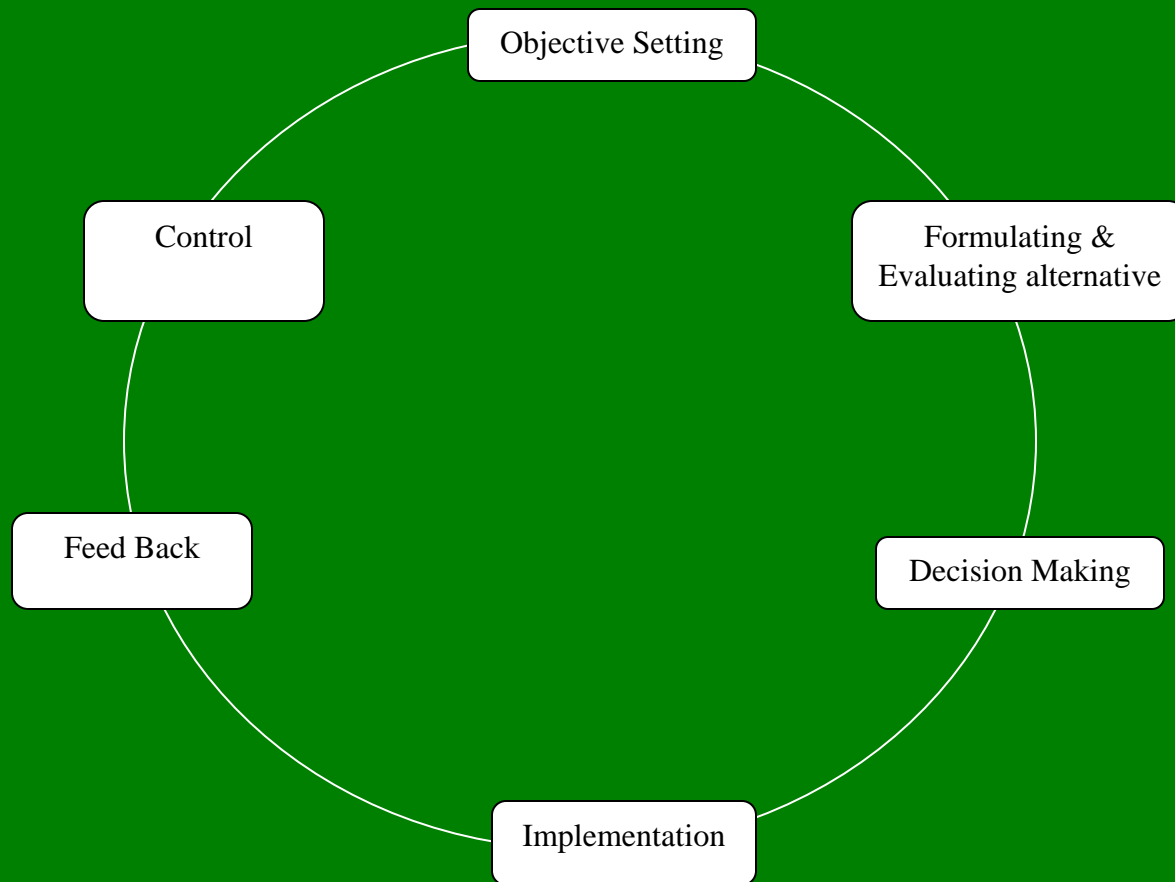
# A General Model of Organization & Its Internal Environment



# Strategic Planning

- There is no perfect strategic or business planning model. Each organization develops its own nature and model of strategic and business planning, often by modifying an existing model. Strategic planning is a process to answer four question:
  1. Who are we?
    - Mission
  2. Where are we now?
    - Needs Assessment
  3. Where do we wish to go?
    - Vision
    - Goals, objective
    - Strategies, Tactics
  4. How will we get there?
    - Organizational model
    - Business plan
    - Implementation plan
    - Marketing plan

# Strategic Planning





# Balanced Scorecard Methodology

Balanced scorecard methodology is an analysis technique designed to translate an organization's mission statement and overall business strategy into specific, quantifiable goals and to monitor the organization's performance in terms of achieving these goals. This methodology is concentrated on mainly four different field.

