ARBA MINCH UNIVERSITY

ARBA MINCH WATER TECHNOLOGY INSTITUTE

WATER RESOURCES & IRRIGATION ENGINEERING FACULTY

COURE NAME: PROJECT PLANNING AND MANAGEMNT(WRIE-5111)

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APRIL,2020

COURSE OBJECTIVE

- The aim of the course is to introduce types of projects, project planning and their management, Project execution, project phases and life cycle management.
- At the end of the course, the trainee will be able to identify possible projects and plan them according to the requirements of different stakeholders and the environment.

Course outline

CHAPTER ONE:INTRODUCTION

- Definition and Basic Terminologies
- Characteristics of a Project

CHAPTER TWO:PROJECT ANALYSIS

- Baseline Information
- Problem Analysis (Water Resources Project Feasibility Study)

COURSE OUTLINE

- Stakeholder Analysis
- Objective Analysis (Objective tree)
- Strategic Analysis
- Project Design and Analysis

CHAPTER THREE:PROJECT PLANNING

- Rationale for Planning
- Principles of Planning
- Types of Planning
- Participatory Planning Components of Project Cycle

CHAPTER FOUR:PROJECT EXECUTION AND MANAGEMENT

- Building Deliverables
- Establishment and Staffing of Project Management Structures
- Time, Cost, Resources and Risk Management
- Management Quality

COURSE OUTLINE

CHAPTER FIVE:PROJECT REVIEW AND EVALUATION

- Review Indicators and Implementation Procedures
- Evaluation Criteria & Evaluation in terms of Cost & Activity results
- Project Purpose and Over all Objectives
- Project Closure

CHAPTER SIX:PROJECT PHASES AND PROJECT LIFE CYCLE

- Project Processes and Project Cycle Management
- Concept of Monitoring and Evaluation
- Types & Purposes of Monitoring & Evaluation
- Monitoring and Evaluation Framework

CHAPTER-ONE
INTRODUCTION

- What is project?
- It is converting a vision, a dream, a need to reality.
- A job that has a beginning and an end (time),a specific outcome(scope),a stated level of performance(quality) and budget(cost).

Different definitions of a project

- A project is a series of tasks that need to be completed in order to reach a specific outcome.
- A project is a set of activities with a defined start point and a defined end state, which pursues a defined goal and uses a defined set of resources (Slack et al)
- "... A temporary endeavor undertaken to create a unique product or service" (PMI)

Introduction Con…

- A project is a temporary organization that is created for the purpose of delivering one or more business products according to an agreed business case.

- A project is “a group of activities that have to be performed in a logical sequence to meet pre-set objectives outlined by client ”Meredith & Mantel’’.

- ‘’…the process by which projects are defined, monitored, controlled & delivered.....desired outcome.....bring about change” (APM)

Terminologies

- **Temporary:** project has a fixed beginning and end
- **Unique**: No two projects are the same
- **Deliverable:** referred to perceptible or imperceptible objective which is the most important for a successful project.
- **Milestones:** A milestone is a scheduling process that describes the set of related deliverables.
- **Tasks/Actions**: Activities undertaken during the project
- **Risks:** threats during project planning/ uncertainty, anything that could potentially impact the project's timeline, performance, budgets and completion.

Terminologies Con…

- Issues: Risks that have happened or potential risks in project management context, if become realities.
- **Gantt Chart:** is a bar chart that displays the scheduled information graphically. It helps the project team and sponsors informed about the project progress
- **Stakeholder:** are the people engaged in and influenced by the project. Satisfying customer's demand is not enough for the success of a project.
- **Project Manager:** is an individual who is responsible for a project
- **Baseline:** It is a fixed reference point to measure and compare your project's progress against. This allows you to assess the performance of your project over time.

PROJECT CHARACTERISTICS

- A project is not normal day to day activity undertaken by organization rather it is specific, non-routine activity of varying time frame and impact viability of the business in the long run.

Project has the following different characteristics. These are:

- A project has a defined start and end point (Temporary)
- A project has a unique set of requirements –Products/Services, or Results is different in some distinguished way (Unique)
- A project has uncertainty/unknowns-manger is responsible for this
- A project is not' 'business as usual''-change (Progressive) –improvement on progress of project.

Project characteristics Con…

- Works according to settled plans
- Clear goals, fixed schedule
- Own resources, such as time and/or money, fixed budget
- Typically has its own management structure-own project organozation
- Includes risk and uncertainty
- Learning processes

CHAPTER-TWO
PROJECT ANALYSIS

Baseline information

- A baseline is used to perform analysis to find current performance against to the expected level for a **specific activity** in established time-phase.
- In Project Management, Baseline refers to the **accepted** and **approved** plans & their related documents.
- Though baselines are outputs of planning stage, but they are referred and updated during executing & monitoring and controlling process groups.

Baseline information Con…

- Baselines helps the project manager to understand project progress (by analyzing baseline vs. actual) and forecast the project outcome.
- Project baselines include, but are not limited to:
  - Schedule baseline
  - Cost baseline
  - Scope baseline
  - Quality baseline
- Baselines are prepared on triple constraints – Scope, Time, Cost (and Quality) – management areas.

Baseline information Con…

- A baseline is a set of stored values. Usually, these will be:
  - Original Scheduled Start and Finish Dates
  - Planned Effort (may be expressed in hours)
  - Planned or Budgeted Cost
  - Planned or Budgeted Revenue
- **Why Baseline?**
  - Ability to assess performance
  - Earned Value calculation
  - Improved future estimating accuracy

PROBLEM ANALYSIS

- ***Problem analysis*** is important in project planning, since it strongly influences the design of a possible intervention(s).

- It is the basis and the justification for the **project design**.

- The problem analysis includes:
  - Verification of the subject of analysis;
  - Identification of problems related to the subject; make and inventory of all problems perceived by all participants in the workshop;
  - Establishment of a cause-effect hierarchy between the problems;
  - Visualization of the cause-effect relations in a diagram.

Problem analysis Con…

- It gives chances for all participants to express the problems they experience. After discussion and clarification by the **'problem owner'** all problems should be respected.
- It is important to determine whether the different groups of people perceive the problem in the same way; if not the problem should be reformulated or split.
- Problem Tree Analysis (**sometime called situational analysis or just problem analysis**) helps to find solutions by mapping out the anatomy of the problem.
- It identifies at upstream the causes and determinants and downstream the consequences and effects.

Problem analysis Con…

- The problem can be **broken down** into manageable and definable chunks
- It identifies the constituent issues and arguments, and can help **establish** who are the political actors and processes at each stage;
- It can help establish what **further information**, evidence or resources are needed to make a strong case, or **build a convincing** proposed solution;
- The process of analysis often helps build a **shared sense** of understanding, **purpose** and **action**
- The **problem tree** is closely linked to the **objectives tree**, another key tool in the project planner's repertoire, and well used by agencies.
- The problem tree can be converted into an objectives tree by **rephrasing**

Problem analysis Con…

-each of the problems into **positive desirable conditions** - as if the problem had already been solved.

- In this way **root causes and consequences** are turned into **root *solutions***, and key project or influencing entry points are quickly established.
- Use the **stakeholder analysis** to identify those who should help to construct the problem tree, making sure there is a mix of people from the community with local knowledge, technical knowledge and so on.
- Problem analysis can be carried out with different **stakeholder groups** in order to see how their perspectives vary.

Problem analysis Con…

- This is important for:
  - Identifying the object of the analysis
  - Identifying the partners and stakeholders
  - Identifying and building the hierarchy of the problems
- To help stakeholders think through all the **causes and effects**, check that they have considered social, environmental, political, economic and technical factors. The problem tree should help to reinforce our findings during the research phase of the planning. It might also raise new issues that we had not previously considered.
  - Why do we lose?
  - Why poor plan?
  - Why? Poor tactics or poor skill….

How to construct problem tree?

- **STEP 1**- Agree on the **main problem**, usually the one identified during project identification. What are the problems?
- **STEP 2**- Identify the **causes** of the main problem

  Why these problems?
- **STEP 3**- Identify the **effects** of the main problem

  So what?
- **STEP 4**- Copy the problem tree onto a sheet of paper: Draw in vertical links to show the relationship between the causes or effects.

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STEPS TO UNDERTAKE A PROBLEM TREE

Settle down the core problem

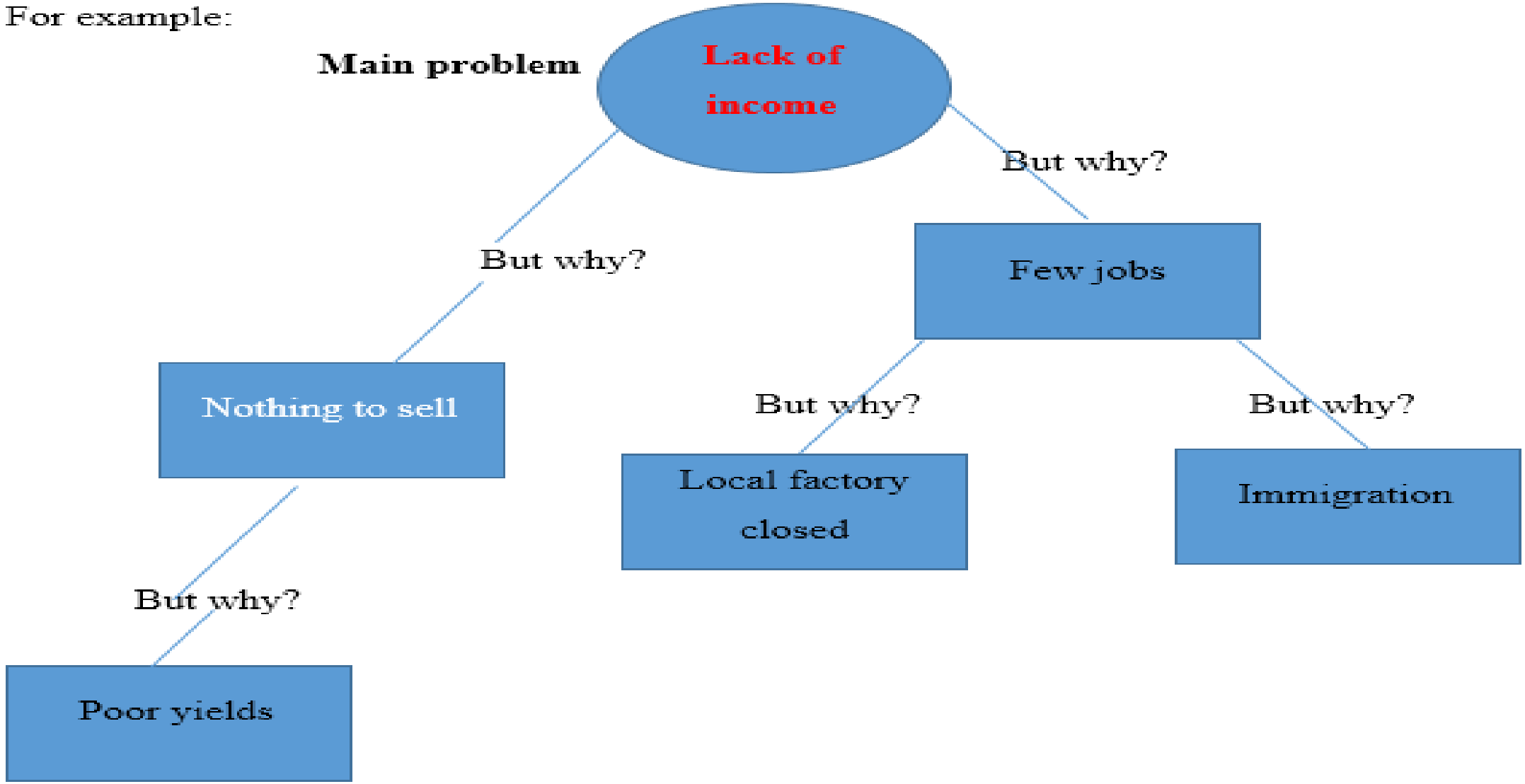
Identify the causes and effects

Develop a solution tree

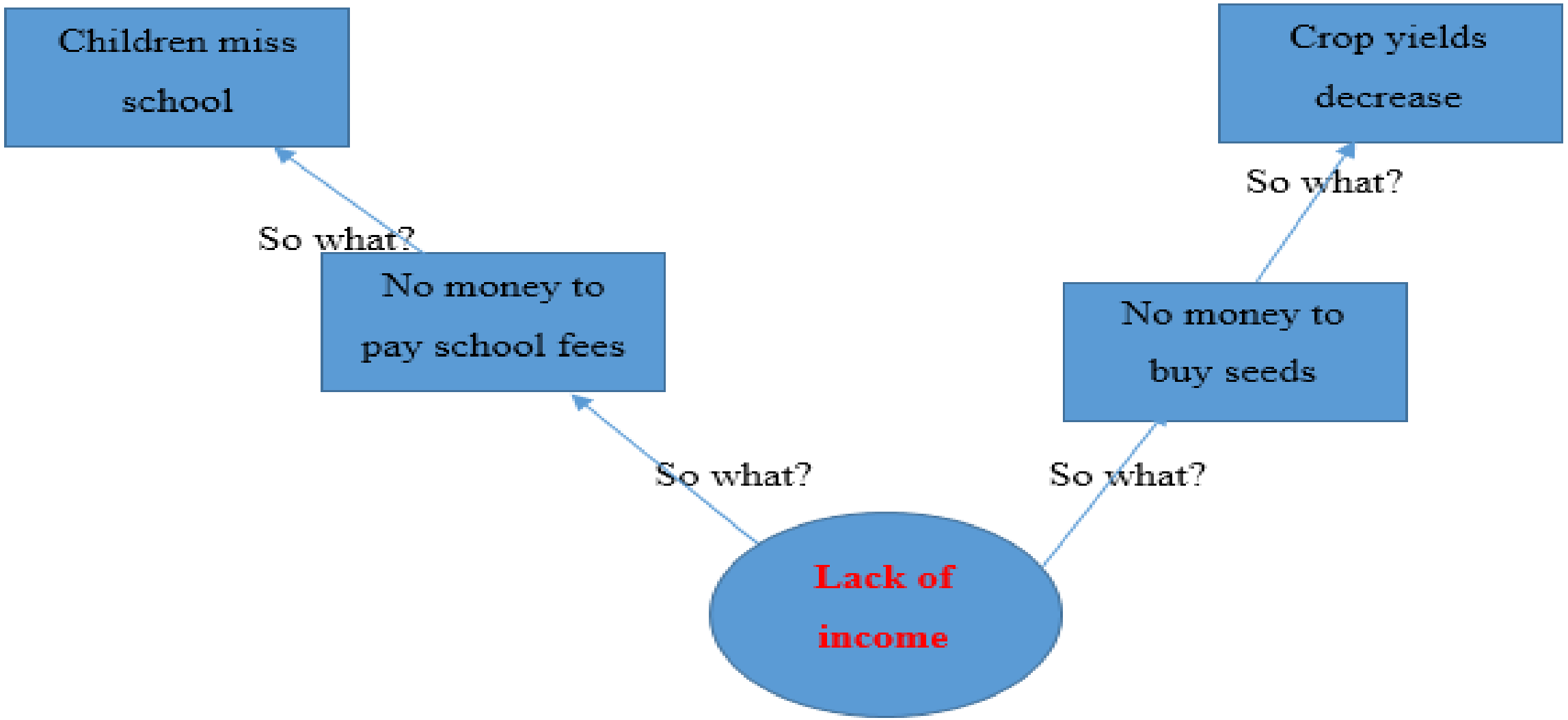
Select the preferred interventions

PROBLEM TREE

For example:



