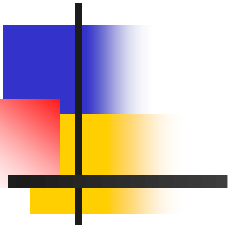


IEng 5361: Industrial Management and Engineering Economy



Chapter 1

Basic Management Concepts and Industrial Organization



Learning Objectives

- ❑ *Understand the basics of Management and organizations*
- ❑ *Identify the Function and level of management*
- ❑ *Have a general concept on Organizational stricture and Organizational productivity*

What is management?



- What is this little lad doing?
- Do you know where he is going?
- Can you see where he is going?
- Do you know what could happen if he falls in the water?
- Can you really see what the consequences are going to be?
- Have you got the big picture in mind?
- With anything that one does in life you start with the end in mind.
- You decide what you want to achieve and then you decide how you will work towards achieving it.
- This is what management is.

What is management?



So That You and Your Followers Can Reach Our Vision

Put Stepping Stones in Place

Chart the Path



What is management?

- It identifies a **special group of people** whose job is to direct the effort and activities of other people **toward common objectives.**
- It gets things done through other people by **planning, coordinating and directing** the activities of an organization.
- The **decisions** and **judgments** made are normally oriented to the **needs** of the **organization.**



What is management?

- **Designing and maintaining** an environment in which **individuals work together** in groups to accomplish selected aims.



What is management?

- Management is both **science** and **art**.
 - As a science, it is a collection of **systematic knowledge**, collection of **truths and inferences** after continuous study and experiments. It has fundamental principles discovered.
 - As an art, uses the known **rules and principles** and uses the **skill, expertise, wisdom, experience** to achieve the desired result.



What is management?

- Set of activities directed at an **organization's resources** with the aim of achieving **organizational goals** in an **efficient** and **effective** manner.
- act of getting people together to accomplish **desired goals** and **objectives** using **available resources** **efficiently** and **effectively**.

Elemental Definitions

- **Process:** represents ongoing functions or primary activities engaged in by managers.





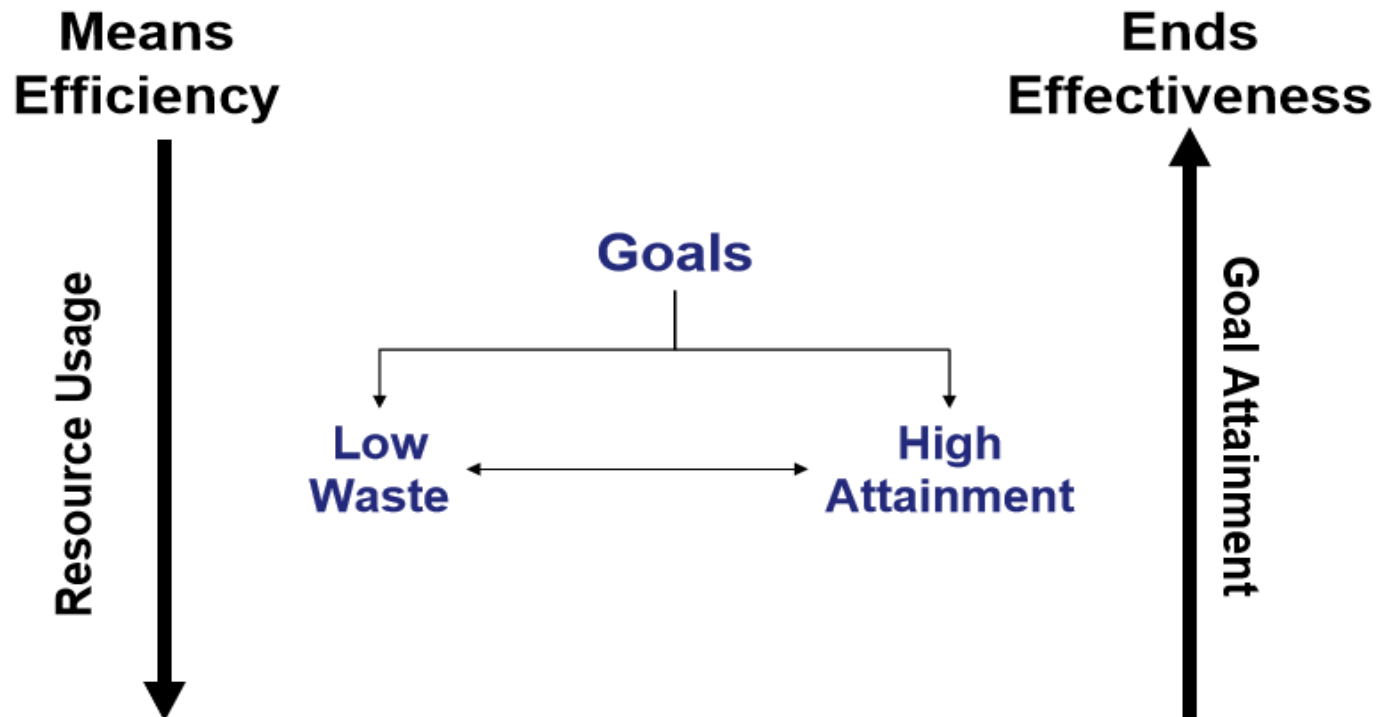
Elemental Definitions

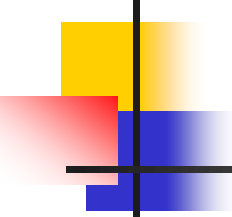
- **Efficiency** - getting the **most output** from the **least** amount of **inputs**
 - ✓ “doing things right”
 - ✓ concerned with means
 - ✓ Achieving the objectives in time
- **Effectiveness** - **completing activities** so that **organizational goals** are **attained**.
 - ✓ “doing the right things”
 - ✓ concerned with ends
 - ✓ Achieving the objectives on time



Elemental Definitions

Efficiency and effectiveness



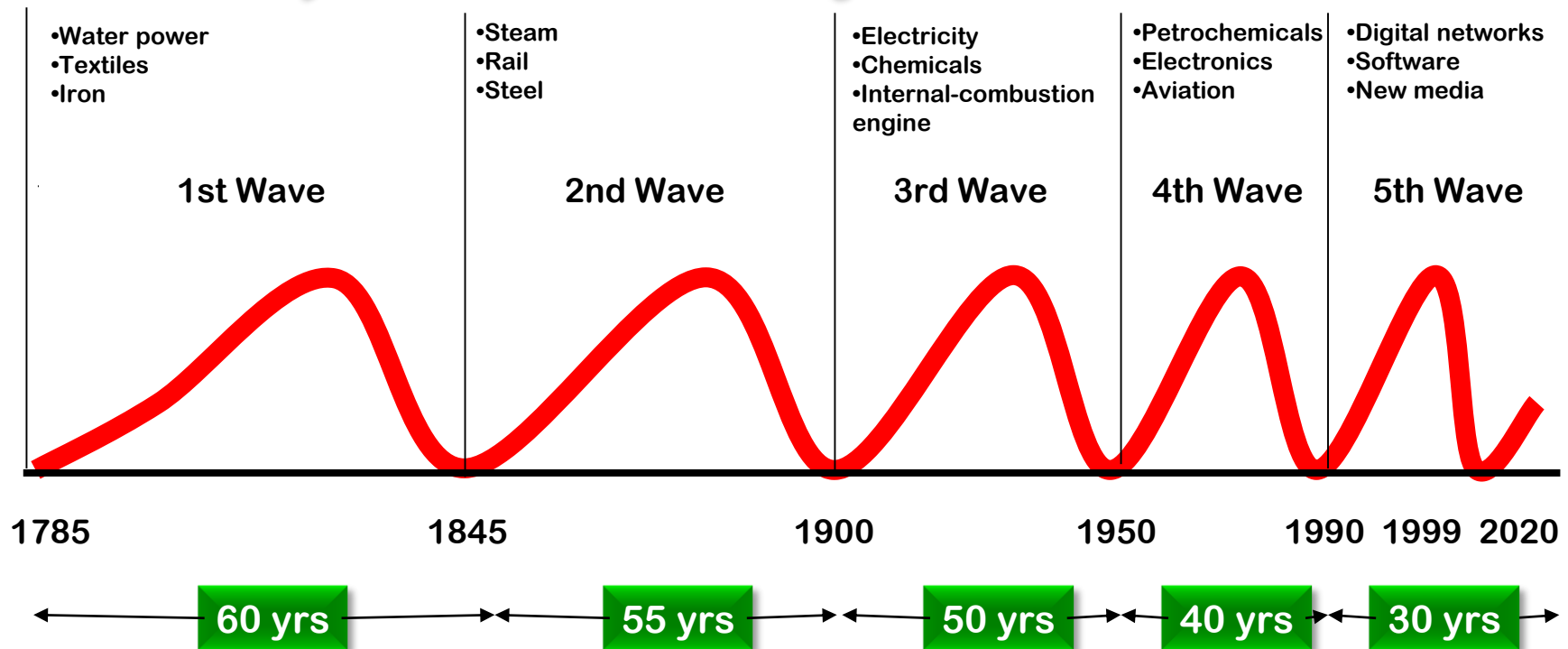


Why management?

- The Industrial Revolution brought about the emergence of large-scale business and its need for professional managers.
- Management became more important as the developments and complexities of technology and human relationships get more challenging to those who perform managerial functions.

Why management?