1. Financial analysis
2. Customer analysis
3. Internal analysis
4. Growth analysis

# MANAGEMENT & DECISION MAKING

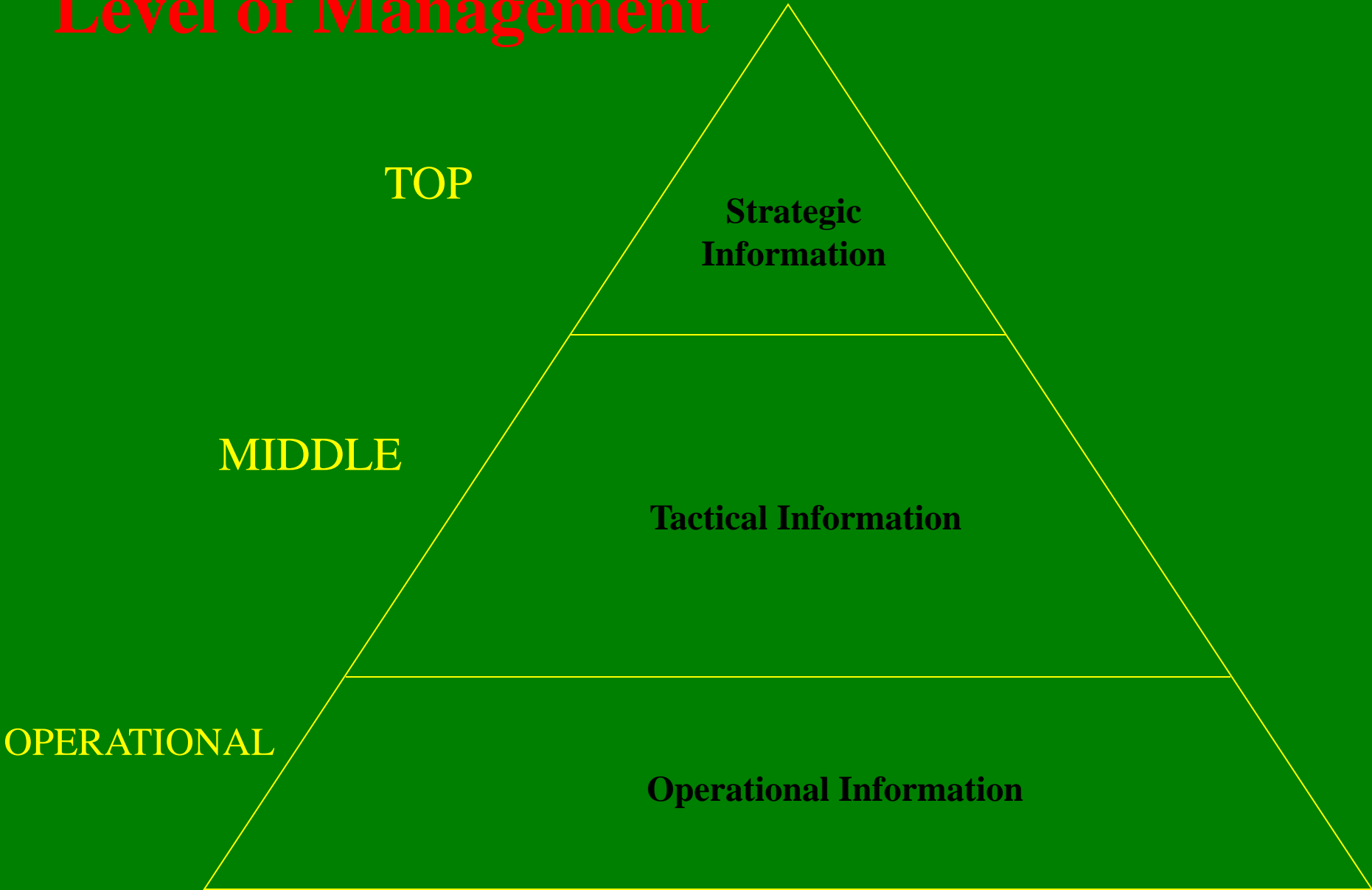
# What is Management?

