Unit 2

Information System Environment

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System theory

- The system theory approach to organization and management appeared around 1960, and soon acquired a dominant position in management literature and practice.

Organization as an Open and Organic System

- Organizations are **open system** in that they are in a continuous interactional relations systems.
- These **other system comprise markets, suppliers, bankers, trade unions, government, educational and other** similar enterprises industry, economy, etc., which constitute its **environment**.
- Organizations are also **organic systems or living systems** as they must satisfy **three conditions** for their continuing survival.
- First, at organization should be **stable** in the sense that its various parts should be stable in balance with one another.
- Second, it should **grow and mature** like other living entities.
- Third, it should **adapt** to environmental changes.

Parts of the system

Organization is composed of a number of subsystems:

I. **Production sub-system** is concerned with the process of conversion of **inputs** including materials, finances, man-hours worked etc., into **outputs** of goods and services. It includes technology, production facilities and physical layout of the plant.

II. **Supportive sub-system** performs the function of **acquiring various inputs** from the environment and **marketing the final products** in the form of goods and services. It also concerns with maintaining a **favorable relationship with its environment** for facilitating the performance of organizational functions and activities

III. **Maintenance sub-system** concerns with **hiring, indoctrinating, socializing, rewarding and punishing** the employees. It also pertains to the maintenance of favorable patterns of employee attitudes and behavior with the aim of motivating them to ınake their optimuın contributioıı to organizational goals.

IV. **Adaptive sub-system** of the organization performs the crucial function of **relating the orgaıiization to its environment**. It anticipates and responds to, as well as inflıienees the environments

III. **Managerial sub-system** consists of **planning, organizing, staffing, directing, coordinating and controlling** the activities of the various subsystems.

IV. **Individual sub-system** also comprises a subsystem of the organization. They bring a set of **attitudes** and needs to the organization which influence their **work behavior**.

V. **Informal sub-system** which arise **spontaneously out of the interactions among employees**. Group and intergroup behavior have an important bearing on the functioning of an organization.

Intra-subsystem Interactions

- **Each of these subsystem** or parts of the organization is **itself a system** made up of its unique subsystems or parts.
- For example, managerial subsystem is a systeın composed of managers, objectives, strategies, status and role relationships, managerial philosophy and values.
- All these parts of the managerial subsystem operate in an **interactional and interdependent relationship** with one another.
- All the **parts of an organization** are also in an **interactional and interdependent relationship** with each other.

Interaction with super systems:

- An organization, as open system, is in an interactional and interdependent relationship with its environment composed to numerous systems such as **society, religious, cultural and social norms and values, market, government, supplier, brokers**, etc.

- **Linkages:**

  Tlıe various parts of an organization are linked with one another through its communication network, decisions, authority-responsibility relationships and other dimensions of managerial subsystem.

System Goals

- Organizations have a variety of goals.
- The **supreme goal of an organization is survival**. All other goals depend on the achievement of this goal.
- Another goal, which is intimately correlated with survival goal, is the goal of **adaption** and **integration with environment**.

Classical View of Organization

- Organizations are classified as follows.
  1) formal organization
  2) informal organization

Formal organization

The formal organization is designed to achieve some particular objectives. Formal organization refers to structure of **well define jobs** , each bearing a **specific authority, responsibility and accountability**. Every member is responsible for the performance of a **specified task** assigned to him on the basis of authority responsibility relationship in an organization.

Informal organizations

Informal organization refers to **natural grouping of** people on basis of some similarities in organization. These relations among employees are not developed according to procedures and regulations laid down in the formal organization.

- The **classical organization theory** has been developed around four-major factors.
  - Division of labor
  - Scalar and functional processes
  - Structure
  - Span of control.
- These are also known as classical pillars.

1) Division of labor:

- Division of labor implies that **work must be divided to obtain clear-cut specialization** with a view to improving the performance of individuals in the organization.

- This theory state that **large work is divided into small segments** and each segment is solved by each employee and finally **solution of all segments is merged** to large problem as a whole.