Problem Tree



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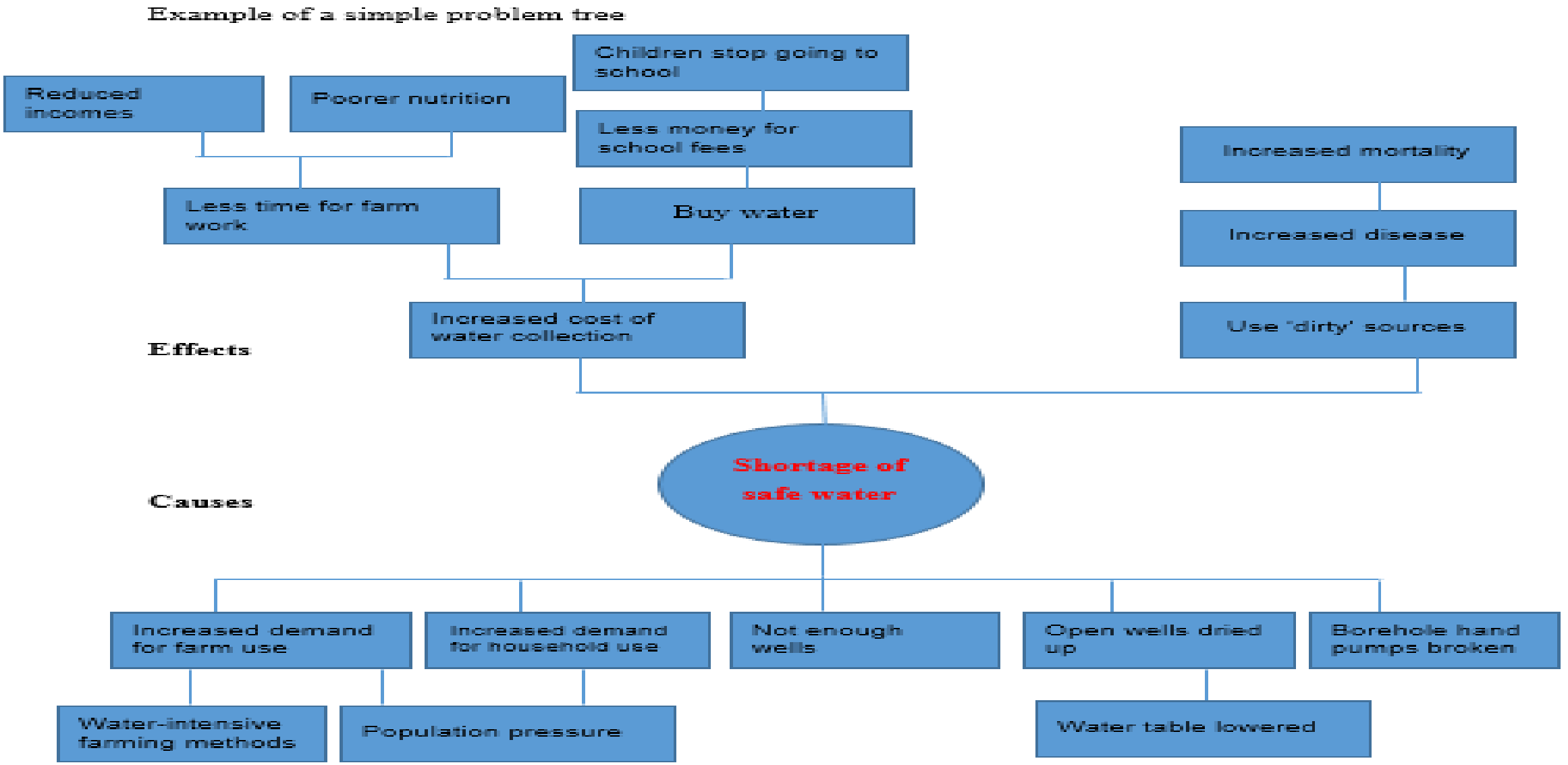


OBJECTIVE ANALYSIS

- Objectives analysis follows problem analysis. This analysis includes:
  - The translation of the **negative situations** in the problem tree into a realized **positive state (objectives) E.g..**, 'low rice production' is converted into 'improved rice production';
  - Verification of the hierarchy of objectives;
  - Visualization of means-end relationships in a diagram.
- This methodology allows to:
  - Describe the future scenarios deriving from the problems' solution
  - Verify the objectives' hierarchy
  - Clarify in a diagram the means-ends relations

OBJECTIVE ANALYSIS

- While transforming problems into objectives and verifying the hierarchy, discussion and feedback on the objectives is done with the participation of all **stakeholders** . This helps building consensus amongst the stakeholders.
- It might also be necessary to reformulate some of the problems.
- Often the objective tree shows many objectives that cannot all be reached at once. Therefore, choices will have to be made.

OBJECTIVE ANALYSIS

- An objectives tree is **similar to a problem tree**, except that it looks at objectives rather than problems.
- An objectives tree can be developed without first identifying problems, but the easiest way to develop an objectives tree is **to convert a problem tree**. i.e **causes** in the problem tree into **positive** statements. Eg, '**poor yields**' would become '**yields increased**'.
- However, some **causes** in the problem tree cannot be turned into objectives that could easily be addressed in a project. Instead, they act as **constraints** on the project that need to be considered during risk assessment.

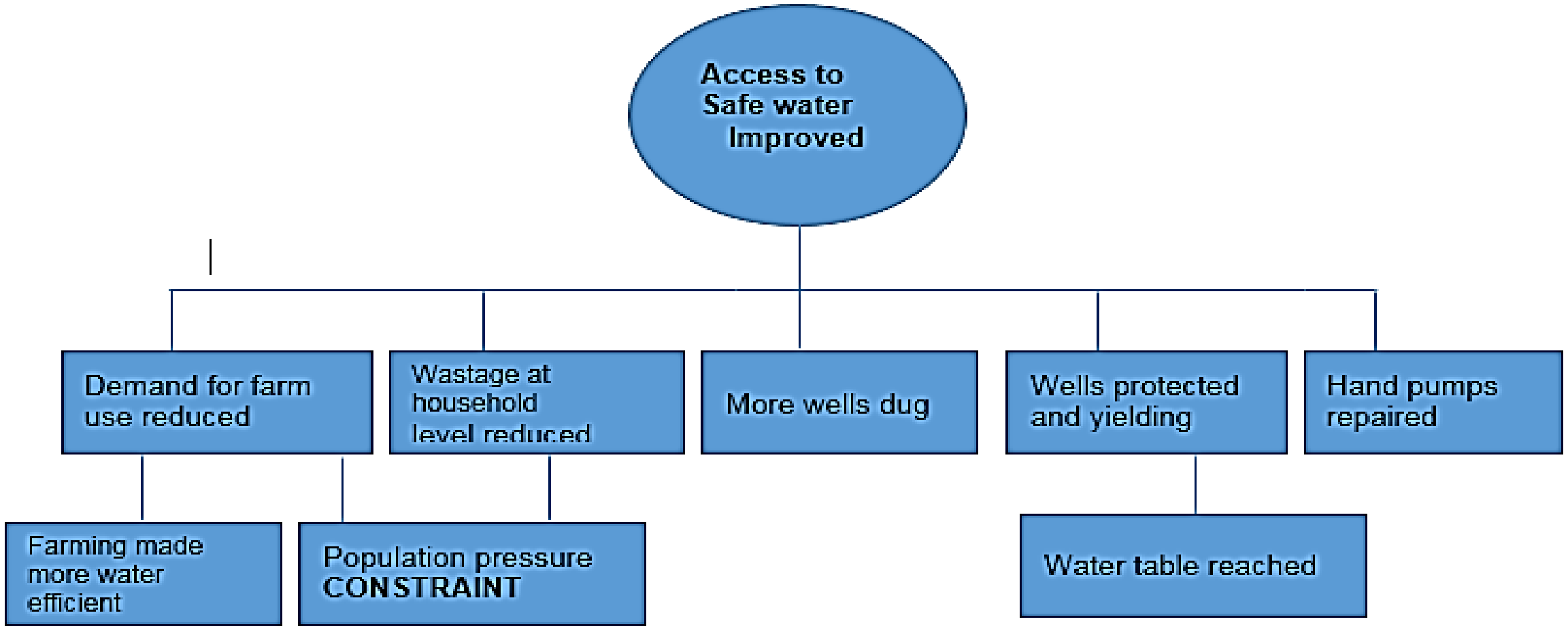
OBJECTIVE ANALYSIS

Focusing the project

- All of the objectives identified can not be addressed. Otherwise, we will have a very **expensive** and **lengthy project**. Focus on **one** or a **few** areas of the objectives tree.
- If more than one objectives tree has been drawn, we will need to decide which of these to focus on for the project.
- Ask the following questions:
  - Which objectives should we address?
  - Which combination of objectives are **most likely** to bring about the most positive change?

OBJECTIVE TREE

Example of an objectives tree with focus on one area



OBJECTIVE TREE

- Issues to consider are:
  - Cost
  - Benefits to primary stakeholders
  - Likelihood of achieving the objectives
  - Risks
  - Whether other organizations are already addressing the problem
  - Sustainability
  - Environmental impact
- Look at the objectives tree and identify the branches that the project could address.

For example, for the objectives tree above, it might be decided to address the right-hand branch.

- It is a good idea to come back to the objectives tree later when starting to think of project assumptions.
- All the objectives that are left in the objectives tree can be viewed as constraints which could **affect project success**.

STAKEHOLDER ANALYSIS

- **Stakeholder Analysis** is the technique used to identify the **key people** who have to be won over. You then use Stakeholder Planning to build the support that helps you succeed.
- *As you become **more successful in your career**, the actions you take and the projects you run will affect more and more people. The more people you affect, the more likely it is that your actions will **impact people** who have power and influence over your projects. These people could be **strong supporters** of your work – or they could block it.*
- The benefits of using a stakeholder-based approach are:
  - You can use the opinions of the most powerful stakeholders to shape your projects at an early stage.

STAKEHOLDER ANALYSIS

- Gaining support from powerful stakeholders can help you **to win more resources**

- This makes it more likely that your projects will be successful
  - By communicating with stakeholders early and frequently, you can **ensure** that they fully understand what you are doing and understand the benefits of your project
- This means they can support you actively when necessary
  - You can anticipate what people's reaction to your project may be, and build into your plan the actions that will win people's support.

STAKEHOLDER ANALYSIS

Steps in stakeholder Analysis

- **Step 1 – Identify Your Stakeholders**
- **Step 2 – Prioritize Your Stakeholders**
- **Step 3 – Understand Your Key Stakeholders**