Management is the process of getting activities completed efficiently and effectively with and through other people.

## Management functions:

- Planning
- Organizing
- Staffing
- Directing
- Coordinating
- Reporting
- Budgeting

# Level of Management



- **Line Management:** referred as shop floor worker and clerical staffs they are largest group of employees. This group all types of service worker as well as traditional production employee in manufacturing organization.
- **Operational Management:** is in charge of a small units of workers and authorized to force the company for small amounts of money.
- **Tactical Management:** The tactical manager are responsible for finding the best tactics to accomplish their superior's strategic decision.
- **Strategic Management:** Strategic managers make decisions that affect the entire organization, or large parts of it and leave an impact in the long run.

# Managerial Roll

- **Interpersonal Roles:** These include greeting the visitors, attending social function involving their subroutine. The leadership role includes employing, training, motivating and disciplining employees.
- **Informational Roles:** Receiving and communicating information are perhaps the most important aspects of a manager's job. In order to make the right decisions, managers need information from various source.
- **Decisional Roles:** is to controls the facts like strikes, shortage of materials, shortage of physical or monetary recourse.

# Long Range Planning Vs Short Range Planning

<b>Point of distinction</b>	<b>Short Range Planning</b>	<b>Long Range Planning</b>
Periodicity	Up to one year	5 Year
Dealing with	Current operation of an organization	Long time goal, strategy and mission
Effect	Operation within existing structure and resource.	Demands changes in the structured, resource allocation
Uncertainty	The time horizon is limited and risk associated with the uncertainty level is low.	It goes far into the future; the risk and uncertainty level is high.
Compiled by	Lower level executives.	Top management.

# DECISION MAKING PROCESS & EVALUATION



# Decision Making Process

Decision making is one of the most important tasks of management. Decision are made at different levels of organization structure. The information support system required for the decision making process also varies according to the type of decision.

# Intelligence And Design Phases

Three important aspects of the intelligence and design phases are –

1. Problem finding
2. Problem formulation
3. Development of alternatives

- **Problem Finding:** Problem finding as part of the intelligence phase, is conceptually defined as finding a difference between some existing situations and some desired state.
  
- **Problem Formulation:** Four strategies for reducing complexity and formulating a manageable problem are:
  1. Determining the boundaries.
  2. Examining changes that may have precipitated the problem.
  3. Factoring the problem into smaller sub problem.
  4. Focusing on the controllable element.
  
- **Development of Alternatives:** A significant part of the process of decision making is the generation of alternatives to be considered in the choice phase.

# Managerial Decision Making

# Types of Managerial Decisions

1. Personal and Organizational Decision
2. Basic and Routine Decision
3. Programmed (routine, repetitive) decision and Non-programmed (unique, one-shot) decisions

# Evaluating Decision Making

In order to evaluate the decision making process model based approaches are practices. The two Basic models of decision making are:

- Normative model: emphasis the path to follow to take decision.
- Descriptive Model: emphasis about the decision making of less structured and intelligence problem.

# Effectiveness Vs. Efficiency

- *Efficacy* means achieving higher output with the same or less input and recourse.
- On the other hand *effectiveness* is measured in terms of achieving the intend purpose. Popularly effectiveness is called as doing right thing right.

Report may be efficiently produced but is not effective.