2) **Scalar and functional process**

- Scalar and functional processes rest upon the assumption that there is a chain of command throughout the organization.
- Someone exists at the top level of the organization and exercises authority to make final decisions.
- Scalar process refers to the **growth of chain of comınand, delegation of authority, unity of command, and the obligation to report**.
- Scalar process generates **superior-subordinate relationships** in the organization

- Functional process refers to the **division of organization into specialized parts** and the regrouping of the parts into compatible units.
- Thus, each unit of the organization may be functionally different than others for example. marketing unit is different from production unit.
- While **scalar process deals with the vertical growth** of the organization.
- There are **five basic** components of scalar aııd functional processes:
  - Departmentation,
  - Coordination by hierarchy,
  - Unity of command,
  - Delegation of authority
  - Staff (and event) relationships

3) Structure

- Structure is the framework of the **formal relationships among various tasks, activities and people** in the organization.
- Organization structure determines the **efficiency of the individuals and organization**. The basic structural element in the classical theory is the position.

4) Span of Control

- Span of control refers to the **number of subordinates** which can be **effectively supervised by a superior**
- Span of control for a superior **should be limited** because every manager: has a limited amount of knowledge and capacity

Transitional Views

- Modern organization theory is a **sophisticated and scientific way** of explaining a **complex organization**. Modern organization theory can be understood in two approaches: system approach and contingency approach.

- **Subsystem in organization**

  Subsystem: a system that is a part of some larger system is called subsystem since organization is a system it contain various b system. Each subsystem is identified by certain objectives, process, and rules.

- Following are the **subsystem of organization**.

1) Technical subsystem

- It refers to the knowledge reqıiired for the performance of tasks including the techniques used in the transformation of inputs into outputs.
- The basic coınponent of the teclınical subsystem is a group of tasks of activities that can be performed by an individual.
- The individual has to play a role involving decision making, communication, and other actions which relate him with other parts of the organization.
- Behavior in the teclınical subsystem is governed by rules. procedures, and policies.
- The basic purpose of the behavior regulation is to make sure that jobs are performed according to planned.
- Technical subsystem constitutes the **formal arrangement of the functions, relationships, and behavior**.

- 2) **Social subsystem**
- Every organization has a social subsystem which is composed of individuals and groups in interaction.

- As such, there are various elements of social subsystem. The **first basic element of the social subsystem is the individuals.**
- Organizations exist because persons need them to do things.
- Another element of the social subsystem is he **informal orgnization** which is the result of the operation of, socio-psycholocal forces at work place.

3) Power subsystem

- Every organization has a power subsystem and people in the organization elaborate their behaviour through the power relationship.
- Power is one's ability to influence others to achieve desired results.
- Power distribution in the organisation is both formal and informal.
- Power subsystem is important to transform a decision into action in the organisation.

- **4) Managerial sub-system**
- It is consists of planning, organizing, staffing, directing, coordinating and controlling the activities of the various subsystems.

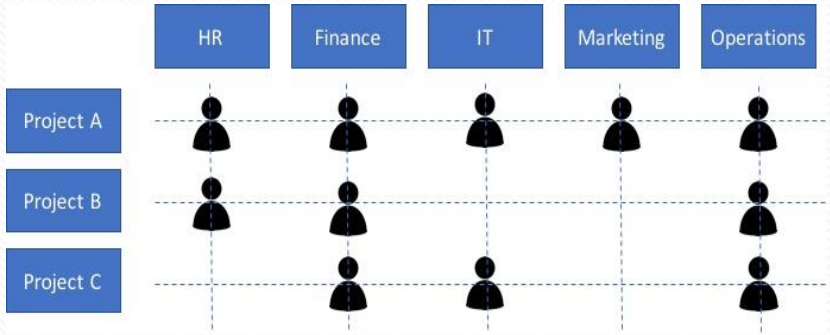
Modern Organization Considerations

- There are various implications of systems approach in management including organizational design.
- Systems approach of modem organization theory has suggested **three aspects relevant to design of organization structure**. These are
  - Modern organizational models,
  - Lateral relationships, and
  - Cybernetics.

1) Modern Organizational Models

- Systems approach of organizational design recognizes the **problems involved in managing large and complex** organizations.