STAKEHOLDER ANALYSIS

Steps in stakeholder Analysis

Step 1 – Identify Your Stakeholders

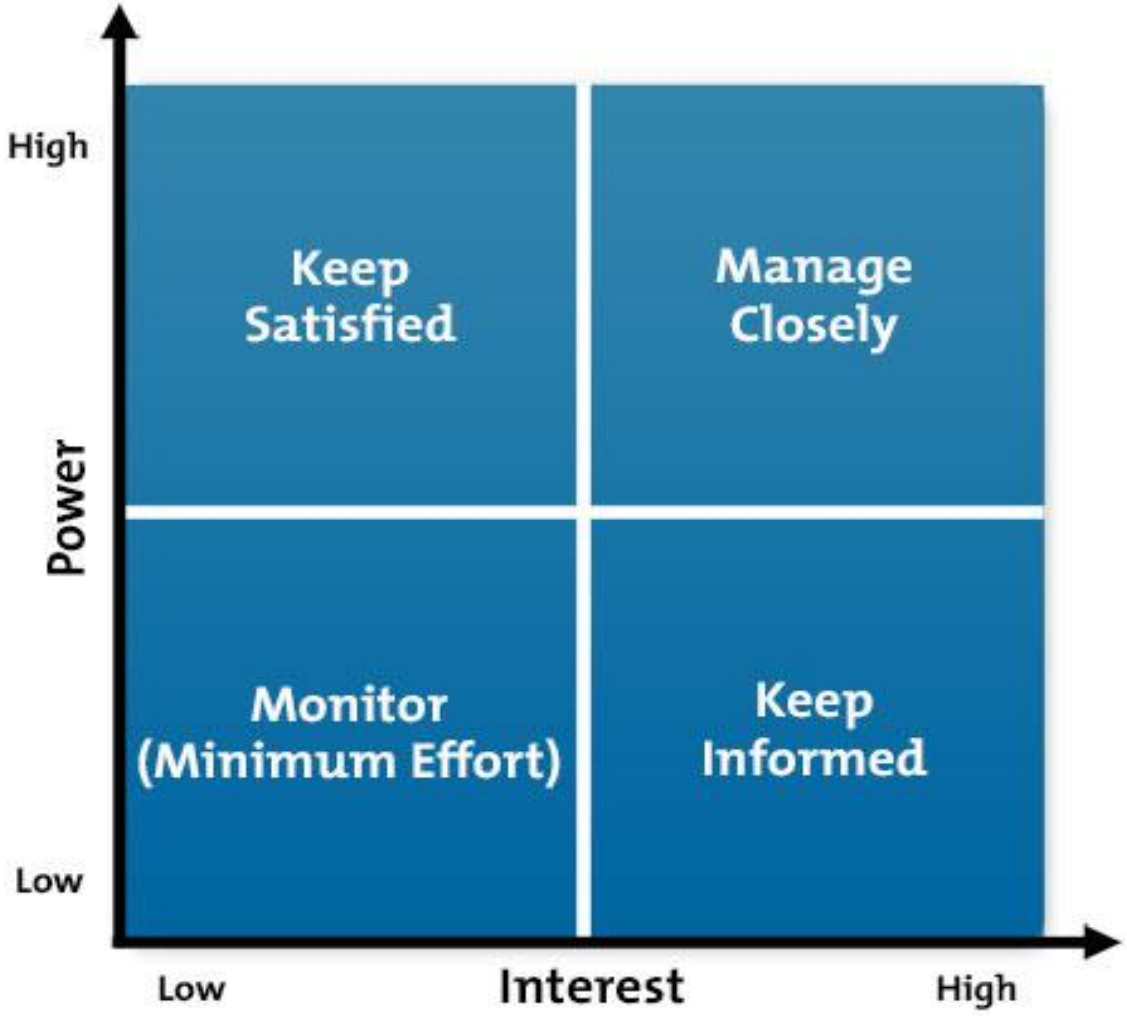
- Think of all the people who are **affected by your work**, **who have influence or power over it**, or **have an interest in its successful** or **unsuccessful conclusion**

Step 2 – Prioritize Your Stakeholders

- **Map out** your stakeholders on our **Interactive Screen App**, and **classify them by their power over your work** and **by their interest in your work**.

Step 3 – Understand Your Key Stakeholders

STAKEHOLDER ANALYSIS



For example, your boss is likely to have high power and influence over your projects and high interest. Your family may have high interest, but are unlikely to have power over it.

STAKEHOLDER ANALYSIS

- Someone's position on the grid shows you the actions you have to take with them:
  - **High power, interested people**: these are the people you must fully engage and make the greatest efforts to satisfy.
  - **High power, less interested people**: put enough work in with these people to keep them satisfied, but don't make them bored with your message.
  - **Low power, interested people**: keep these people adequately informed, and talk to them to ensure that no major issues are arising. These people can often be very helpful with the detail of your project.
  - **Low power, less interested people**: again, monitor these people, but do not make them bored with excessive communication.

STAKEHOLDER ANALYSIS

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STAKEHOLDER ANALYSIS

- Depending on the setting, the following actors may be involved in the preparatory and analysis phases:
    - Local communities, the ‘problem owners’
    - Donor organization
    - Implementing or grass root organizations, NGOs
    - Local government officials
    - Facilitator who will do the moderation of the workshop

STRATEGIC ANALYSIS

- Definitions of strategic analysis often differ, but the following attributes are commonly associated with it:

    i. Identification and evaluation of data relevant to strategy formulation

    ii. Definition of the external and internal environment to be analyzed

    iii. A range of analytical methods that can be employed in the analysis

Examples of analytical methods used in strategic analysis include:

SWOT analysis

PEST analysis

Porter's five forces analysis

SWOT ANALYSIS

- **A SWOT analysis** is a simple but widely used tool that helps in understanding the **strengths, weaknesses, opportunities and threats** involved in a project or business activity.
- It starts by defining the objective of the project or business activity and identifies the internal and external factors that are important to achieving that objective.
- Strengths and weaknesses are usually internal to the organization, while opportunities and threats are usually external.
- Often these are plotted on a simple 2x2 matrix.

SWOT ANALYSIS

SWOT analysis diagram

Strengths

- What does your organization do better than others?
- What are your unique selling points?
- What do you competitors and customers in your market perceive as your strengths?
- What is your organizations competitive edge?

Opportunities

- What political, economic, social-cultural, or technology (PEST) changes are taking place that could be favorable to you?
- Where are there currently gaps in the market or unfulfilled demand?
- What new innovation could your organization bring to the market?

SWOT ANALYSIS

Weakness

- What do other organizations do better than you?
- What elements of your business add little or no value?
- What do competitors and customers in your market perceive as your weakness?

Threats

- What political, economic, social-cultural, or technology (PEST) changes are taking place that could be unfavorable to you?
- What restraints to you face?
- What is your competition doing that could negatively impact you?

PEST ANALYSIS

- **PEST analysis (Political, Economic, Social-cultural, or Technology)** is a scan of the external macro-environment in which an organization exists.
- It is a useful tool for understanding the political, economic, socio-cultural and technological environment that an organization operates in.
- It can be used for evaluating market growth or decline, and as such the position, potential and direction for a business.
- **Political factors:** include government regulations such as employment laws, environmental regulations and tax policy. Trade restrictions and political stability are also other factors.

PEST ANALYSIS

- **Economic factors**: These affect the cost of capital and purchasing power of an organization. Include economic growth, interest rates, inflation and currency exchange rates.
- **Social factors**: These impact on the consumer's need and the potential market size for an organization's goods and services. Include population growth, age demographics and attitudes towards health.
- **Technological factors:** These influence barriers to entry, make or buy decisions and investment in innovation, such as automation, investment incentives and the rate of technological change.

PORTER'S FIVE FORCES

- Porter's five forces of competitive position analysis was developed in 1979 by Michael E. Porter of Harvard Business School.
- This theory is based on the concept that there are five forces which determine the competitive intensity and attractiveness of a market.
- Porter's five forces helps to identify where power lies in a business situation. This is useful both in understanding the strength of an organization's current competitive position, and the strength of a position that an organization may look to move into.
- Strategic analysts often use Porter's five forces to understand whether new products or services are potentially profitable.

PORTER'S FIVE FORCES

The five forces are:

- **Supplier power:** An assessment of how easy it is for suppliers to drive up prices.
- **Buyer power:** An assessment of how easy it is for buyers to drive prices down.
- **Competitive rivalry**: The key driver is the number and capability of competitors in the market
- **Threat of substitution:** Where close substitute products exist in a market, it increases the likelihood of customers switching to alternatives in response to price increases.
- **Threat of new entry:** Profitable markets attract new entrants, which erodes profitability.

CHAPTER THREE

PROJECT PLANNING

Introduction

- The most important responsibilities of a project manager are **planning**, integrating, and executing plans.
- Almost all projects, because of their relatively short duration and often prioritized control of resources, require formal, detailed planning.
- **Planning**, in general, can best be described as the **function of selecting** the enterprise **objectives** and **establishing** the policies, procedures, and programs necessary for achieving them.

PROJECT PLANNING

- Planning in a **project environment** may be described as establishing a **predetermined** course of action within a forecasted environment.
- **Project planning** must be systematic, flexible enough to handle unique activities, disciplined through reviews and controls, and capable of accepting multifunctional inputs.
- One of the objectives of project planning is to **completely define all work required** (possibly through the development of a documented project plan) so that it will be readily identifiable to each project participant.

WHY PROJECT PLANNING?

- There are four basic reasons for project planning:
  i. To eliminate or reduce uncertainty
  ii. To improve efficiency of the operation
  iii. To obtain a better understanding of the objectives
  iv. To provide a basis for monitoring and controlling work
- Planning is a continuous process of making entrepreneurial decisions with an eye to the future, and methodically organizing the effort needed to carry out these decisions.

PROJECT PLANNING CON…

- **Consequences of poor planning include:**
  - Project initiation without defined requirements
  - Wild enthusiasm
  - Disillusionment
  - Chaos
  - Search for the guilty
  - Punishment of the innocent
  - Promotion of the nonparticipants

COMPONENTS OF PROJECT PLANNING

- There are **nine** major **components of the planning phase**

a) **Objective**: a goal, target, or quota to be achieved by a certain time

b) **Program**: the strategy to be followed and major actions to be taken in order to achieve or exceed objectives

c) **Schedule**: a plan showing when individual or group activities or accomplishments will be started and/or completed

d) **Budget**: planned expenditures required to achieve or exceed objective

COMPONENTS OF PROJECT PLANNING CON…

e) Forecast: a projection of what will happen by a certain time

f) Organization: design of the number and kinds of positions, along with corresponding duties and responsibilities, required to achieve or exceed objectives

g) Policy: a general guide for decision-making and individual actions

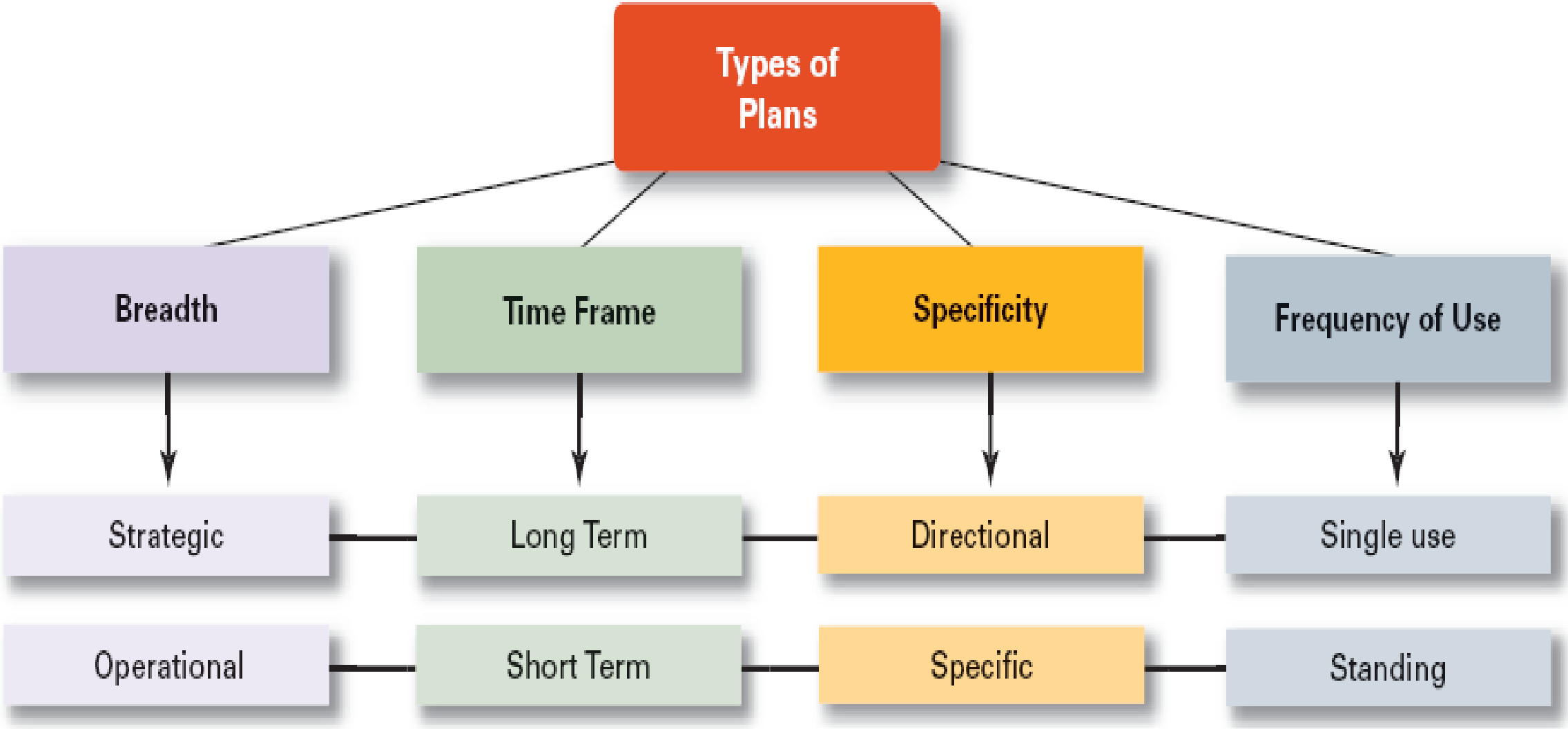
h) Procedure: a detailed method for carrying out a policy

i) Standard: a level of individual or group performance defined as adequate or acceptable

TYPES OF PROJECT PLANNING

- **Planning can be strategic, tactical, or operational.**
- Strategic planning is generally for **five years** or more, tactical can be for **one to five** years, and operational is for six months to one year.
- If project planning is strictly operational, then these factors may be clearly definable. However, if strategic or long-range planning is necessary, then the future economic outlook can vary, say, from year to year, and **re-planning** must be done at regular intervals because the goals and objectives can change.
- Planning varies at each level of the organization. At the **individual level**, planning is required so that cognitive simulation can be established before irrevocable actions are taken.

TYPES OF PROJECT PLANNING



TYPES OF PROJECT PLANNING

- ***Types of Plans based on Time***
  - ***long-term plans*** - time frame beyond three years
    - definition of long term has changed with increasingly uncertain organizational environments
  - ***short-term plans*** - cover one year or less
- ***Types of Plans based on specification***
  - ***specific plans*** - clearly defined with little room for interpretation
    - required clarity and predictability often do not exist
  - ***directional plans*** - flexible plans that set out general guidelines
    - provide focus without limiting courses of action

TYPES OF PROJECT PLANNING

- **Types of Plans based on frequency of use**
  - ***single-use plans*** - one-time plans specifically designed to meet the needs of a unique situation
  - ***standing plans*** - ongoing plans that provide guidance for activities performed repeatedly
    - include policies, procedures, and rules

TYPES OF PROJECT PLANNING

- At the **working group or functional level**, planning must include:
  - Agreement on purpose
  - Assignment and acceptance of individual responsibilities
  - Coordination of work activities
  - Increased commitment to group goals
  - Lateral communications

TYPES OF PROJECT PLANNING

- A list of question required for project planning are:

1. **Prepare environmental analysis**
   - Where are we?
   - How and why did we get here?
2. **Set objectives**
   - Is this where we want to be?
   - Where would we like to be? In a year? In five years?