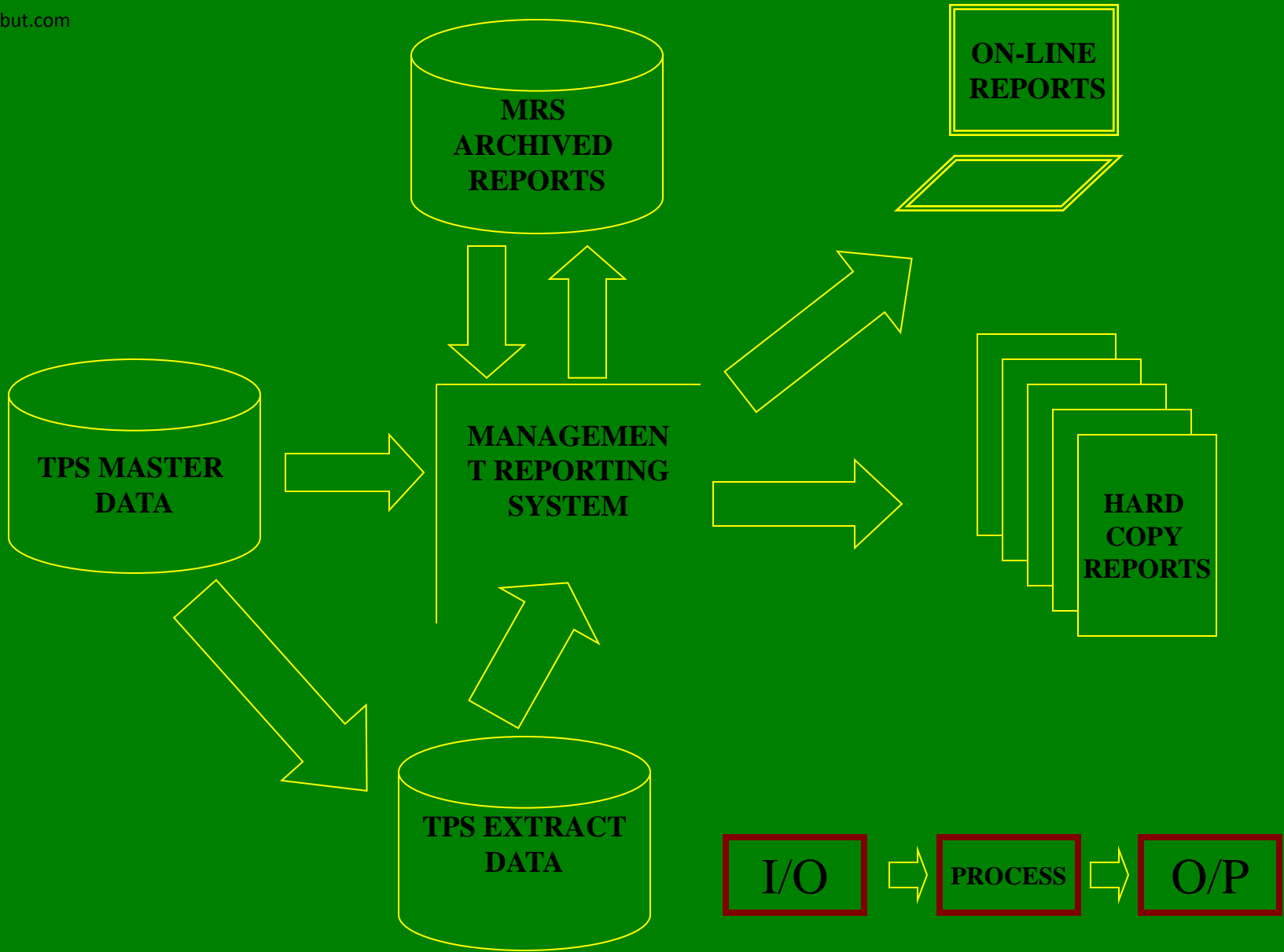
# TRANSACTION PROCESSING & MANAGEMENT REPORTING SYSTEM



# Transaction Processing Framework

- Transaction processing involves processing of transaction or records. The transaction may be financial accounting entries, payroll entries, invoice entries, entries of purchase order etc. The transaction convert the input transactions into output transaction.

Ex: Financial accounting, Payroll Management system.



# Decision Support System

- Decision Support System (DSS) Provides support for decision making activities. A typical decision support system consists of three major components, namely
  1. DSS Tools
  2. DSS Generators
  3. Specific DSS

**DSS Tools** are structure based software solution that are used as the building blocks of the DSS. **DSS Generator** adapt the logic, norms and rules to create a **specific DSS** that is capable of handling predetermined decision support function. The combination of DSS tools and Generators produce the specific DSS with which the user of DSS interacts.

# Group Decision Support System

- The group decision support system is a user friendly, interactive computer based system that assist in the solution of semi-structural and unstructured problems by a group of executives who are required to take decisions.