- Classical and neoclassical ınodels → **Modern models** for today's organizations such as
  - **Project organization,**
  - **Matrix organization,**
  - **Task force, etc.**



- The approach recognizes the **need for flexibility and adaptability** of organization structure

2) Lateral Relationships

- lateral relationships in which **employees at the same level from various departments coordinate** to achieve organizational objectives.
- Lateral relationships achieve coordination **more effectively** by eliminating the hierarchical control.

3) Cybernetics

- Scientific study of communication and control.
- It is concerned with information flow in complex systems.

Contingency Approach

- Contingency approach is an **extension of system approach**. Contingency approach of organizational design suggest that **structure of a organization should be tailor-made**; search for a typical structure applicable to all organization is futile .

Major Organizational Considerations

Following are the major consideration of organization.

1. **Environment**→ super system to interact, open and adaptive system
2. **Strategy**→ technique used by organization to achieve goals
3. **Technology**→ better and efficient results with proper technology, affects the task structure
4. **Size** → positive correlation between number of employees, scale of operations , and amount of investment.
5. **People**→ reflects the thinking and way of working of employees; organization structure is result of conscious actions of people.

Managerial Roles

- **Interpersonal Role:** A manager plays the role of a **leader** of his subordinates, maintains **liaison** with the external environment and plays the role of figurehead as and when occasions arise.

- **Information Role:** His information role includes the responsibility of **managing information** in the organization. He is responsible for making information **available** within the organization and should be able to **communicate** the state of affairs to the external environment.

- **Decision Role:** A manager is supposed to **take decision** for bringing about **changes** in the environment.

Decision Making Models

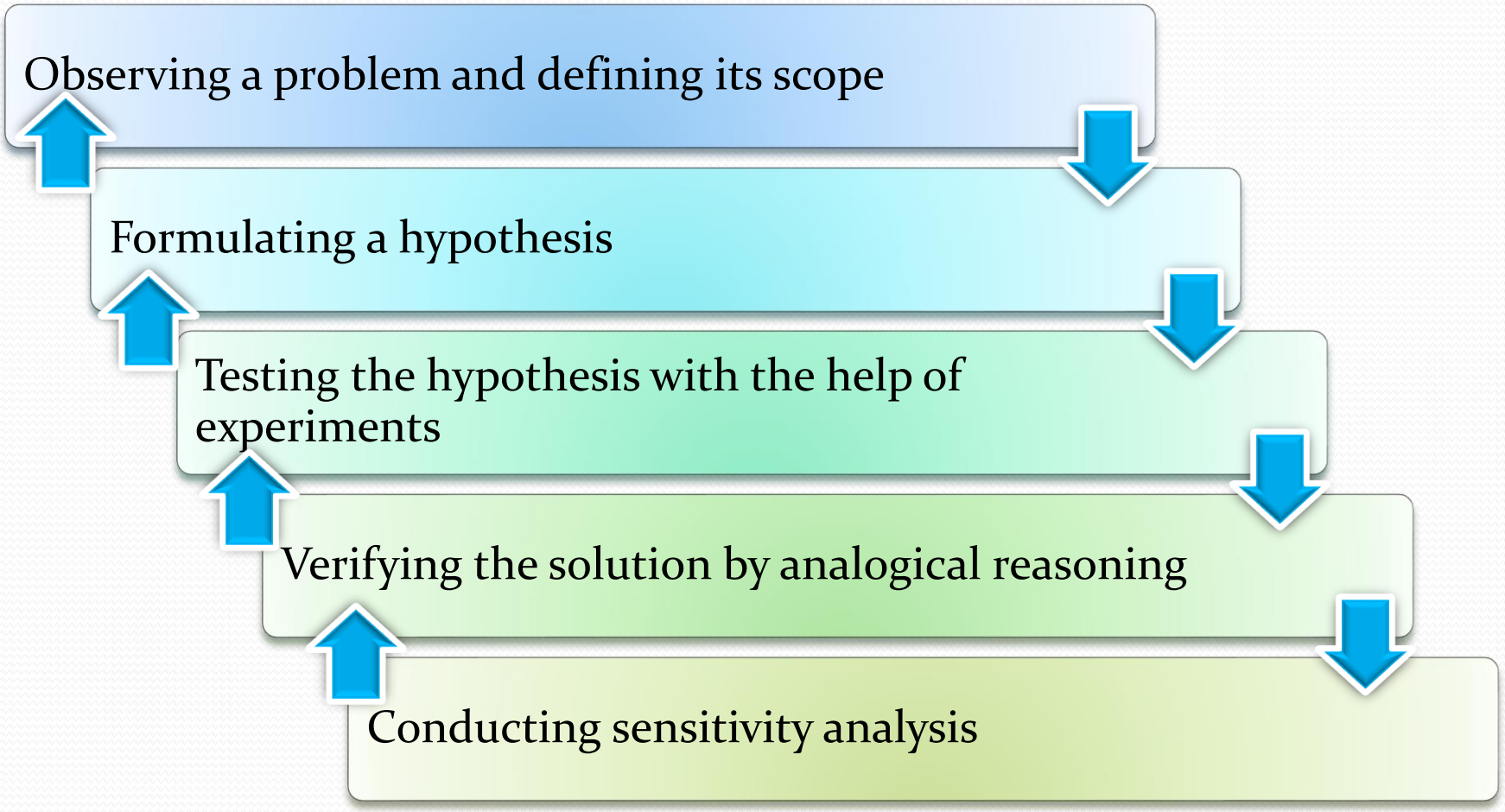
There are three approaches to decision making process:

- Quantitative Approach
- Decision centered Approach
- Managerial roles Approach

Quantitative Approach

- The quantitative approach to decision making is an **extension of the classical approach**. It involves a sequential process of:
  - Observing a problem and defining its scope,
  - Formulating a hypothesis,
  - Testing the hypothesis with the help of experiments,
  - Verifying the solution by analogical reasoning,
  - Conducting sensitivity analysis,
  - Estimating solution of the problem,
  - Implementing the solution, and
  - Establishing control systems for feedback and review.

Quantitative Approach to Decision Making



- The quantitative approach **uses mathematical models** to seek **optimal solutions** to the problems in the given business situation well recognizing the constraints imposed by the environment.

- This approach is **problem oriented** and more useful in the case of **structured decisions**.

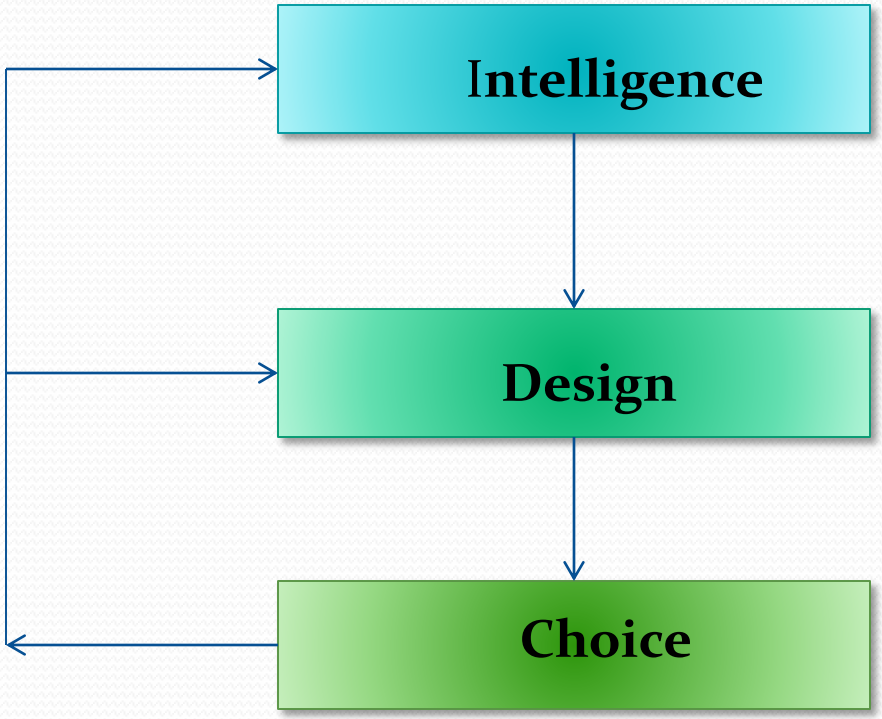
- It is suitable in decision situations where most of the important **factors are controllable** to a reasonable extent and the **manager has complete control** over the decision making.