TYPES OF PROJECT PLANNING

3. **List alternative strategies**
   - Where will we go if we continue as before?
   - Is that where we want to go?
   - How could we get to where we want to go?
4. **List threats and opportunities**
   - What might prevent us from getting there?
   - What might help us to get there?
5. **Prepare forecasts**
   - Where are we capable of going?
   - What do we need to take us where we want to go?

TYPES OF PROJECT PLANNING

6. Select strategy portfolio

- What is the best course for us to take?
- What are the potential benefits?
- What are the risks?

7. Prepare action programs

- What do we need to do?
- When do we need to do it?
- How will we do it?
- Who will do it?

TYPES OF PROJECT PLANNING

8. Monitor and control

- Are we on course? If not, why?
- What do we need to do to be on course?
- Can we do it?

RATIONALE FOR PROJECT PLANNING

BENEFITS OF PLANNING

- Allows decisions to be made ahead of time.
- Reduce uncertainity.
- Provides direction and a sense of purpose.
- Provides a unifying framework; avoiding piecemeal decision making.
- Manages complexities and competition
- Achieves better coordination
- Helps identify threats and opportunities and reduces risks.
- Reduces overlapping and wasteful activities
- Encourages innovation & creativity

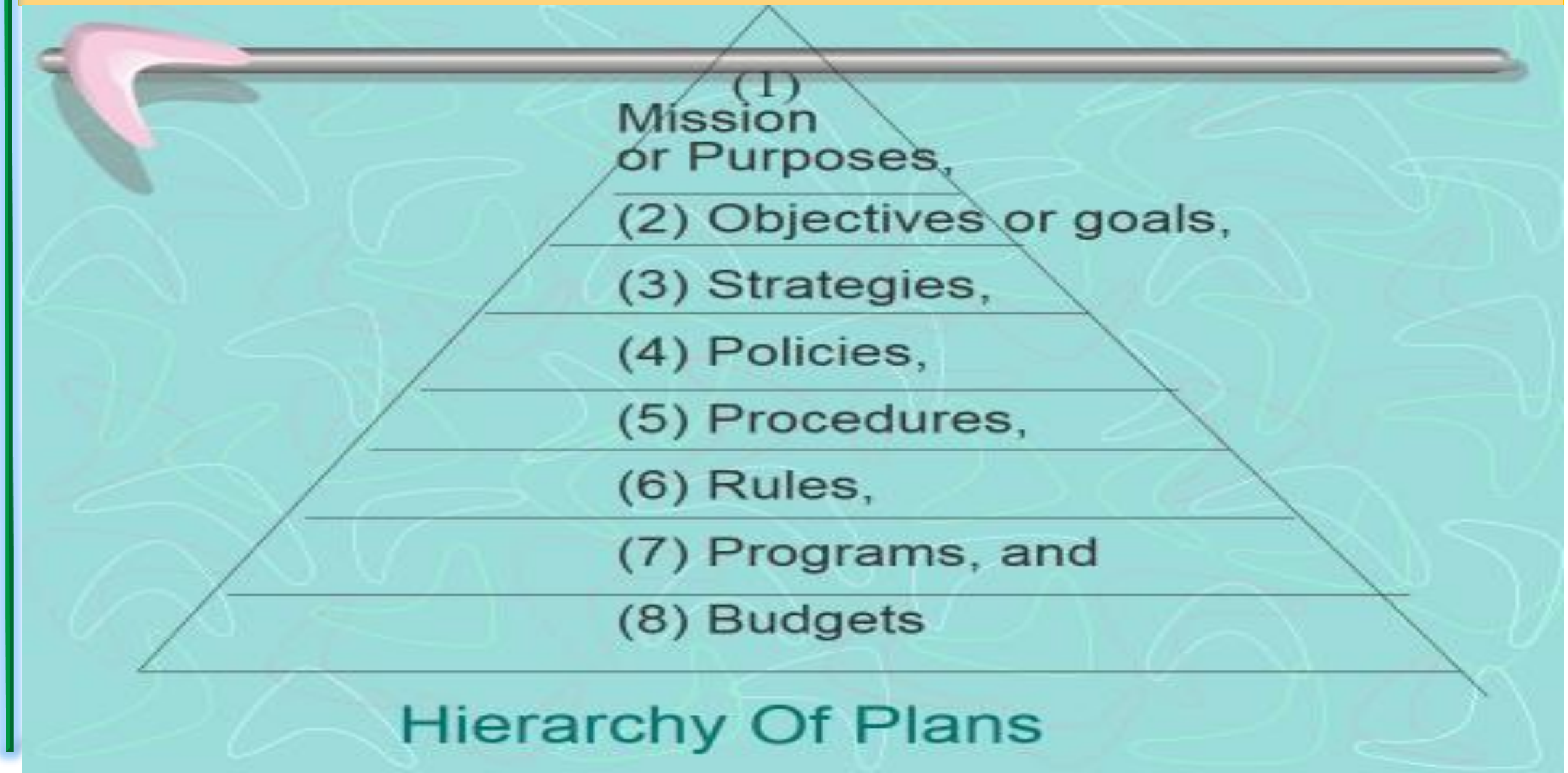
DOES PLANNING IMPROVE PERFORMANCE?

- Financial results
- Environmental concerns
- Quality and implementation

HIERARCHY OF PLANNING

- Hierarchy of Plans
  - A set of plans that includes the company-wide plan and the derivative plans of subsidiary units required to help achieve the enterprise-wide plan.
  - Top management approves a long-term plan; and each department creates its own budgets
- The Planning Hierarchy
  - Top management formulates its plans based on upward feedback from the departments, and the departments in turn draft plans that make sense in terms of top management's plan.

HIERARCHY OF PLANNING



STEPS IN PLANNING

Being aware of opportunity: In light of market, competition customer desire, our strengths, our weaknesses

Setting objectives or goals: Where we want to be & what we want to accomplish & when

Considering planning premises: In what environment, will our plans operate

Identifying alternatives: What are the most promising alternatives to accomplishing our objectives

Comparing alternatives in light of goals sought : Which alternative meets our goals at lowest cost & at highest profit

Choosing an alternative : Selecting the course of action

Formulating derivative plans such plans as to :- buy equipment buy materials, hire& train workers,

Budgets: Develop such budgets as volume & price of sales, operating expenses necessary for plans, capital expenditure

APPROACHES TO PLANNING

- Traditional, top-down approach
  - planning done by top managers
  - *formal planning department* - specialists whose sole responsibility is to help to write organizational plans
  - plans flowed down to lower levels
    - » tailored to particular needs at each lower level
  - most effective if plan is a workable document used by organizational members for direction and guidance

APPROACHES TO PLANNING

- **Inclusive approach**
  - – employees at each level develop plans suited to their needs
  - – employees acquire greater sense of the importance of planning when they participate in the process
  - – plans more likely to be used in directing and coordinating work

CHAPTER FOUR
PROJECT EXECUTION AND MANAGEMENT

Deliverables vs. Objectives

- Project objectives are the goals that the project is trying to accomplish rather than the products that the project is trying to produce. The objectives focus on things ***external*** to the project and the deliverables focus on things ***internal*** to the project. A project can seek to accomplish many things, such as:
  - Position the company for more work
  - Achieve a certain return on investment
  - Appease a regulatory agency

CHAPTER FOUR
PROJECT EXECUTION AND MANAGEMENT

Deliverables vs. Objectives

- Project objectives are the goals that the project is trying to accomplish rather than the products that the project is trying to produce. The objectives focus on things ***external*** to the project and the deliverables focus on things ***internal*** to the project. A project can seek to accomplish many things, such as:
  - Position the company for more work
  - Achieve a certain return on investment
  - Appease a regulatory agency

Building deliverables

Deliverables vs. Milestones

- The main difference between deliverables and milestones is that milestones don't require a product to be delivered to the customer, client, or project sponsor.
- A milestone can be any **threshold** during which a project transitions to another phase.

For example, the completion of the foundation of the house is a milestone, but does not require any submission to the client, customer, or project sponsor, hence it is not a deliverable.

Establishment and staffing of project management structures

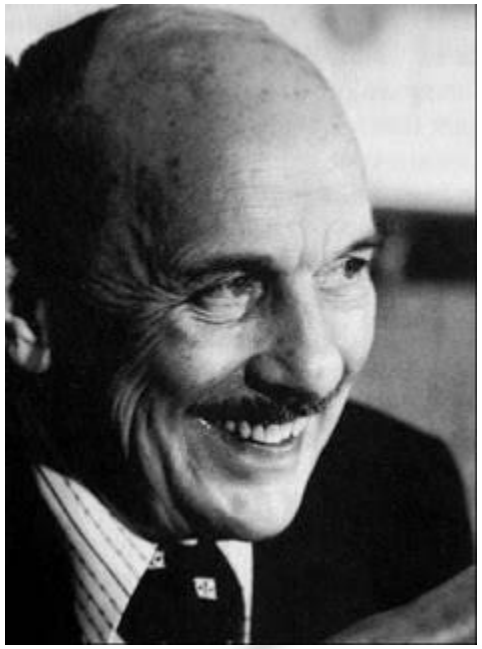
STAFFING

Establishment and staffing of project management structures

- Introduction
- Staffing Process
- Systems approach to Staffing
- Manpower Planning
- Obstacles in manpower planning
- Types of Recruitment
- Employee Selection Process

Establishment and staffing of project management structures

The managerial function of staffing involves manning the organization structure through proper and effective selection, appraisal and development of the personnel to fill the roles assigned to the employers/workforce.



Harold Koontz

"Staffing means filling and keeping filled, positions in the organisation structure."

NATURE OF STAFFING

- Staffing is an important managerial function.
- Staffing is a pervasive activity.
- Staffing is a continuous activity.
- The basis of staffing function is efficient management of personnel.
- Staffing helps in placing right men at the right job.
- Staffing is performed by all managers .

FACTORS AFFECTING STAFFING

INTERNAL ENVIRONMENT	EXTERNAL ENVIRONMENT
Promotion policy	Labor Laws
Future Growth plans of Organization	Pressure from Socio-political group
Technology Used	Competition
Support from Top Management	Educational Standards
Image of the Organization	Other external factors

Project Time Management

Why time magement?

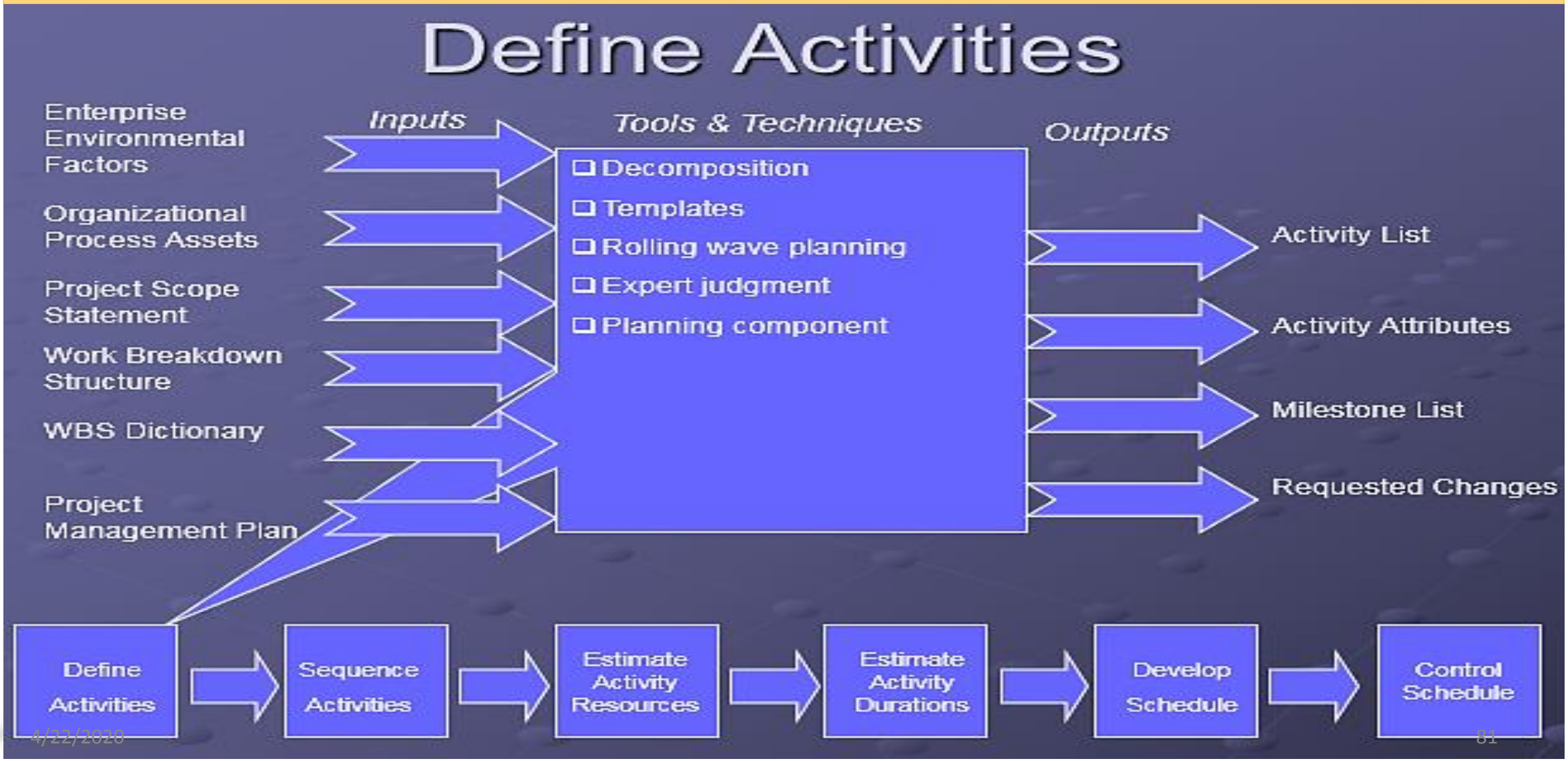
Project Time Management-(How Do We Manage Time?)