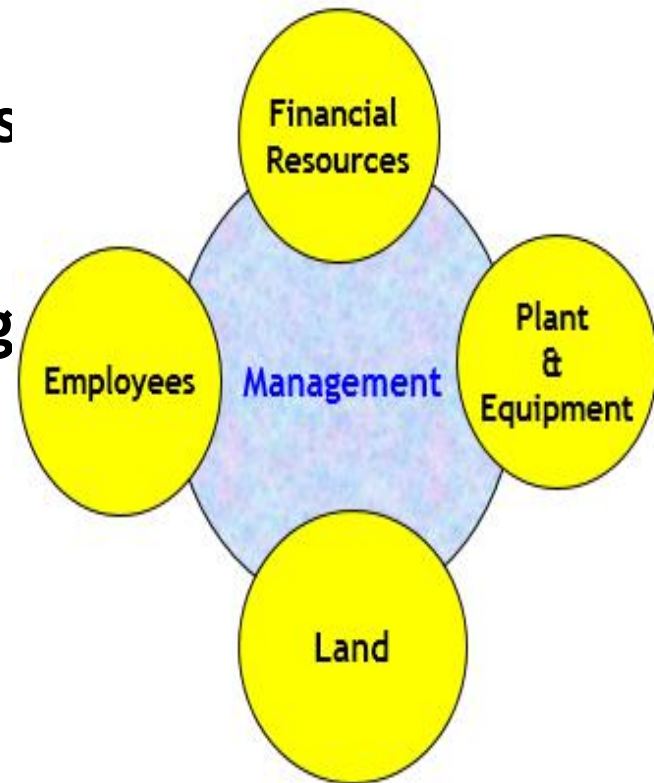
Shorter life-cycles for innovative technologies



Source: *The Economist*, February 20, 1999

Why Management?

- As a unifying force, it is the process of bringing **human** and **non-human resources** together and coordinating them to accomplish organizational goals.



Where applied Management?





Basics of Management

Organization

- Organizations are **groups of people**, with **ideas** and **resources**, working towards a **common goals**.

or

- A **systematic** arrangement of **people** brought together to accomplish some **specific purpose** is called organization.



Basics of Management

Manager

- A manager is **someone** whose **primary responsibility** is to carry out the **management process within an organization** to achieve the organizational goals.



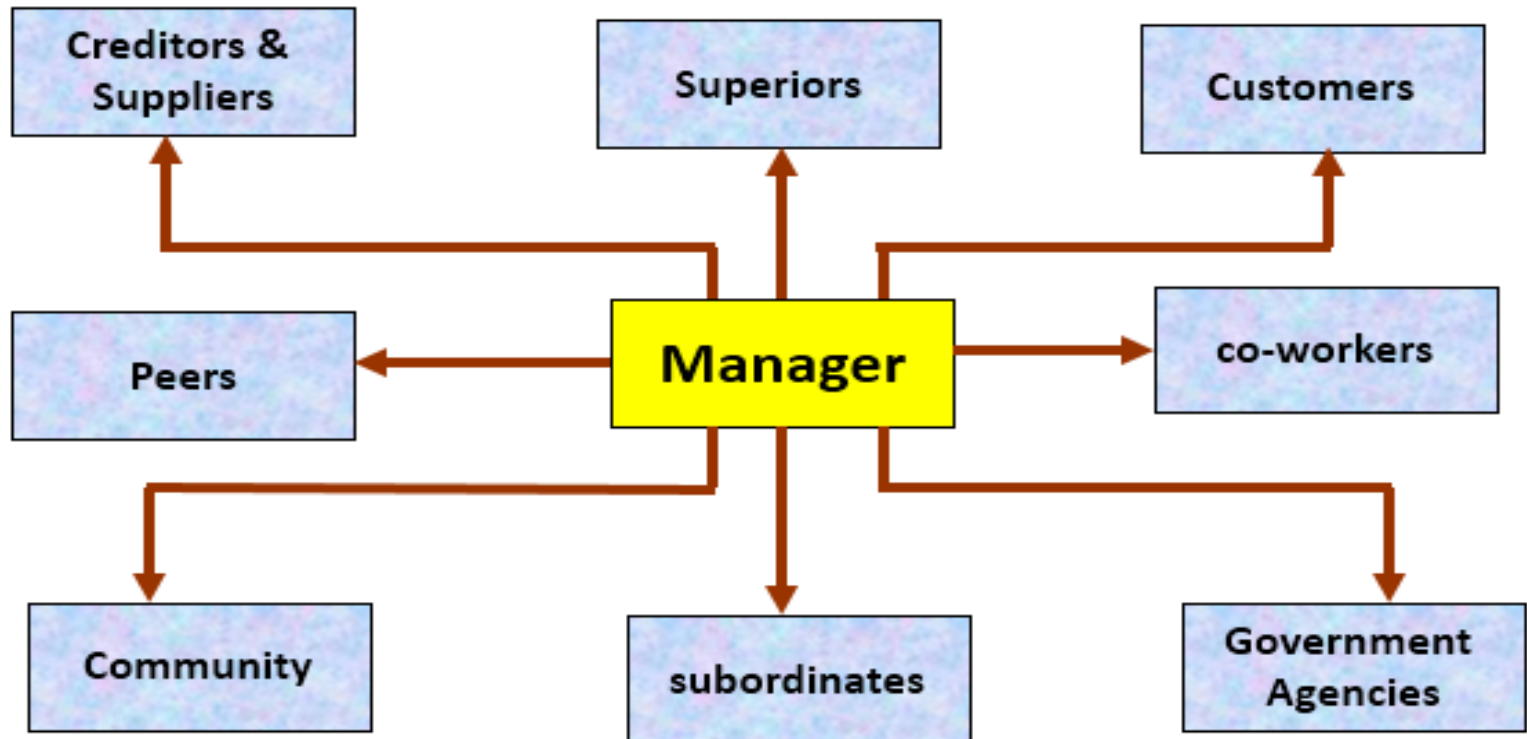
Basics of Management

Importance of Manager

- Puts together the **factors of production** to produce goods and services
- Make **business decisions**
- Takes **risks** for which the reward is **profit**
- Acts as an **innovator** by introducing **new products, new technology and new ways of organizing business**

Basics of Management

Manager's Interactions with Other Groups of People





Basics of Management

Homework 1.

1. *Write a short argument whether a leader born or Learned.*
2. *Discuss the school of management thought.*

Basics of Management

Managerial skills



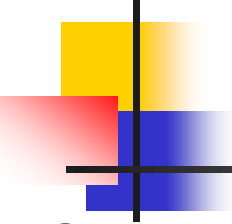
Managerial Skills

Primary Skills

- Conceptual Skill
- Technical Skill
- Human Skill

Secondary Skills

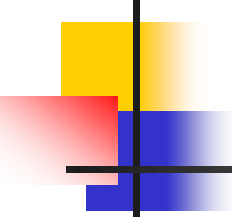
- Design Skill
- Communication Skill
- Leadership Skill



Basics of Management

Conceptual skills:

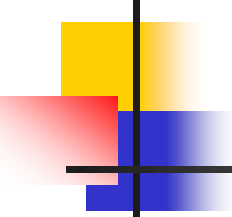
- Ability to think and conceptualize **abstract situations**.
- Abilities to view the organization from a **broad perspective** and to see the **interrelations** among its components.
- These abilities are required for making **complex decisions**.
- In short, it is the **mental capacity** to develop **plans, strategies** and **vision**.



Basics of Management

Human or interpersonal skills:

- Ability to **understand** other people and **interact** effectively with them.
- Abilities to **resolve conflict**, **motivate**, **lead**, and **communicate** effectively with other workers.
- It is important in **creation** of an **environment** in which people **feel secure** and **free** to express their opinions.
- In short, it is the **ability to work with other** people in **teams**.



Basics of Management

Technical skills:

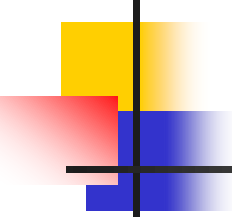
- **Specialized knowledge** and **abilities** that can be applied to **specific tasks**.
- Most important at **lower level** of management, because supervisory managers should train their subordinates in the proper use of work-related **tools, machines, equipment** and **Standard Operation Procedure(SOP)**.
- In short, the **ability to use the knowledge** or **techniques** of a **particular discipline** to attain ends.



Basics of Management

Design skills:

- Enable a manager to **handle** and **solve** any kind of **unforeseen** or **actual problems**, that may crop up in the organization.
- Such problems could arise due to internal factors or external factors and/or both.
- In short, it is the **problem solving skill**.



Basics of Management

Communication skills

- The abilities of **exchanging ideas** and **information effectively**.
- To **understand others** and **let others understand** comprehensively.