- Such decision situation are **more common** in case of **operational decisions**.

Decision centered Approach

- This approach is based on the concept of bounded rationality. It tries to achieve **satisfactory solution** as **against the optimal solution**.
- **The decision making process under this approach involves the following steps**:
  - Environment intelligence for **searching problems** and **opportunities**, identifying the **available informational inputs** regarding the decision variables.
  - Identifying or designing **alternatives courses of action**, avoiding new, uncertain alternatives; **relying on well tried alternatives**.

- The **interdependence of the goals** of different programmes is **generally avoided** as some of the goals in given programme may be in conflict with goals of other programmes.
- **Implementing** the selected solution
- **Establishing control systems feedback**.



Information for Intelligence

- The **gathering of information** is done on regular basis with the aim of identifying

  (**a)Opportunities and**

  (b)Threats

- Modern business information systems, generally offer **exception reporting facilities** with varying degrees of analysis of information.

- Intelligent agent

Information for Designing

- Designing the **model for decision making** can be greatly **helped by modern information systems**.
- Information for **programmable decisions**, which can be taken using predetermined algorithm, can be generated easily and automatically.
- In case of **non-programmable** , which are **influenced by a large number of variables** that are **subject to random behavior** the problem is **more complex**.
- However **BIS can help** a manager in the process of decision making by providing the possible impact of each of the variables.

Information for choice

- It is considered **more useful** in case of decision involving situations:

1. That are **poorly structured**
2. The **time opportunity trade off** is substantial
3. **Inadequate i**nformation available and
4. **Outcome of the decision** is subject to a **number of factors beyond the control** of the manager.

Role of Information Systems in Decision

Impact of computer science in organization

Computer has made the work very easy

- With its **speed**
- With its **memory**
- With its **reliability** of calculating
- With its **ease to retrieve** the data

Role of Computer in accounting of business

- To **manage data** easily
- To make **calculation** work easily.
- To **retrieve information** easily

Role of Computer in Marketing

- Internet is emerging as a very good tool to do marketing.
- With **Email IDs, online shopping sites, social networking** sites etc.

Role of Computer in Marketing Research

- To get the result of Marketing Research we need some software like SAP etc. (SAP→ Systems, Applications, Products in Data Processing)
- By computer we can easily **save and analyze the respondent's feedbacks**.
- Some **research** caııbe done through net by **social networking sites** aiıd many otlıer sites

Role of Computer in HRM

- We can easily get the information of desired candidates via **employment related sites**.
- We can easily send information to the candidates about the **vacancies and interview dates**.
- We can be in touch with the **job consultants**

- **Role of Computer in tracking share market**
- By computer we can **get day to day information** of share market which is very important to do business because we have to be updated by the knowledge of share market to update our bus·

- **Role of computer to keep us in touch with others**
- We can be **in touch** with our **clients**.
- We can be in touch with our **vendors**.
- We can be in touch with our **employees**.
- We can be in touch with our **boss**.

Impact of computer science on individual (employs of organization)

- There is a huge impact of compute1·science on employs of organization.
- Now a day's computer system is used in **every level of** organization.
- By using computer system , manager is able perform following task very accurately
  - Producing **outgoing documents** (using text processors)
  - **Storage and retrieval** of documents (using document management systems)
  - **Transmission** of messages(using message communication systems)
  - **Scheduling and meeting** management (using video-conferencing systems).

- By using compute, manager or employee of organization can able to do **variety of office automation task**.
- Employs can able to develop documents such as **letters, reports, memos**, etc
- Employs can able to **send and receive message** within or outside organization using computer system.
- By using computer system manager **can reduce the costs** of office communication both in terms of **time** spent by executives and cost of communication liıks.
- Thus, use of computer system brings **accuracy, speed,** in the work of employs in every level of organization and make employ's job every easy.

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