- **Six processes**
  - Define Activities
  - Sequence Activities
  - Estimate Activity Resources
  - Estimate Activity Durations
  - Develop Schedule
  - Control Schedule

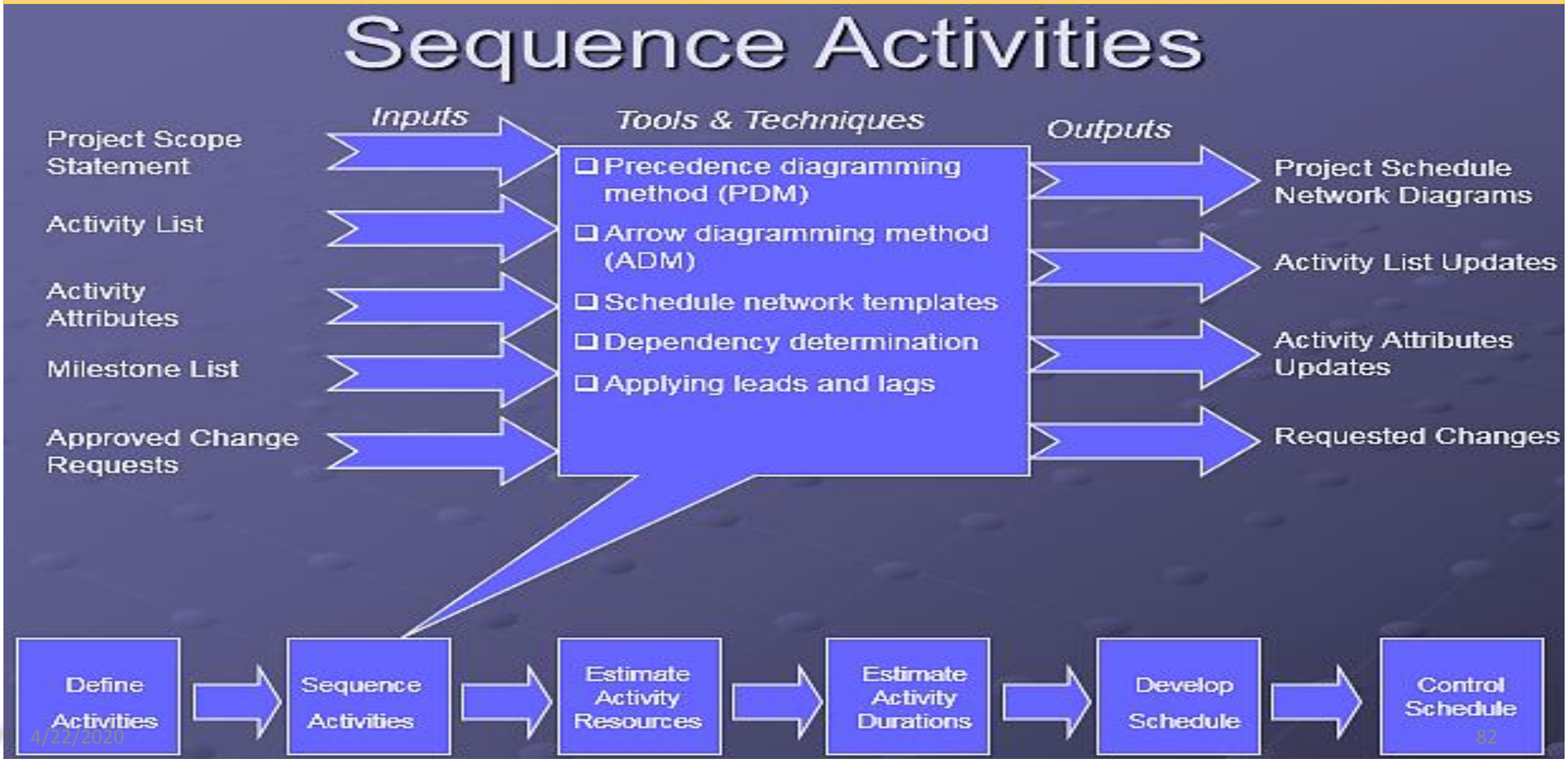
Project Time Management Processes

- **Activity definition**: Identifying the specific activities that the project team members and stakeholders must perform to produce the project deliverables.
- **Activity sequencing**: Identifying and documenting the relationships between project activities.
- **Activity resource estimating**: Estimating how many resources a project team should use to perform project activities.
- **Activity duration estimating**: Estimating the number of work periods that are needed to complete individual activities.
- **Schedule development**: Analyzing activity sequences, activity resource estimates, and activity duration estimates to create the project schedule.
- **Schedule control**: Controlling and managing changes to the project schedule.

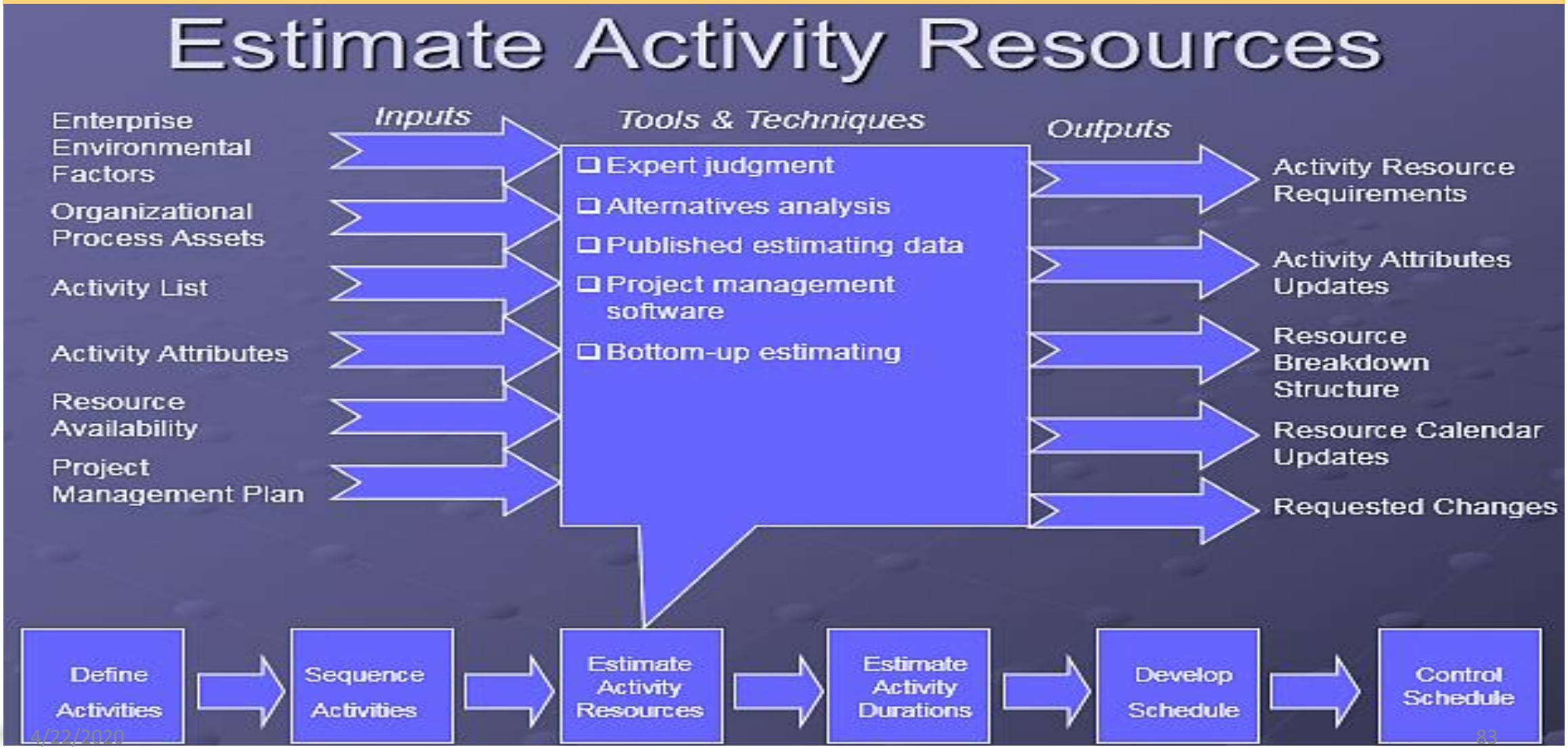
Project Time Management



Project Time Management



Project Time Management



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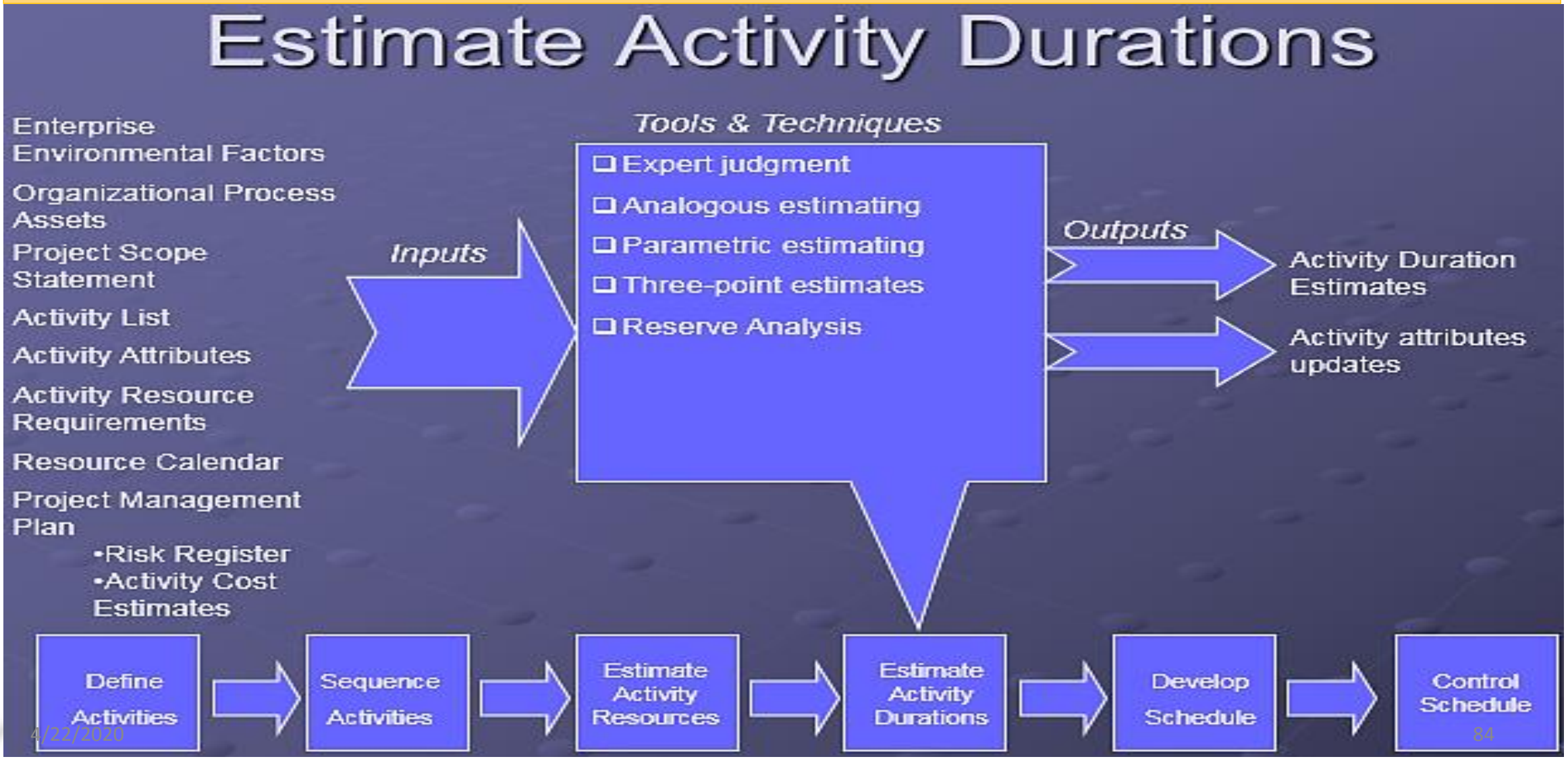