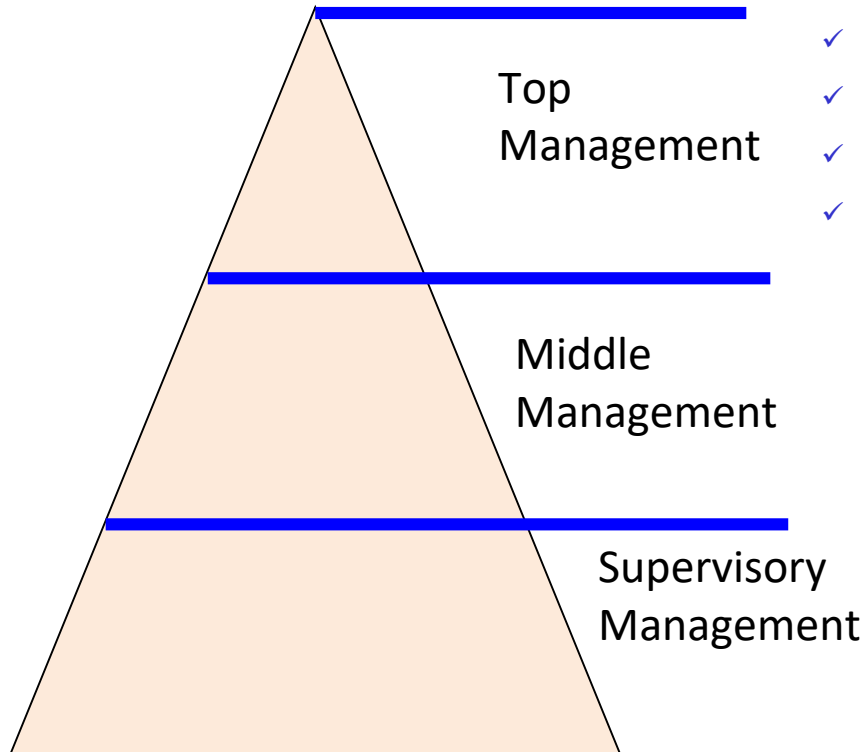
Leadership skills

- The abilities to **influence other people** to achieve the **common goal**.

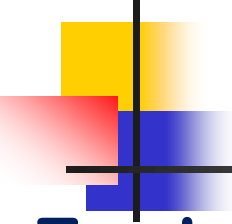


Basics of Management

Management Hierarchy



- ✓ **President**
 - ✓ **Vice President**
 - ✓ **Chief Executive Officers**
 - ✓ **Executive Vice President etc.**
-
- ✓ **Regional Sales Manager**
 - ✓ **Academic Deans (Universities)**
 - ✓ **Production Manager(in an Industry)**
-
- ✓ **Sales Manager,**
 - ✓ **Academic Department Chairperson (Universities)**



Basics of Management

Top-level management

- Require following extensive knowledge of management roles and skills.
 - ✓ They have to be very aware of external factors such as markets.
 - ✓ Their decisions are generally of a **long-term nature**
 - ✓ Their decisions are made using analytic, directive, conceptual and/or behavioral/participative processes
 - ✓ They are responsible for strategic decisions.
 - ✓ They have to check out the plan and see that plan may be effective **in the future**.
 - ✓ They are executive in nature.



Basics of Management

Middle management

- ✓ Mid-level managers have a specialized understanding of **certain managerial tasks**.
- ✓ They are responsible for **carrying out the decisions made by top-level management**.

Lower management

- ✓ This level of management ensures that the decisions and plans taken by the other two are carried out.
- ✓ Lower-level managers' decisions are generally **short-term** ones.

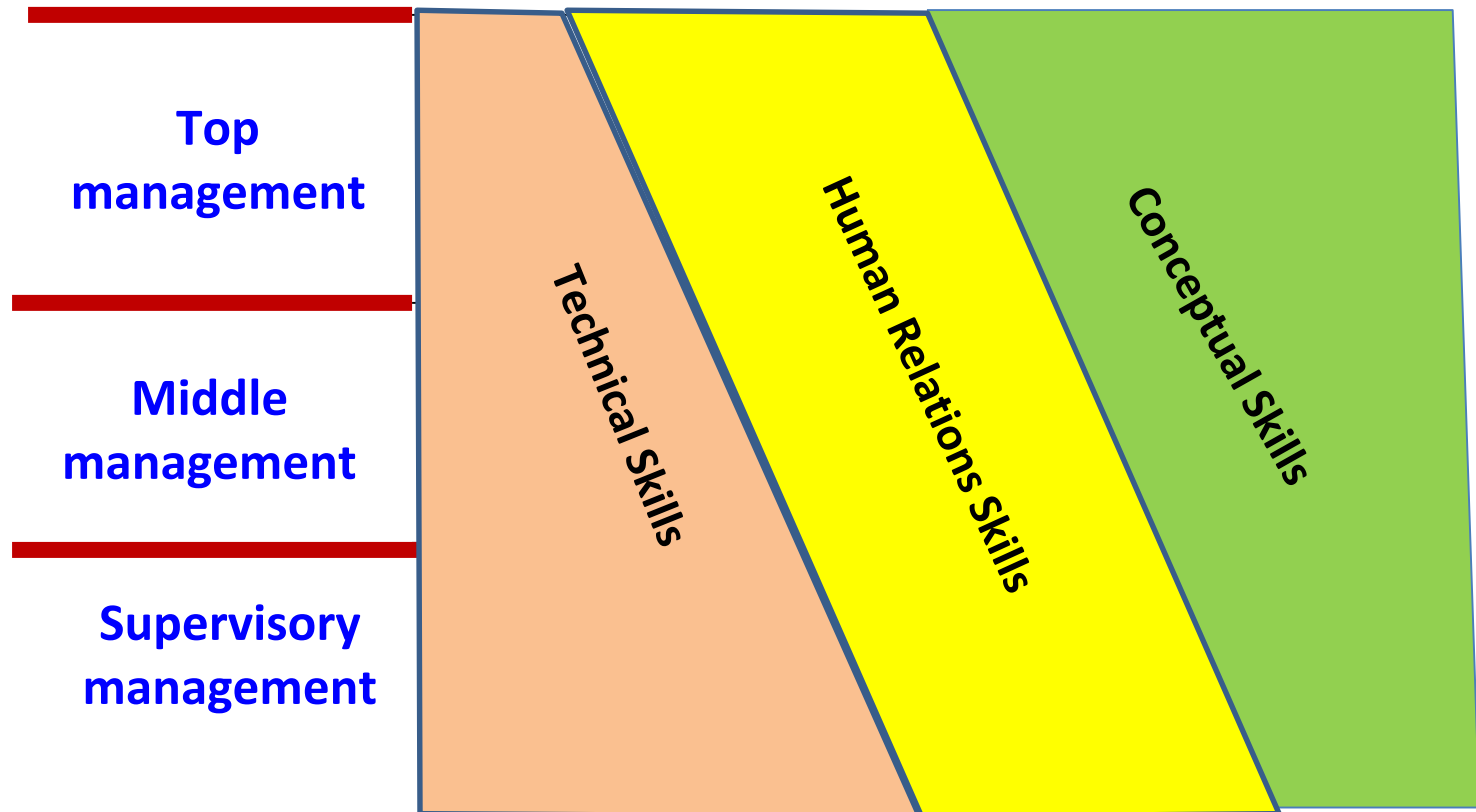


Basics of Management

- In general; A Manager is the person responsible for **planning** and **directing** the **work of a group** of individuals, **monitoring their work**, and **taking corrective action** when necessary.
- For many people, this is their first step into a management career.