# Advantages of Group Decision System.

1. Certain problem need a group of people to tackle the issues rather than individual.
2. It can handle unstructured and semi-structured problem.
3. The system should cover a wider field of information support.

# Knowledge Based Systems

- Knowledge based system can be defined as a systems that support the creation, organization, and distribution of business knowledge within the enterprise. Examples: sales proposal strategies, customer problem resolution system. It make extensive use of knowledge to perform complex tasks.

# Office Information System

- Office information system provide information support for functioning of an office.

To identify some policies that an organization should follow to achieve maximum benefit form the virtual office may be categories as follows:

1. Managing Documents ( Word processing, Desktop publishing, Web publishing).
2. Scheduling of office Work ( Electronic Calendar, internet, Intranet)
3. Communication inside & out side Organization ( E-mail, Video Conferencing system )
4. Data management ( Spreadsheet, Database, ERP)

# DECISION SUPPORT SYSTEM



# What is Decision Support System?

- Decision Support System (DSS) provides decision making activities. DSS as a computer based support for management decision makers who are dealing with semi-structured problem. The DSS provides not only information but also suggest various alternatives and evaluates alternatives and presents the same for the final decision making act that deal with by humans.

# Component of DSS

- The User
- Models
- Database
- Networking facility
- Hardware
- Software

# Development of DSS

- The DSS in real life implementation consist of three modules or subsystem. They are:
  1. Dialogue Module
  2. Database Module
  3. Model Subsystem

The **dialogue model** is user interface module.

The **database module** deals with database management activities.

The **model subsystem** deals with mathematical models and algorithms, logic, rules and norms that are used in DSS.

# Expert System

- Expert system can well be considered as the extended version of the DSS. Expert systems are designed to operate based on pre-determined logic, conditions, rules, algorithm that are provided. Based on these norms the expert system triggers actions. Typically the actions triggered or decisions made are programmed decision that can effectively fit in the “if- then-else” logic.

# DSS Product

- The design support system can make use the products of integrated spreadsheets, artificial intelligence, computer graph tools, and other online corporate data. Some examples are given bellow:

Navy Management system based on .net technology to manage contacts, inventory, employees, service trucks, and service calls.

# DSS Development Tools

There are several management tools are there:

1. Assessment of probability
2. Allocation of recourse.
3. Planning model.
4. Mathematical models for future projector.
5. Decision tree and decision table.
6. Current affairs and inter national situation.
7. Governmental policies.

# Executive Information System (EIS)

- Executive information system (EIS) basically meant to provide information support for the “executives” in a business organization .

Executive support system are a subset of decision support system. While the decision support system can be used for managerial decisions at all levels.

EIS depends on some factors the nature of such as industry, type of products, services offered, extend to competition, functional approach to managing business process, organization structure and hierarchy, executive position, so on.

# Differences Between MIS and DSS

	<b>MIS</b>	<b>DSS</b>
<i>Decision Support Provided</i>	Provide information about the performance of organization	Provide information and decision support technique to analyze specific problems or opportunities.
<i>Information Form and Frequency</i>	Periodic, exception, demand and push reports and response.	Interactive inquiries and response as when required.
<i>Information Format</i>	Pre-specified, fixed format.	Flexible and adaptable format
<i>Information Processing Methodology</i>	Information produced by extraction manipulation of business data.	Information produced by analytical modeling of business data.



# TRANSACTION PROCESSING SYSTEM & MANAGEMENT REPORTING SYSTEM

# Transaction Processing System

TPS provide all the information needed to keep the business running properly and efficiently. It is essential for normal functioning of an organizations.

TPS should be able to

- Provide timely documents and reports
- Provide data for other system
- Safeguard information

The nature of transaction processing depends on the type of application and it may be.

- ***Batch Processing System*** : Batch processing system as the name indicates, involves processing a batch of inputs to produce the desired output. In a batch processing group of transactions collected over a period of time is collected, entered, processed and then the batch results are produced. Batch processing requires separate programs for input, process and output. It is an efficient way of processing high volume of data.

For example:1) graphics software that converts a selection of images from one format to another would be a batch processing utility .