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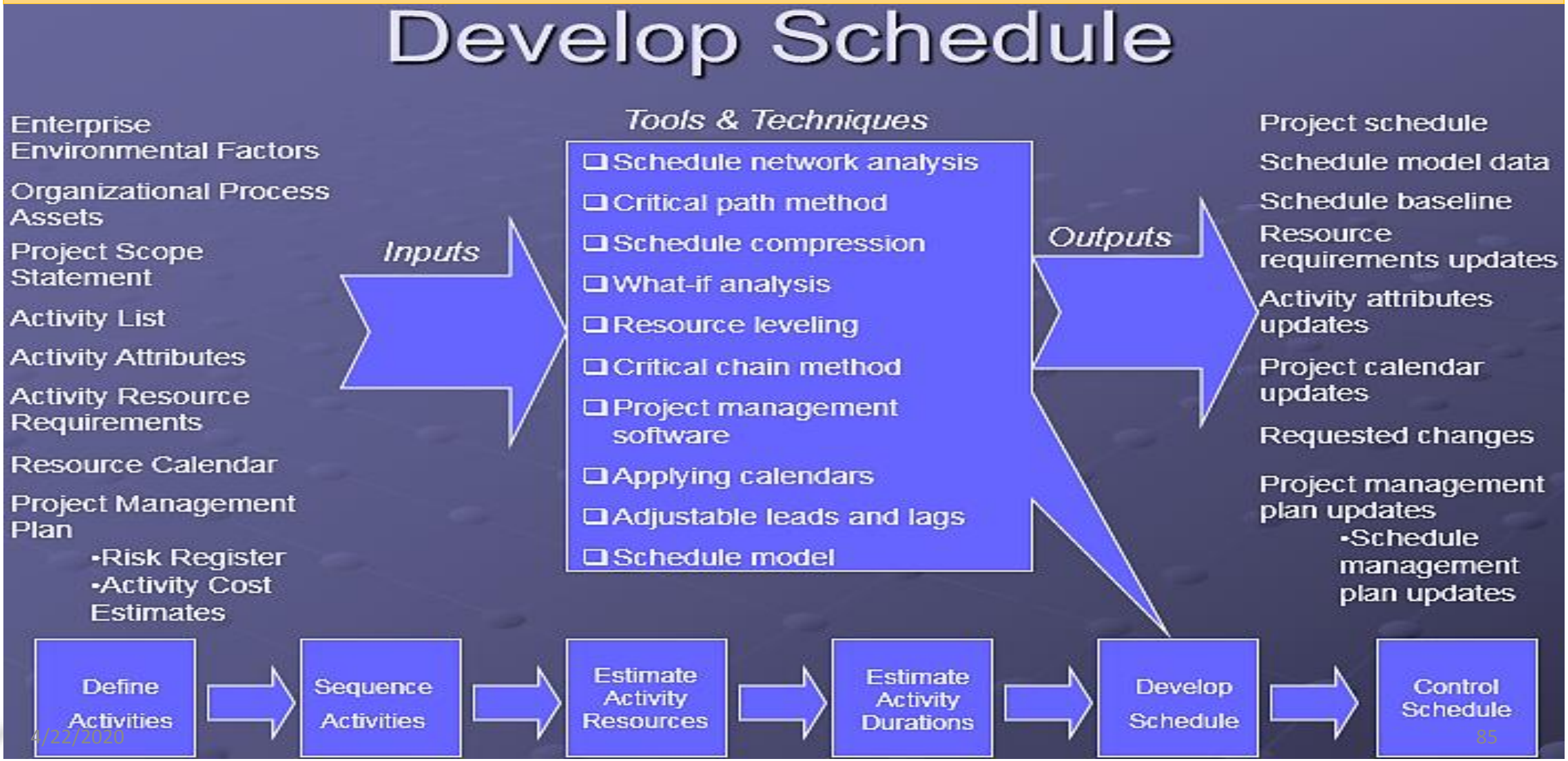

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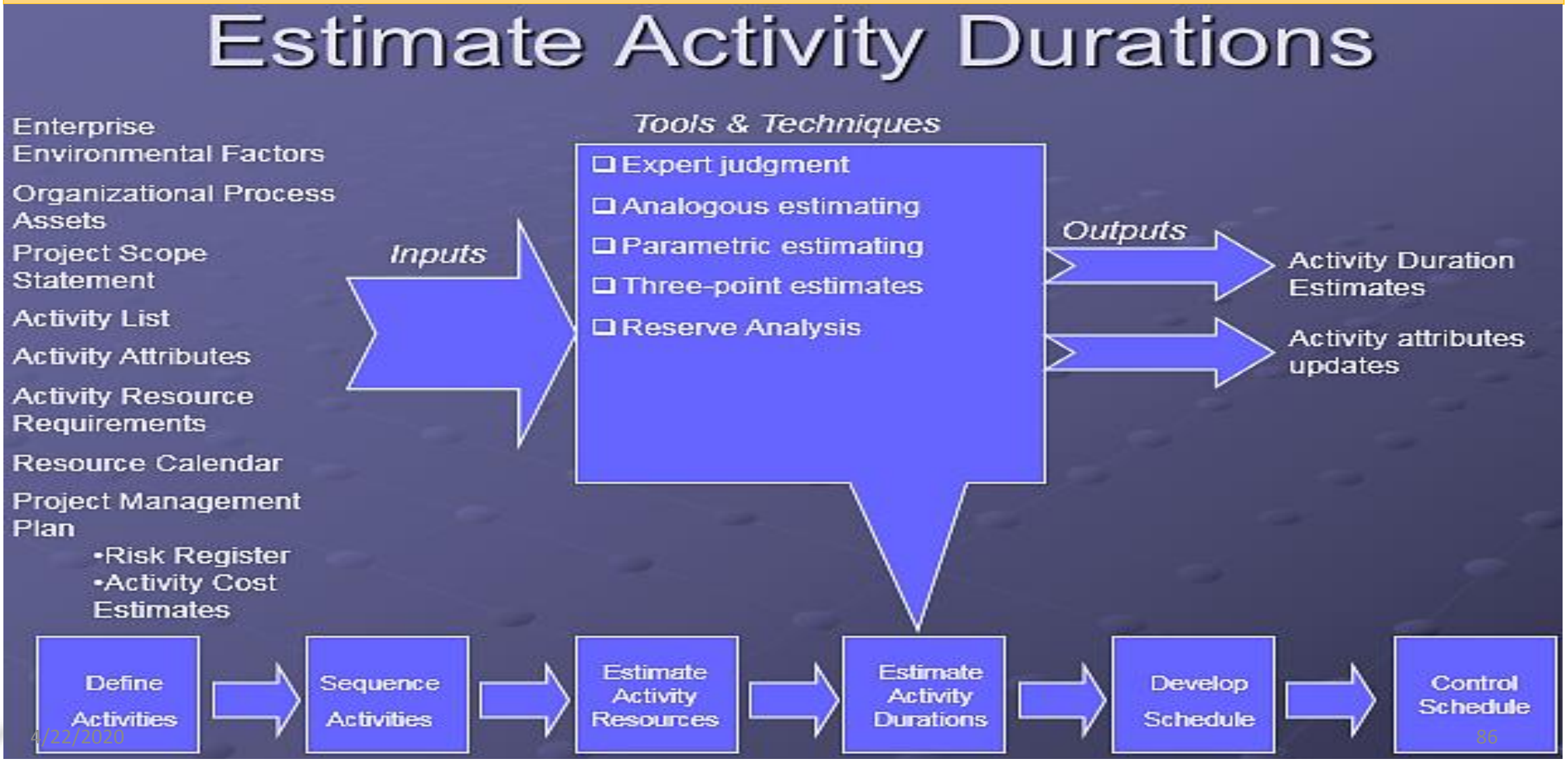

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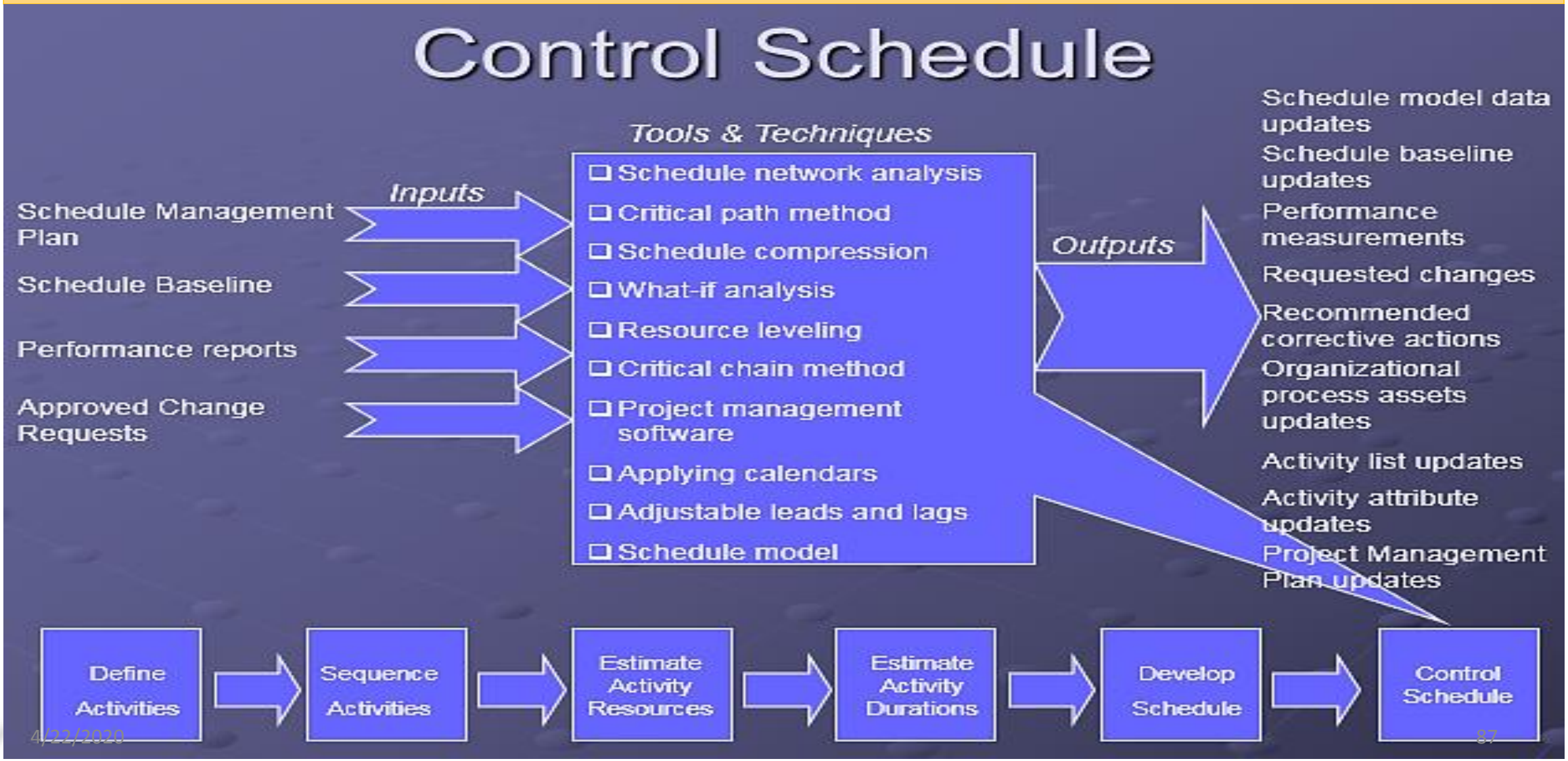
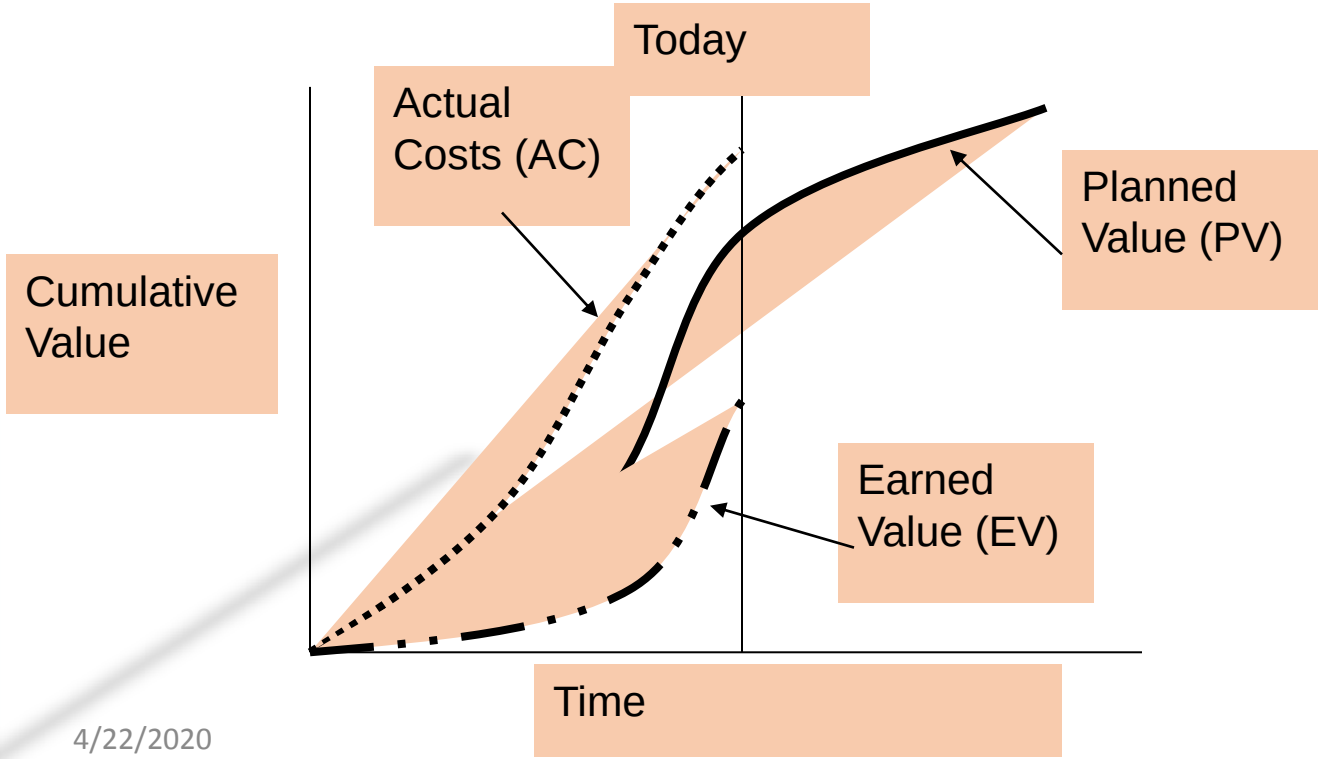


Project Cost Management

- "The processes involved in planning, estimating, budgeting, and controlling costs so that the budget can be completed within the approved budget"

Project Cost Management (Why Do We Manage Cost?)