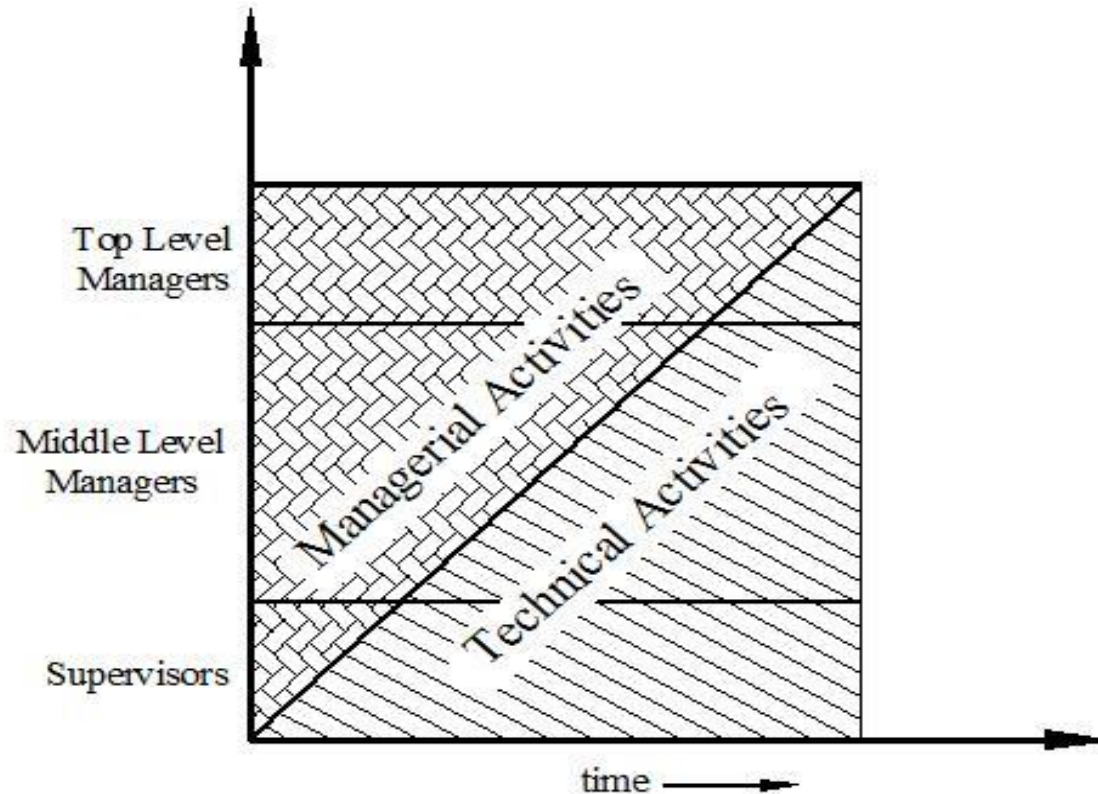
Basics of Management

Relation of management hierarchies to managerial skills



Basics of Management

Relative Time consumption of each manager for each activities





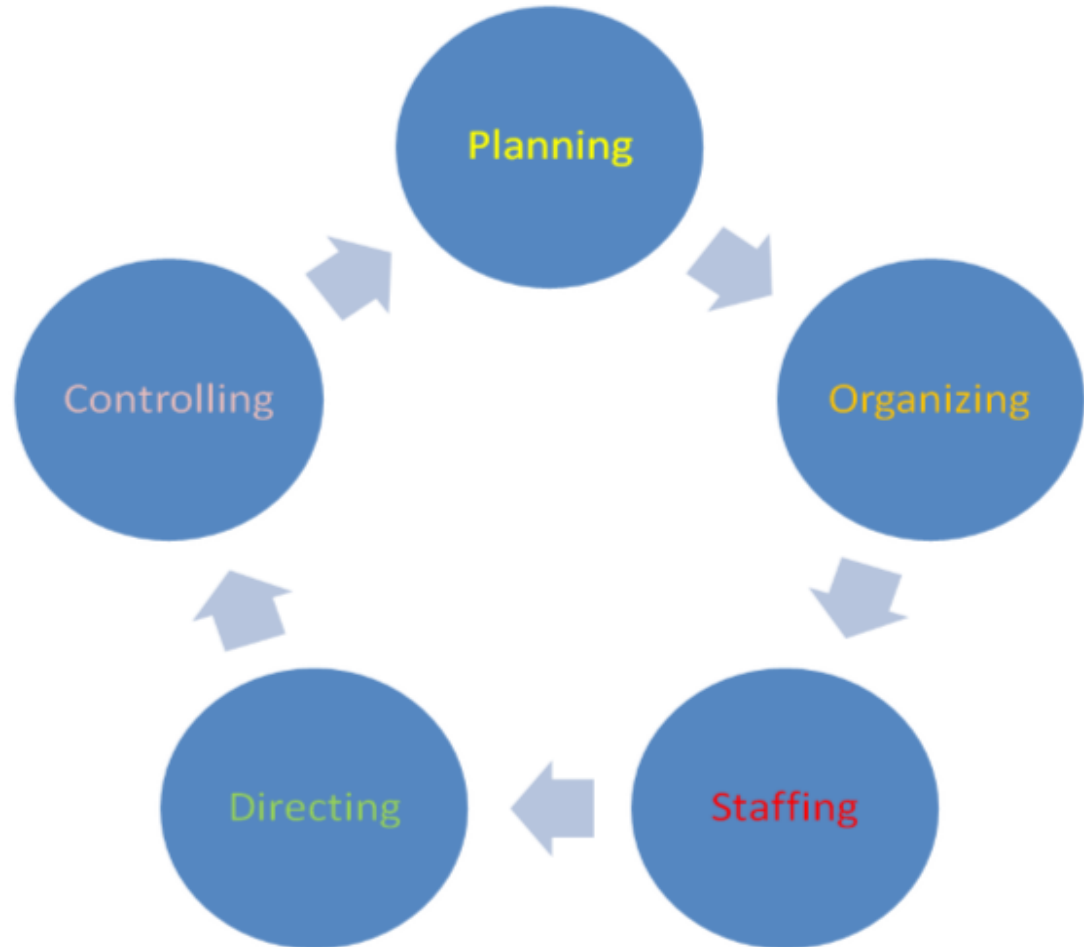
Basics of Management

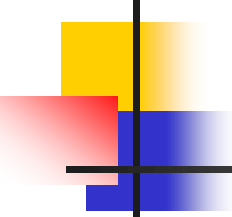
Homework 2

- *Discuss personal qualities of managers.*

Functions of Management

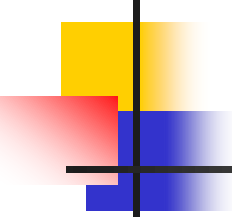
- **Planning**
- **Organizing**
- **Staffing**
- **Directing**
- **Controlling**





Functions of Management

- **Planning** is the process of specific **setting objectives** for the **future** and developing **courses of action** to accomplish them.
 - Top-level managers **set plans** for the **entire** company
 - Lower level managers **prepare plans** for their **immediate areas** of responsibility.
 - Planning doesn't occur in a vacuum, rather it is done in light of budgetary **constraints**, **personnel requirements**, **competition** and other factors

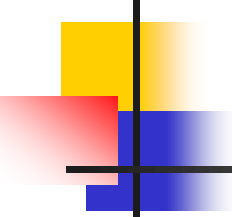


Functions of Management

- Planning involves the **predetermining** of the **course of action** to be taken in relation to the **known event**. (*Plan A*)
- It also includes **anticipating** the possibilities of **future problems** that might appear (*Plan B or Contingency Plan*)
- It is a **systematic activity** which determines **when**, **how** and **who** is going to perform a specific job.
- It is rightly said :-

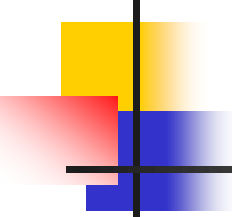
“Well plan is half done”

“Failing to plan means planning to fail”



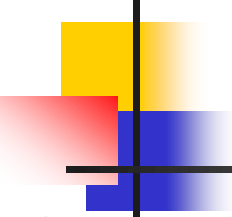
Functions of Management

- The increased importance of planning in a business enterprise results from various changes in the environment like changes in technology, government policy, overall economic activity, nature of competition and social norms and attitudes.
- There are different planning executed in different level of an organization
 - Strategic planning
 - Tactic planning
 - Operational planning



Functions of Management

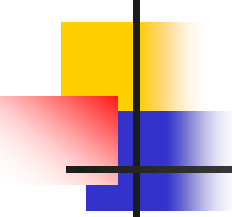
- In general, the **planning process** may systematically be composed of **five elements**:
 - I. Setting Primary & Intermediate Goals
 - II. Search for Opportunities
 - III. Formulation of Plans
 - IV. Target Setting
 - V. Follow-up of Plans



Functions of Management

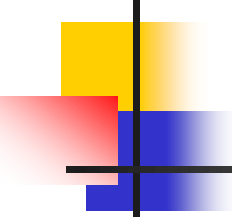
Steps in planning

1. Determining the **goals** or **objectives** for the **entire** organization.
2. Making **assumptions** on various elements of the environment.
3. Decide the **planning period**.
4. Examine **alternative** courses of actions.
5. Evaluating the alternatives.
6. Real point of **decision making**.
7. Make derivative plans.



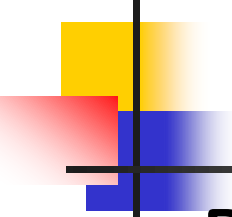
Functions of Management

- **Organizing** is the process of **arranging people** and **physical resources** to carry out **plans** and accomplish organizational objectives.
- Each organizational resource (**human, material, finance etc.**) represent an **investment** from which the management system must **get the return**.
- Through organizing, managers must develop a system in which people can perform tasks that lead to the desired results.



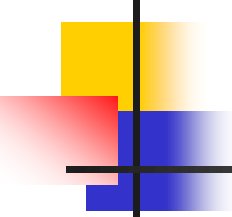
Functions of Management

- Initially, organizing by **top-level executives** includes the following **activities**:
 - A. Creating **job position** with defined duties, responsibilities, requirements and salary ranges based on job requirements.
 - B. Arranging positions into a **hierarchy** by establishing authority-reporting relationships.



Functions of Management

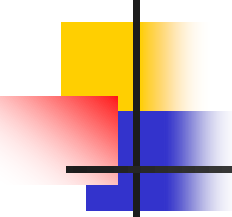
- c. Determining the **number of subordinates** each managers should have reporting (span of control or span of management), the number of hierarchical levels in the organization, and the most appropriate way to set up departments.
- Organizing is **ongoing process**: because **jobs** may be **enlarged**, diminished or **eliminated**; additional **positions** may be **created**; new **production methods** may be **instituted**; new management skills may be required; reporting relationships may be altered.



Functions of Management

A **sound** organization **benefits** to the management of an enterprise:

- Good communication between the management and employees,
- Sound **basis** to **evaluate** the **performance** of individuals and groups,
- Well **defined areas** of **works** for each employee,
- Coordination of activities of various individual, groups, etc.,
- Effective delegation and decentralization,
- Adequate and effective control,
- Difficulty in empire building in any segment of the enterprise, and
- Stimulation of independent, creative thinking and initiative on the part of the employees.