2) Payroll system, Examination system and billing system.

- ***Online System:*** A peripheral device is connected to the terminal. The device can communicate constantly with the terminal. Such a connection is called on-line.

The software features required by on-line system include special record handling features, record locking and archiving for crash recovery.

- ***On-line Real Time System:*** The real time on-line system help monitoring or controlling specific activity. The difference between common on-line system and on-line real time systems is basically in the application. The on-line system is just updating the files and producing the outputs. The railways reservation system is an ideal example on on-line real time system.

- **Time Sharing** : Time-sharing is the used to describe a processing system where different tasks share the processing time. The tasks involve more time in input and output with relatively less time requirement for processing of input to produce output. These applications may be financial accounting, manufacturing recourse.

- **In a real time processing**, there is a continual input, process and output of data. Data has to be processed in a small stipulated time period (real time), otherwise it will create problems for the system. For example: assembly line robots and radar system.

## What is the difference between batch processing and real-time processing?

- In batch processing, transaction information is first entered manually using a keyboard. This information is stored in Transaction files. Transaction files are then compared to old “master files”. Validating and updating processing occurs that add any necessary updated information to the master file. A new master file is then created that stores the updated information system. Error and other types of reports are then produced.

On the other hand, in Online processing system, user directly enters the information online, it is validated and updated directly into the master file. No new file is created in this case. Therefore, there is immediate input process, immediate processing and immediate file update.



# **ENTERPRICE RESOURCE PLANNING (ERP)**

# ERP

ERP can be defined a set of application software that integrates information from manufacturing, finance, distribution and other business functions and facilitates decision making.

ERP offers a robust and fully integrated information system.

# Material Requirement Planning (MRP)

- The basic concept of MRP primarily addressed business specific issues revolving around materials as a key resource for manufacturing organization.

# Closed Loop MRP

MRP is considered as infinite manufacturing capacity. Therefore Capacity Requirement Planning (CRP) was the obvious logical extension of MRP.

The closed loop MRP was no more a plain and simple MRP methodology. It was a series of functional area applications that were put together. It had tools to handle capacity and priority. It also provided the necessary support for planning and execution activities of the organization. The closed loop MRP had a method of feedback from execution to planning.

# Manufacturing resource planning (MRP II)

- $\text{MRP} + \text{Finance} + \text{Human Resource} = \text{MRP II}$
- The word “materials” was replaced with “manufacturing” and the word “requirement” was replaced with “resource”.
- A company-wide management system based on network scheduling, which enables people to run their business with high levels of customer service and productivity and simultaneously lower costs and inventories.

# Functional Architecture of ERP

ERP architecture has some common elements. They are:

- The centralized common database, which is shared by different modules or sub-systems of the ERP solution
- Modules or sub-systems that provide for appropriate interface with different stake holders or external entities such as customers, suppliers, employees, managers and share-holders.
- Modules that address the business requirements at the transaction processing and reporting layers for the information system set up in a business organization.
- Modules or components that allow generation of reports and queries.

# Benefits of ERP

Benefits of ERP can be classified in two categories.

- Tangible benefits
- Intangible benefits

# Tangible Benefits of ERP

- Tangible benefits are those which can be measured in one form or the other. The major tangible benefits of ERP are improvement in customer service levels and productivity improvement.



# Intangible benefits of ERP

There are other benefits of ERP that can not be qualified or measured. They are as follows:

- Information availability; ERP offers a strong information support for decision making purpose
- System maintainability.
- Reduction in response time to react to the customer's request and queries.
- Improvement in sales resulting from weaker response to customer orders better cash and fund management, improvement in planning, efficient utilization of planned capacities etc.

# Business Process Reengineering (BPR)

BPR is a concept that has had considerable impact on the very nature of information systems within a business organization. The concept of reengineering is concerned about out dated rules and the fundamental assumption that were honored in the traditional information system in business organization. The concept or reengineering enabling role of information technology in the transformation process.

# ERP Implementation

- Customers
- ERP vendors
- Implementation partners.

# Advantages of ERP

- Business integration
- Flexibility
- Better analysis and planning capabilities
- Use of latest technologies