- Part of triple constraint, can't manage one without the others (scope, time, and quality)
- Plots of cost and scope against plan can help spot problems early



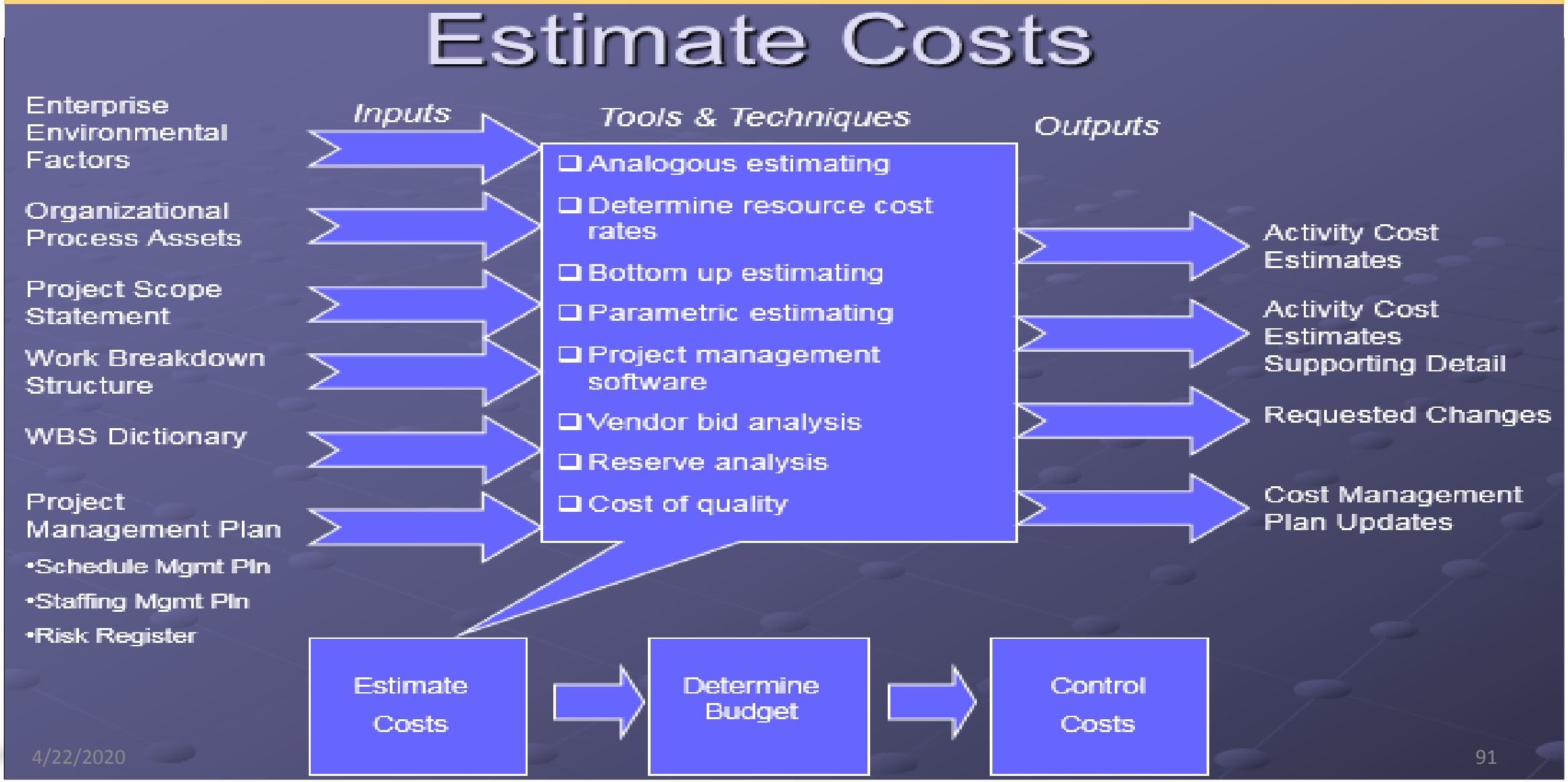
Is this project over/under budget?

Is it ahead of/behind schedule?

Project Cost Management (How Do We Manage Cost?)

- Three processes
  - Estimate Costs
  - Determine Budget
  - Control Costs

Project Cost Management (How Do We Manage Cost?)



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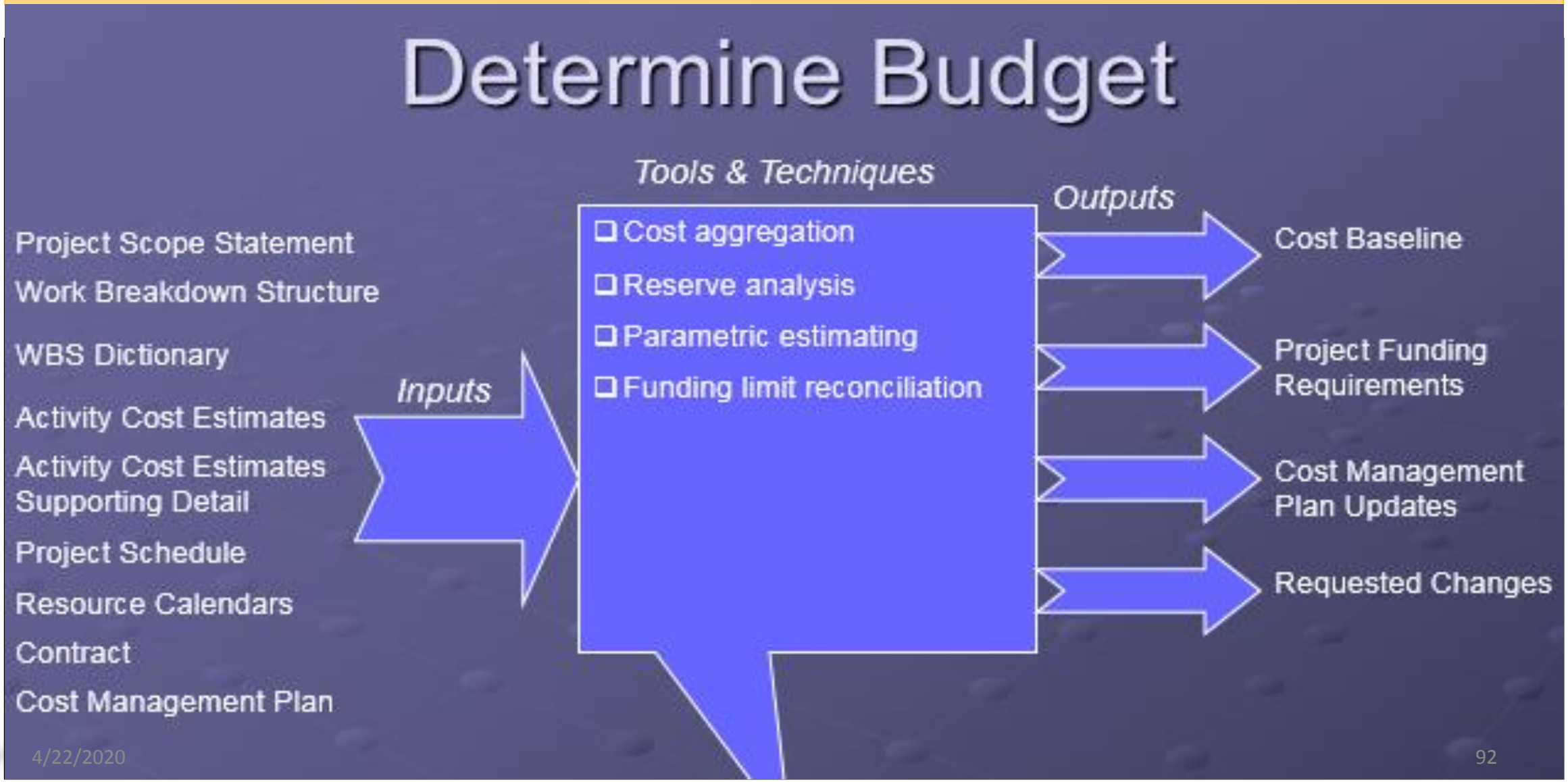

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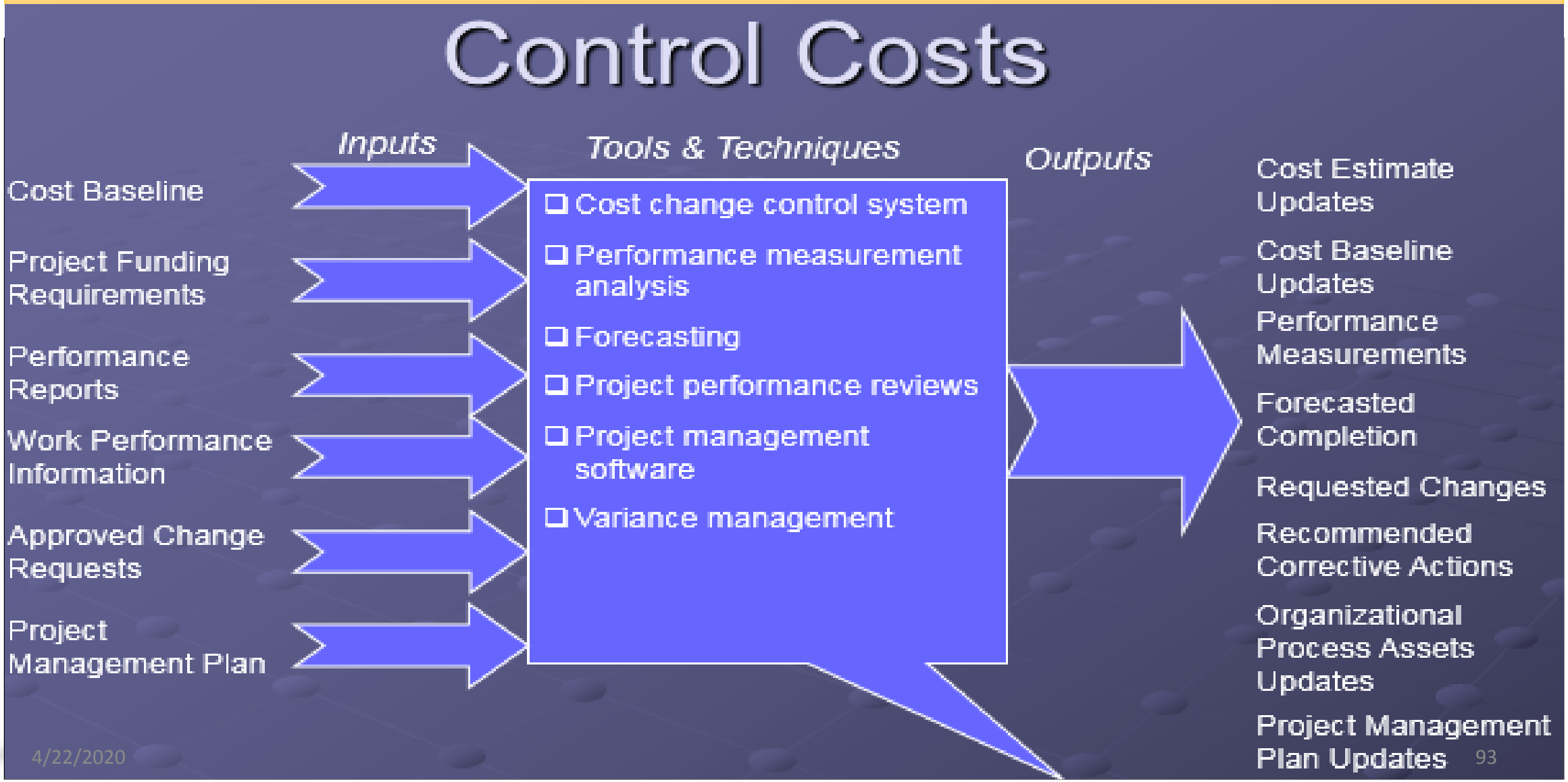


Project Resources Management

Aims of project resource management

- Optimise the allocation of resources to projects
  - In short and long term
  - Through peaks and troughs of demand
- Manage resource costs
- Balance internal and external resources
- Develop staff capabilities
- Allocate staff to work they have the skills for
- Provide staff with interesting and challenging work

A balancing act..

Project Resources Management

Benefits of good project resource management

- Deliver more projects with the same or fewer resources
- Increase resource utilisation
- Deliver more projects to schedule
- Reduce requirements for external staff
- Reduce uncertainty in staff scheduling
- Understand strategic delivery capability
- Identify skill and resource shortfalls earlier

Some real benefits to be achieved…

Project Resources Management

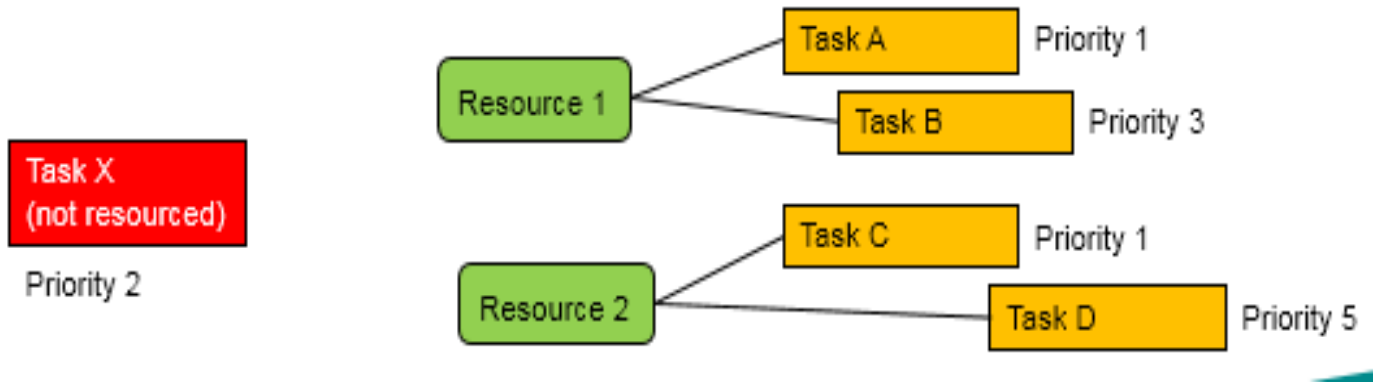
Measuring capability and availability

- **Capability – skills, qualification, certification, experience, grade, location, mobility, fit with rest of team and the customer**
- **Availability – for the duration of the work, for the required hours per day, uninterrupted by other activities?**
- **Capability can be driven by availability – a resource can become capable once trained or certified**
- **Cost may also be a factor – the 'right' resource is often the most expensive**

Availability and capability assessment

Which is key – capability or availability?