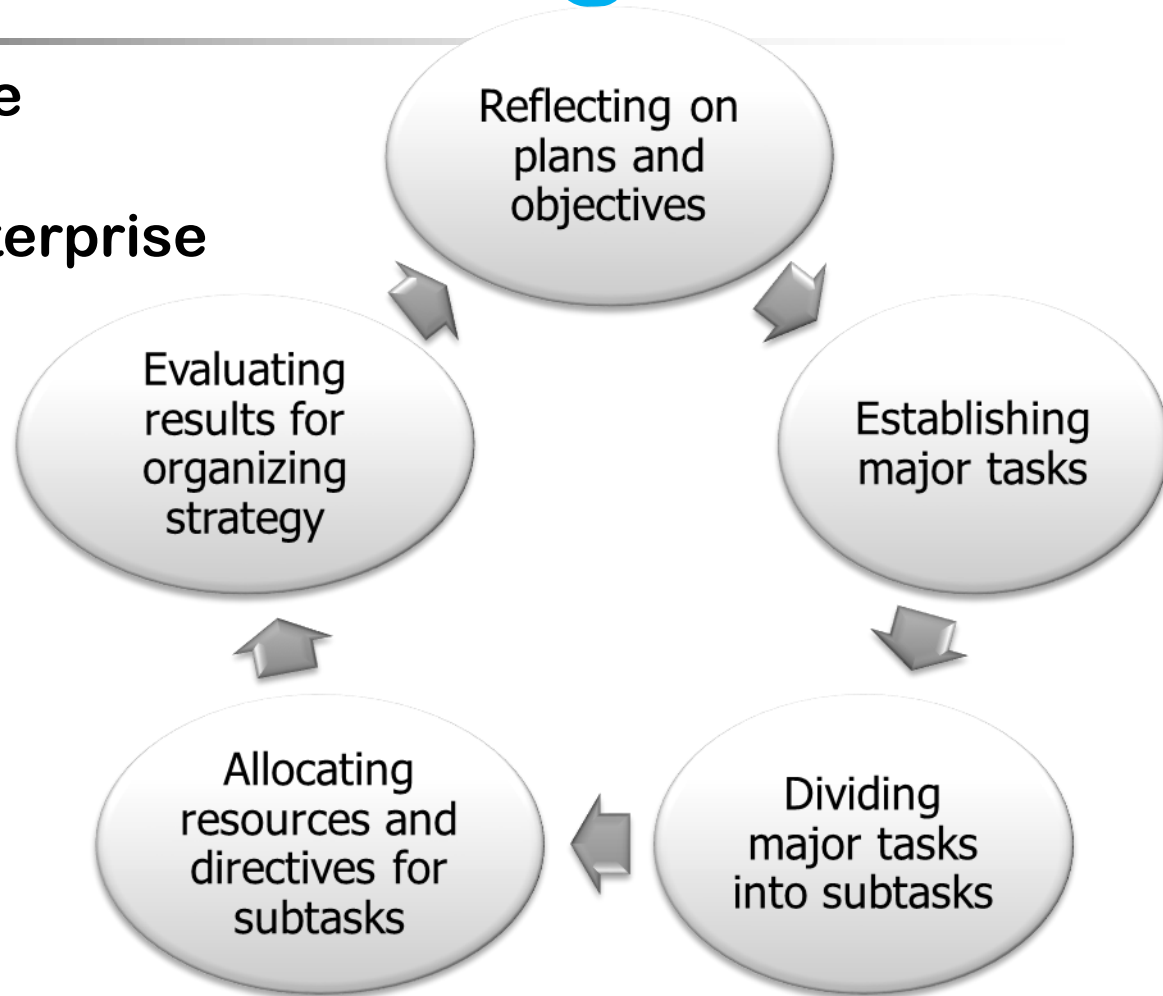


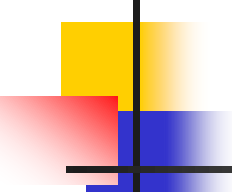
Functions of Management

- There are some **principles of organization** which are **guide lines** for **thought** to **operating managers** and **researchers** in an organization:
 1. **Unity of Command**
 2. **Exception Principle**
 3. **Span of Control**
 4. **Scalar Principle**
 5. **Departmentalization**
 6. **Decentralization**

Functions of Management

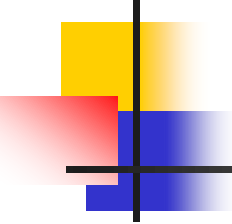
- The **steps** that are important when **organizing** an enterprise





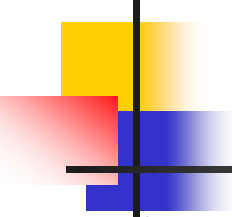
Functions of Management

- **Staffing** the process of **placing** the **right person** in the **right** organizational **position**.
- The process of **matching** the **people** and the **jobs** is done by **careful preparation of specifications** necessary for positions and raising the performance of **personnel by training** and retraining of people to **fit the needs** of the organizational position.
- Involves the recruitment, selection, development, and retention of **employees** with **appropriate qualifications** for **positions** created by the manager.



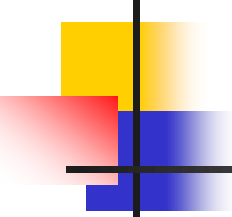
Functions of Management

- Staffing is **one** of the **managers** most important **duties** because the success of any organization depends on the quality of its employees.
- **Staffing** usually is systematic and includes many of the following **activities**: human resource planning, announcing and **advertising vacant** positions, receiving applications, preliminary and final **interviewing**, testing, **medical examination**, and final selection and orientation.



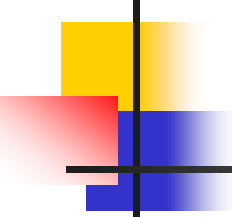
Functions of Management

- Directing is to **put into effect** the **decisions, plans** and **programs** that have been worked out.
- Directing is to **channel** the behavior of **all personnel** to accomplish the organization's **mission** and **objectives** while simultaneously helping them accomplish their own career objectives.
- Directing involves developing a climate of **individual integrity**, corporate **honesty**, and high **productivity**.
- Leading also includes managing **personal conflict**, helping employees deal with **changing conditions**, and **disciplining** employees.



Functions of Management

- Controlling is a **four-step process** of establishing **performance standards** based on the firm's objectives, Measuring and Reporting **Actual performance**, **Comparing the two**, and Taking **Corrective or preventive action** as necessary.
- Controlling is the process by which managers determine whether **organizational objectives** are **achieved** and whether **actual operations** are **consistent with plans**.
- Actual results may differ from the desired results in any area, but the **three** that require the most attention are **product quality**, **worker performance**, and **cost control**.

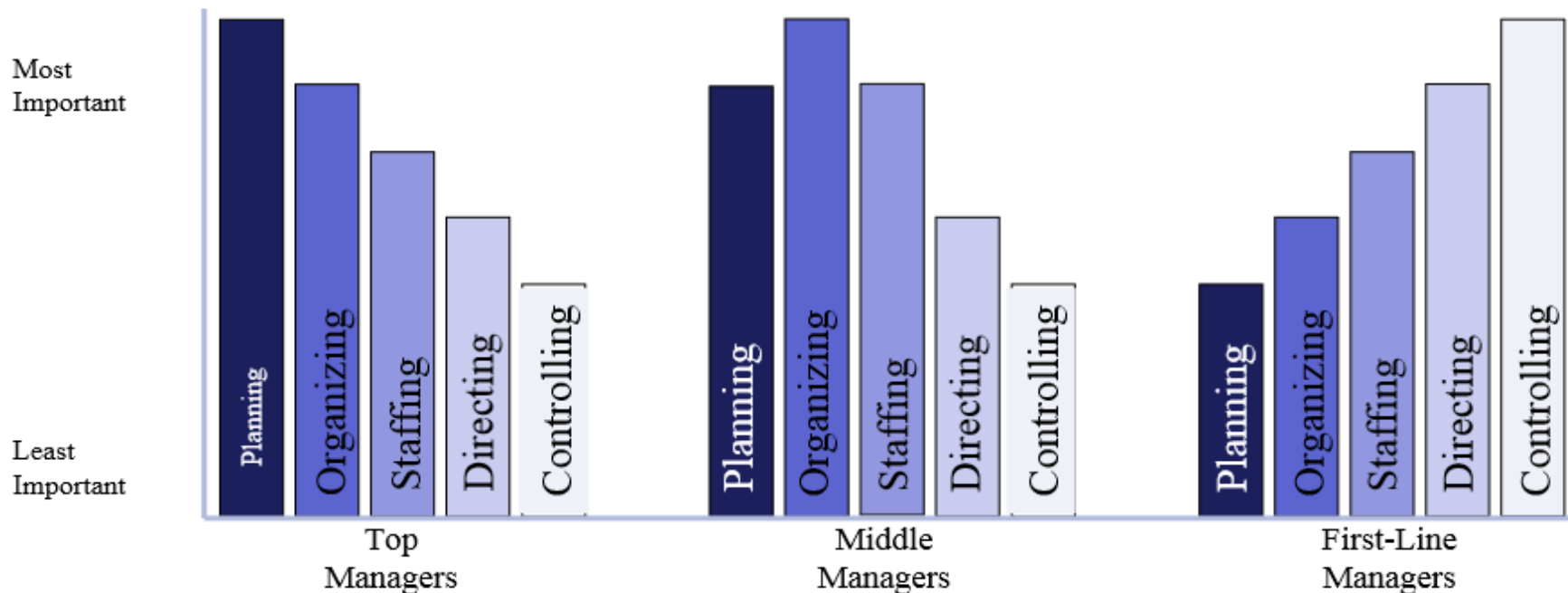


Functions of Management

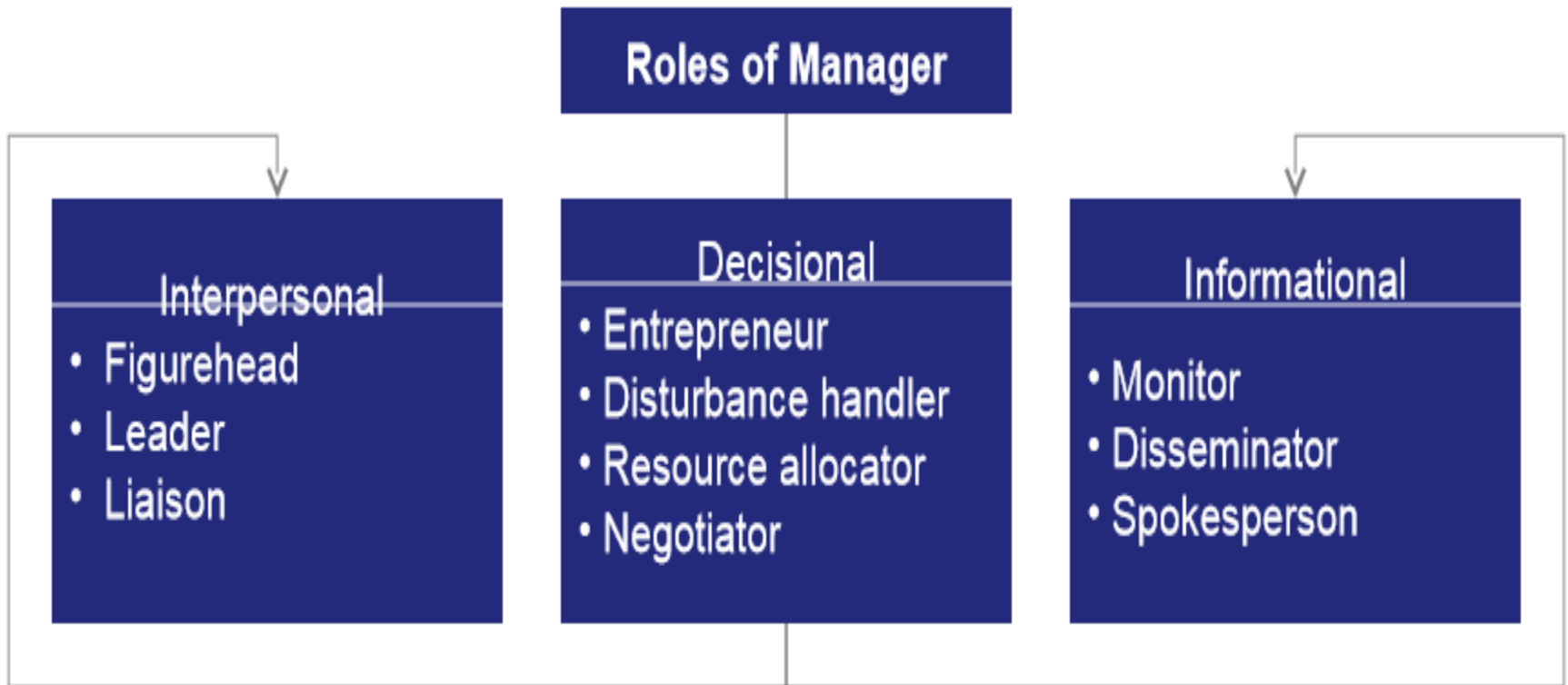
- **Coordinating** is the act of coordinating, making different people or things work together for a goal or effect.
- **Motivation** is the internal condition that activates behavior and gives it direction; energizes and directs goal-oriented behavior .

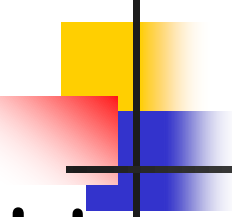
Functions of Management

Importance of management functions to managers in each level



Role of Management

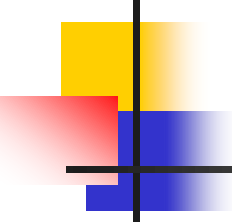




Role of Management

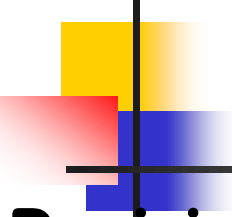
Inter-personal Role

- **Figurehead:** Represents the company on social occasions.
 - Attending the flag hosting ceremony, receiving visitors or taking visitors for dinner etc.
- **Leader:** In the role of a leader, the manager motivates, encourages, and builds enthusiasm among the employees.
 - Training subordinates to work under pressure, forms part of the responsibilities of a manager.



Role of Management

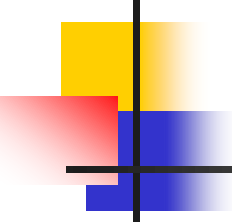
- **Cooperation:** Consists of relating to others outside the group or organization.
 - Describes the role of managers in representing their organization in different occasions.
 - Serves as a link between people, groups or organization.
 - The negotiation of prices with the suppliers regarding raw materials is an example for the role of liaison.
 - Maintain information links both inside and outside organization; use mail , phone calls , meetings.



Role of Management

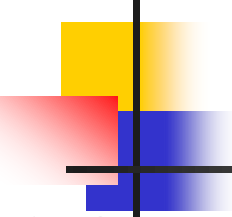
Decisional Role

- **Entrepreneur:** Roles encourage managers to **create improvement** projects and **work to delegate, empower and supervise teams** in the development process.
 - The manager as entrepreneur may create **new projects, change organizational structure**, and institute other important programs for **improving** the company's **performance**.
- **Disturbance handler:** Take corrective action during disputes or crises; resolves conflicts among subordinates; adapt to environmental crisis.



Role of Management

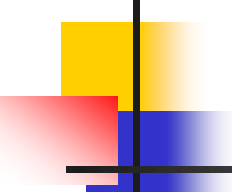
- **Resource allocator:** **Decides distribution** of **resources** such as financial, material and personnel among various individuals and groups in the organization.
- **Negotiator:** Negotiates with subordinates, groups or organizations- both internal and external.
 - Represents department during negotiation of union contracts, sales, purchases, budgets; **represent departmental interests** .



Role of Management

Informational role

- **Monitor:** Emerges as **nerve center** of internal and external information about Information.
 - As a monitor, the **managers tries to keep informed** about what is **happening** in the **organization** or group by gathering information.
- **Disseminator:** **Transmits information** received from other employees to members of the organization.
- **Spokesperson:** Transmits **information** to the **people** who are **external** to the organization, i.e., government, media etc.
 - For instance, a manager addresses a press conference announcing a new product launch or other major deal.

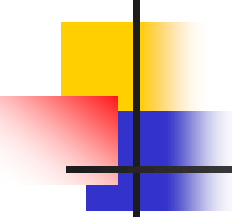


Management Styles

	Description	Advantages	Disadvantages
Autocratic	Senior managers take all the important decisions with no involvement from workers	Quick decision making Effective when employing many low skilled workers	No two-way communication so can be de-motivating Creates “them and us” attitude between managers and workers
Paternalistic	Managers make decisions in best interests of workers after consultation	More two-way communication so motivating Workers feel their social needs are being met	❖Slows down decision making ❖Still quite a dictatorial or autocratic style of management
Democratic	❖Workers allowed to make own decisions. ❖Some businesses run on the basis of majority decisions	❖Authority is delegated to workers which is motivating ❖Useful when complex decisions are required that need specialist skills	Mistakes or errors can be made if workers are not skilled or experienced enough

Organizational Structure

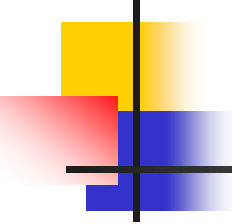




Organizational Structure

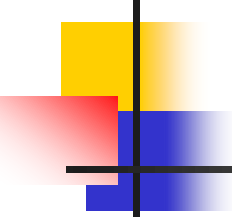
What is an Organization?

- Organization refers to a social groups designed to achieve certain goals.
- Organization involves creating a structure of relationship among people working for the desired results.
- Organization refers to the institution and it is one of the functions of management.



Organizational Structure

- organization is a **formal relationship** between **people** in various positions in the organization.
- And it shows **who supervises whom**, & how various jobs and **departments are linked together** to make and achieve coordinated system.



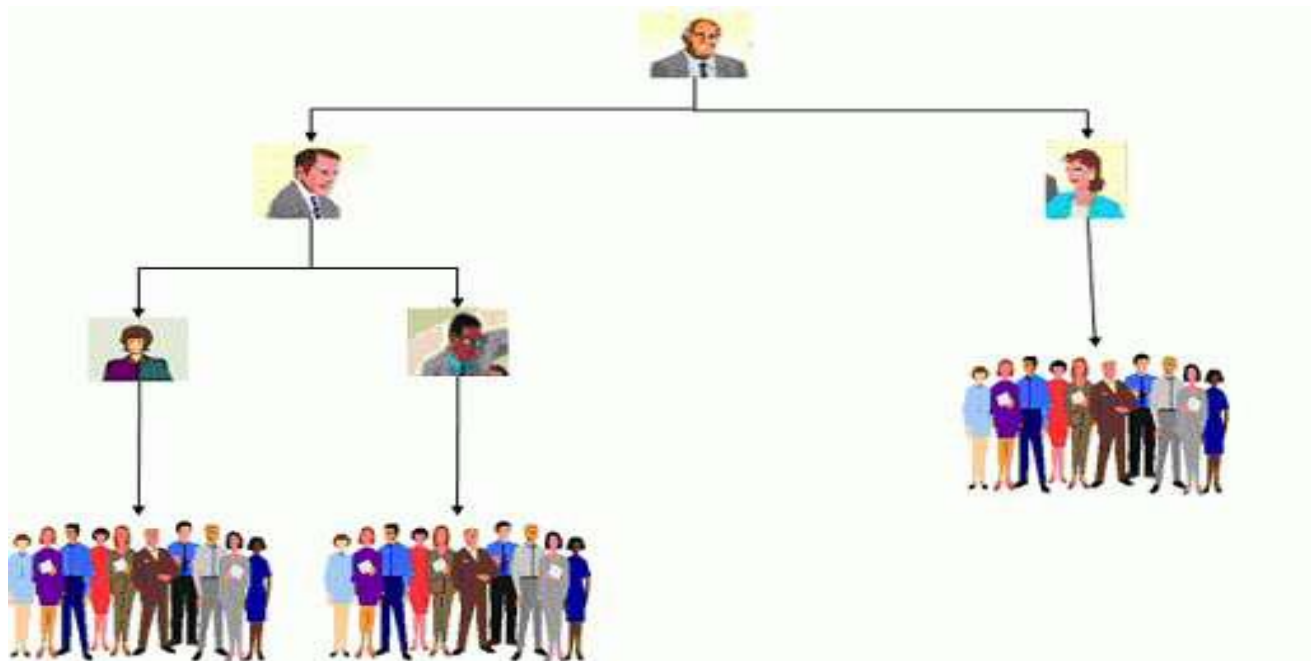
Organizational Structure

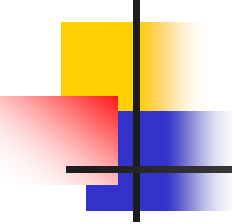
What is Organizational Structure ?

- A social unit of people, systematically structured and managed to meet a need or to pursue collective goals on a continuing basis.
- The main channels of communication in organization:
 - Downward and Upward
 - Horizontal and Diagonal

Organizational Structure

- It is a **framework** within which an Organization arranges its **lines of authorities** and **communications** and allocates rights and duties.

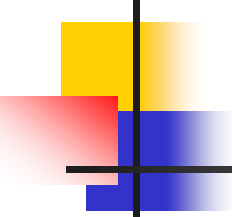




Organizational Structure

Types of Organizational Structure

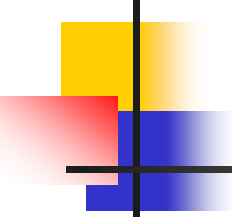
- Tall Organizational Structure
- Flat Organizational Structure
- Virtual Organizational Structure
- Boundary less Organizational Structure



Organizational Structure

Tall Organizational Structure

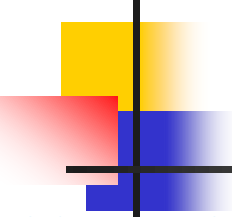
- Large, complex organizations often require a taller hierarchy.
- In its simplest form, a tall structure results in **one long chain of command** similar to the military.
- As an organization grows, the **number of management levels increases** and the structure grows taller.
- In a tall structure, managers form **many ranks** and each has a **small area of control**.



Organizational structure

Flat organizational structure

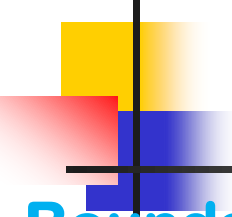
- Flat structures have **fewer management levels**, with each level **controlling a broad area** or group.
- Flat organizations focus on **empowering employees** rather than **adhering** to the **chain of command**.
- By **encouraging autonomy** and **self-direction**, flat structures attempt to tap into employees 'creative talents and to **solve problems by collaboration**.



Organizational structure

Virtual organizational structure

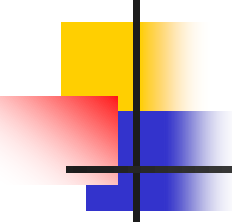
- Virtual organization can be thought of as a way in which an organization **uses information and communication technologies** to replace or augment some aspect of the organization.
- People who are virtually organized **primarily interact by electronic** means.
- For example, many customer help desks link customers and consultants together **via telephone** or the **Internet** and **problems may be solved** without ever bringing people together face-to-face.



Organizational structure

Boundary less organizational structure

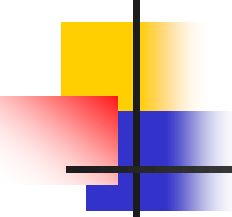
- A boundary less Organizational structure is a **contemporary approach** in Organizational design.
- It is an organization that is **not defined by**, or **limited** to the **horizontal, vertical** or **external boundaries** imposed by a pre-defined structure.
- It behaves more like an organism **encouraging better integration** among employees and closer partnership with stakeholders.
- It's **highly flexible** and **responsive** and draws on talent wherever it's found.



Organizational structure

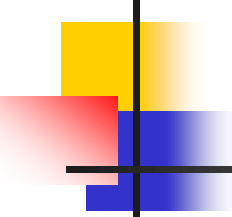
Importance of organizational structure

- Increases effectiveness and efficiency.
- Reduces redundant actions.
- Promotes teamwork.
- Improves communication.
- Contributes to success or failure.



Basics of Productivity

- In most businesses, competition for the available market, forces the management of each enterprise to **seek competitive advantage through the use** of:
 - product improvements
 - lower costs
 - lower selling prices for the same or better quality and
 - better service to customers



Basics of productivity

- Productivity is **reduction in wastage of resources** such as labor, machines, materials, power, space, time, capital, etc.
- Productivity is human endeavor (effort) to **produce** more and **more output** with less and **less inputs** of resources.
- Productivity aims at the **maximum utilization** of **resources** for **yielding** as **many goods** and **services** as possible, of the kinds most wanted by consumers at lowest possible cost.

Basics of Productivity

- Productivity is defined as the **ratio** of value of **output** to the value of **input**.

$$\text{Productivity} = \frac{\text{value of output}}{\text{value of input}}$$

Single Factor-Productivity

$$\frac{\text{Output}}{\text{Labor}}$$

$$\frac{\text{Output}}{\text{Materials}}$$

$$\frac{\text{Output}}{\text{Capital}}$$

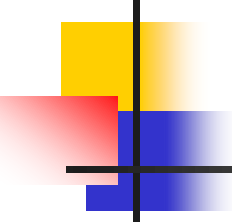
Multifactor Productivity

$$\frac{\text{Output}}{\text{Labor} + \text{Materials} + \text{Overhead}}$$

$$\frac{\text{Output}}{\text{Labor} + \text{Energy} + \text{Capital}}$$

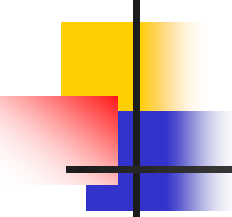
Total Factor Productivity

$$\frac{\text{Goods and services produced}}{\text{All inputs used to produce them}}$$



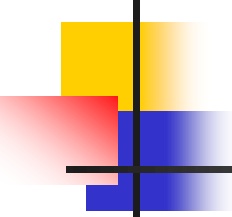
Basics of Productivity

- **Productivity** can be **improved** by:
 - increasing Output with same Input,
 - decreasing Input but maintaining same Output and
 - Increasing Output and decreasing Input to change the ratio favorably.
- An **increase in production** does **not necessarily** by itself indicate an **increase in productivity**.
- If the input of resources goes up in direct proportion to the increase in output the **productivity remains the same**.



Basics of Productivity

- If input increases by a greater percentage than output, **higher products** will be achieved at the expense of **reduction in productivity**.
- The **outputs** may be **products or services** and the **inputs** or resources may be **land, materials, plant machineries, tools and a series of man**.
- **Land Productivity**: Better seed, fertilizer and better method of cultivation may increase the yield from two quintals to three quintals.

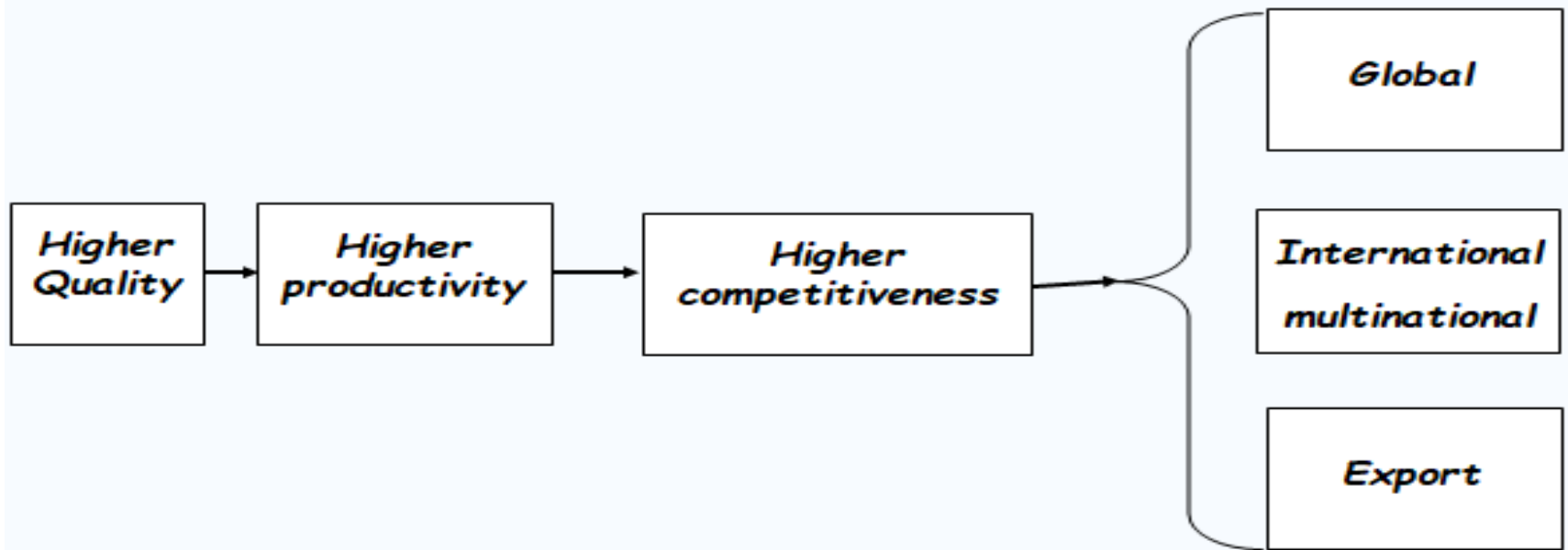


Basics of Productivity

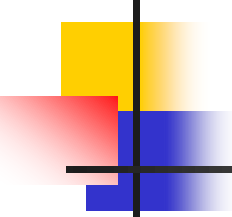
- **Material Productivity:** If a skillful worker is able to produce 300 formworks from 400 pieces of 2m × 1m sheet metal, while an unskillful worker can only produce 250 out of the same material, then with the skillful worker the material was used with 20 percent greater productivity.
- **Machine Productivity:** If a machine tool has been producing 100 pieces per a working day, and through the use of improved cutting tool and/or proper maintenance procedure its output in the same period is increased to 120 pieces, the productivity of that machine has been increased by 20 percent.

Basics of Productivity

- **Productivity of Man:** If a shoe maker has been producing 30 pieces of leather parts per hour, and if improved methods of work enable him to produce 40 pieces per hour the productivity of that man has increased by 33.3 percent.



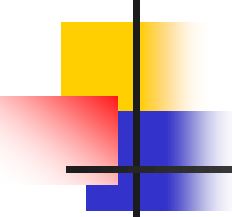




Basics of Productivity

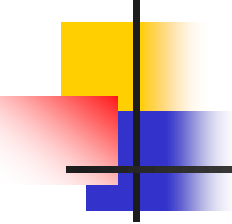
Productivity Improvement

- Productivity is affected by many external and internal factors.
- Some of the **external factors**:
 - the national and international policies
 - infrastructure supports
 - cultural practices
 - the availability of technology and natural resources
 - organizational policies
 - Climate
 - incentives and information



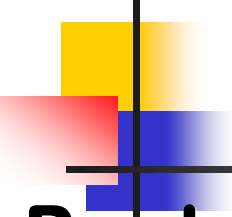
Basics of Productivity

- Examples of **internal factors** that are identified to as hindering the rise of productivity are:
 - unsuitable personnel policies leading to a low level of satisfaction and involvement;
 - poor maintenance system and low level of maintenance awareness;
 - improper selection and training of personnel;
 - inappropriate choice of design,
 - tools, material and equipment;



Basics of Productivity

- **undefined standardization and quality policies;**
- **inadequate plant layout and materials handling systems;**
- **poor planning, controlling and communication systems;**
- **unsafe and unhealthy working environment**

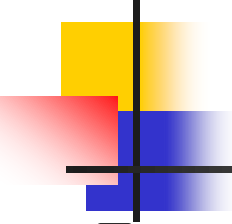


Basics of Productivity

Productivity Improvement Strategy

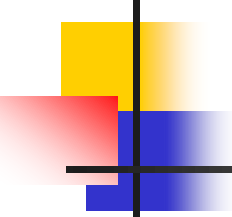
A. Short term Strategy

- The **first** strategy is **improving organizational planning and control**, to implement planned maintenance of machinery and **effective production system** in plants would show an increase in machine productivity and reduction in maintenance cost.
- The **second** action is increasing **manpower efficiency and effectiveness** at all levels.
- Effectiveness and efficiency are the main tools of productivity.



Basics of Productivity

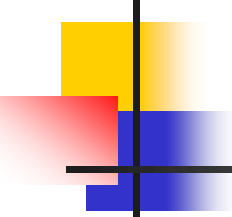
- To be able to increase manpower efficiency and effectiveness at all levels of an organization what is required is **motivation**, **training** and **education**.
- The **third** short term line of attack **is improving operation methods**. The techniques of method study involve breaking a process into detailed components.
- The study may result in elimination of an activity, combination of several activities, change of sequence of activities, shortening duration of activities etc.



Basics of Productivity

B. Medium Term Strategy

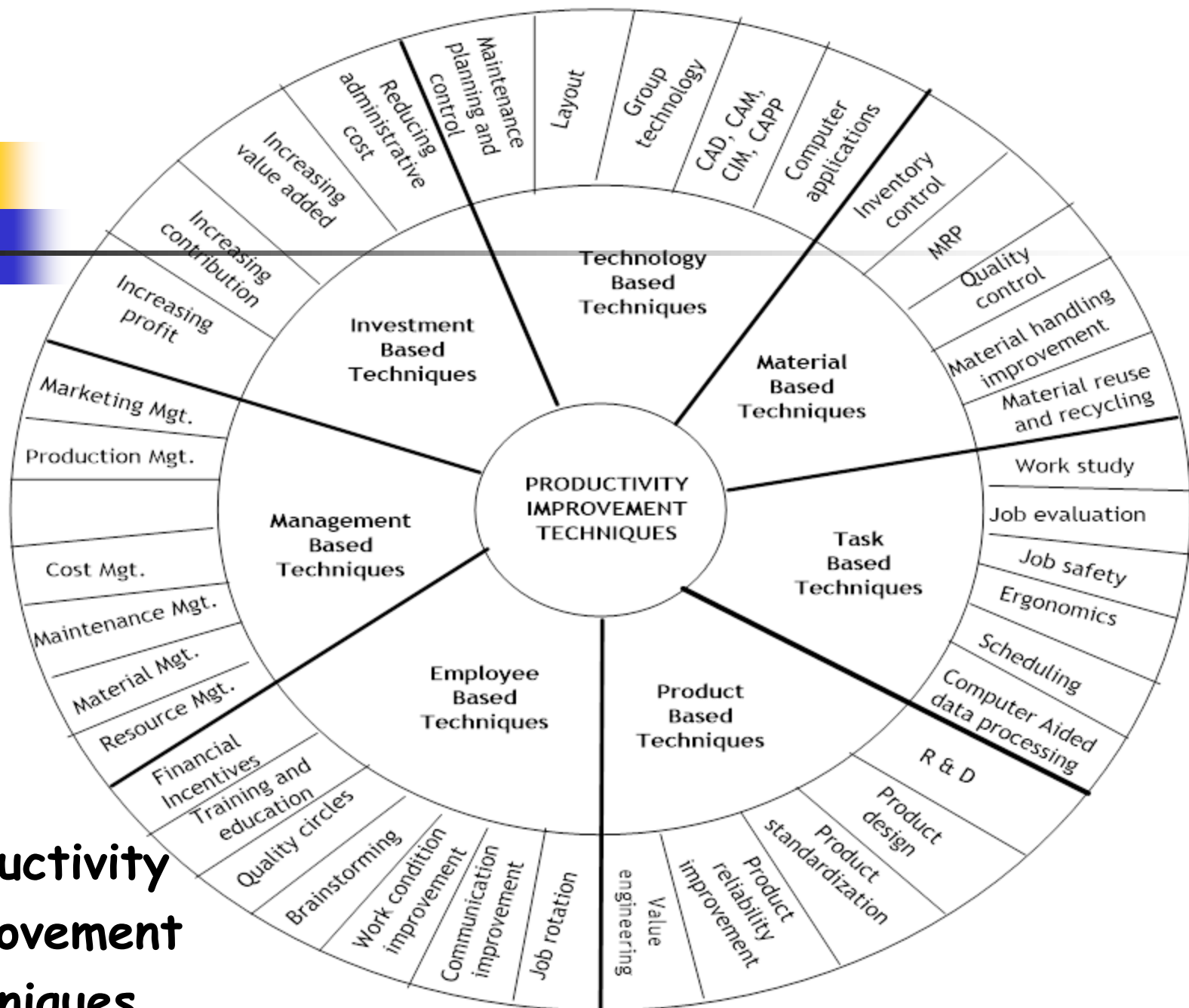
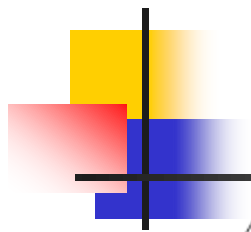
- At this stage the firm may require capital to simplify and **improve the products**, and **reduce variety**.
- The analysis consists of common sense questions to come up with effective solutions like **substitution of alternative materials**, **elimination of parts** where special designs have been specified, **redesign**, etc.



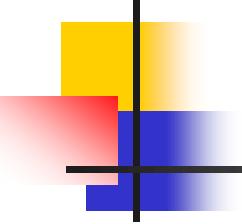
Basics of Productivity

c. Long Term Strategy

- Properly selected **new machineries**, **well organized departments** and **proper layout** will undoubtedly contribute to an increase in productivity.
- Furthermore, **research and development** is the backbone for productivity increment.



**Productivity
improvement
techniques**



Thank you