- It is rare that a resource will declare themselves available
- Searching for the next available resource with the relevant skills may lead to a very long wait..
- Managers should generally look for the most capable internal resources to do the job, and identify and prioritise existing commitments



Project Resources Management (Resource requests)

Typical data requirements for a resource request:

- Task reference/ name
- Resource requestor (e.g. Project Manager)?
- Date of request
- Start date and end date for work (and if either or both are fixed)
- Total hours/ hours per day/ % of time
- Loading curve
- Skills/ capabilities/ grade required
- Named resource requested
- Budget cost
- Location of the work
- Task status/ priority
- Decision date for resource allocation

Skills matching and resource selection

Skills may be identified and matched to requirements through:

- job title/ grading
- specific skills and qualifications recorded in a database
- requests by staff/ line managers for specific work
- CV search
- searching for similar tasks done previously and identifying who has carried them out
- word of mouth – asking around..

Besides capability and availability, resources are often selected according to 'fuzzier' criteria:

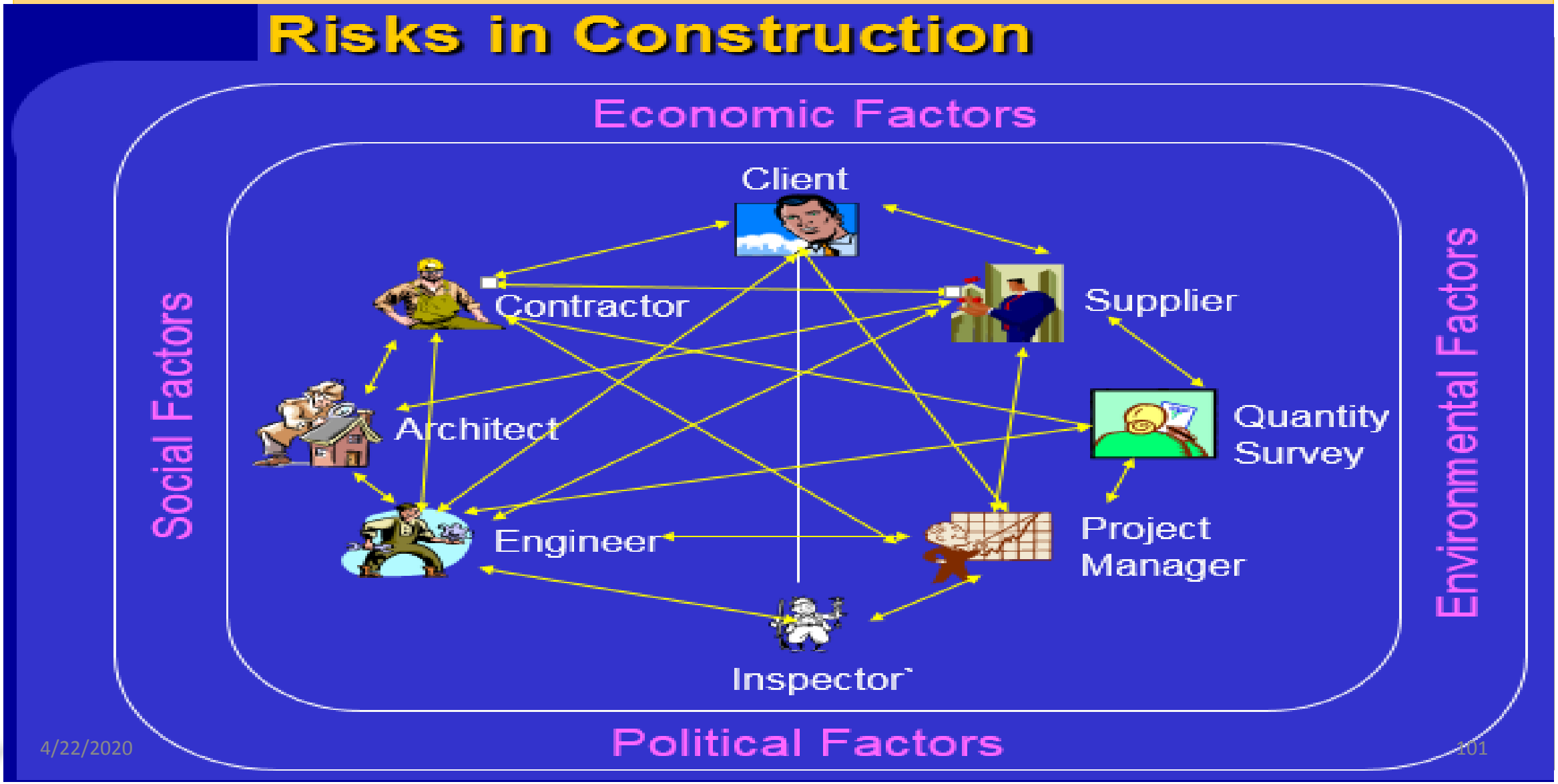
- have worked with the requestor/ project team before
- want to do the work (or not)
- will do this work on condition they do/ do not get assigned to some other wanted/ unwanted task

Project Risk Management

What is Risk?

- The likelihood(probability) of occurrence of an undesirable event thar will have an impact (positive or negative) on objectives.
- A possibility of loss-not the loss itself.

Project Risk Management



Project Risk Management

Types of Risks in Construction

Acts of God

- ✓ Flood
- ✓ Earthquake
- ✓ Landslide
- ✓ Fire
- ✓ Wind damage

Project Risk Management

Types of Risks in Construction

Physical

- ✓ Damage to structure
- ✓ Damage to equipment
- ✓ Labor injuries
- ✓ Fire
- ✓ Theft

Project Risk Management

Types of Risks in Construction

Financial & Economic

- ✓ Inflation
- ✓ Availability of funds
- ✓ Exchange rate fluctuations
- ✓ Financial default

Project Risk Management

Types of Risks in Construction

Political & Environmental

- ✓ Changes in laws and regulations
- ✓ Requirement for permits
- ✓ Law & order
- ✓ Pollution and safety rules

Project Risk Management

Types of Risks in Construction

Design

- ✓ Incomplete design scope
- ✓ Defective design
- ✓ Errors & omissions
- ✓ Inadequate specifications

Project Risk Management

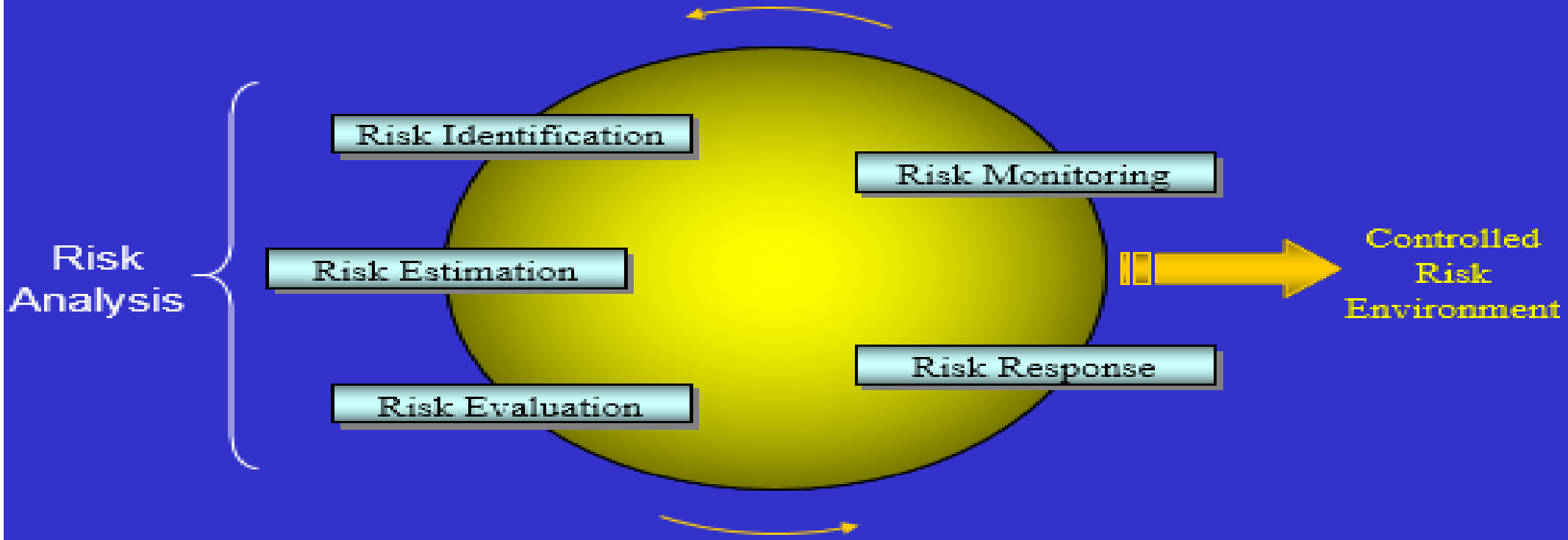
Types of Risks in Construction

Construction Related

- ✓ Labor disputes
- ✓ Labor productivity
- ✓ Different site conditions
- ✓ Design changes
- ✓ Equipment failure

Approaches to control Risk

A systematic approach to control the level of risk to mitigate its effects.

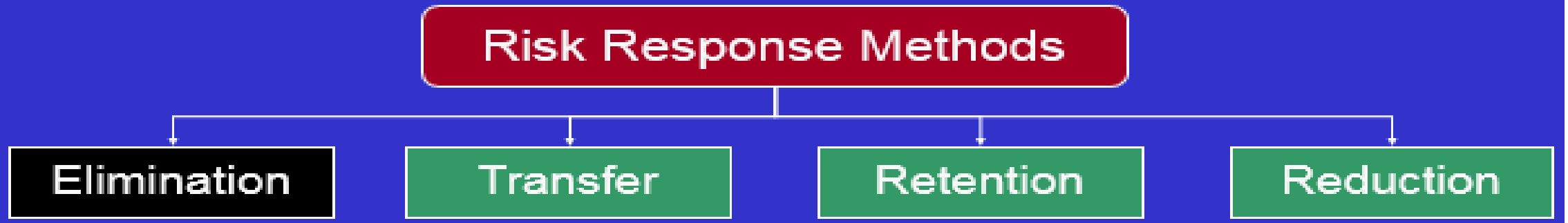


Risk Management Life Cycle

Risk Analysis

Estimating the potential impacts of risk to decide what risks to retain and what risks to transfer to other parties

Risk Response



Risk Elimination Practices

- ✓ Tendering a very high bid
- ✓ Placing conditions on the bid
- ✓ Pre-contract negotiations as to which party takes certain risks
- ✓ Not biding on the high risk portion of the contract

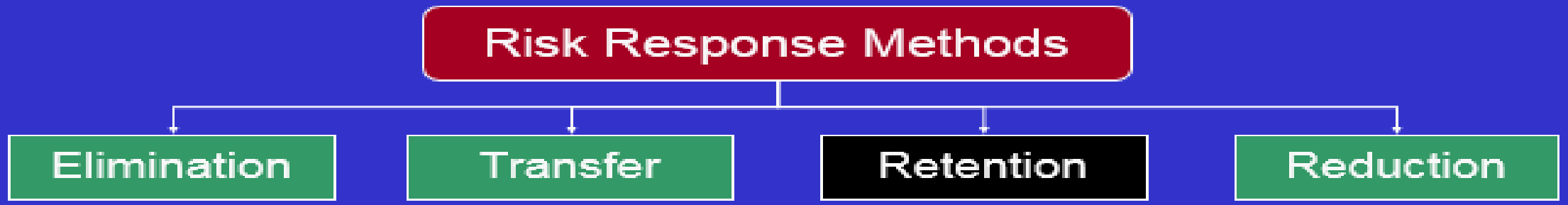
Risk Response

Risk Transfer

- ✓ Two basic forms.
- ✓ (a) The activity responsible for the risk may be transferred, i.e. hire a subcontractor to work on a hazardous process
- ✓ (b) The activity may be retained, but the financial risk transferred, i.e. methods such as insurance.

Risk Reponse

Risk Response

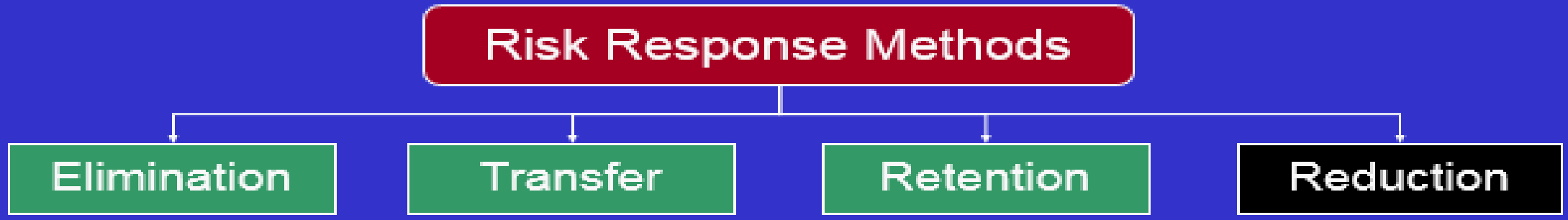


Risk Retention

- ✓ Handling risks by the company who is undertaking the project.
- ✓ Two retention methods, *active* and *passive*.
- ✓ **Active retention** is a deliberate management strategy after a conscious evaluation of the possible losses and costs of alternative ways of handling risks.
- ✓ **Passive retention** occurs through negligence, ignorance or absence of decision.

Risk Response

Risk Response



Risk Reduction

- ✓ Continuous effort.
- ✓ Related with improvements of a company's physical, procedural, educational, and training devices.
- ✓ Improving housekeeping, maintenance, first aid procedures and security.
- ✓ Education and training within every department .

PROJECT QUILITY MANAGEMENT

Introduction

- Project Quality Management includes the processes & activities that determine quality polices, objectives & responsibilities to ensure that the project satisfies the needs for which it is undertaken.

PROJECT QUILITY MANAGEMENT (Total quality Management)

- **Plan Quality :**
  - identify quality requirements and standards
  - Document how to demonstrate compliance
- **Perform Quality Assurance (QA)** :
  - Auditing the quality requirements
  - Ensure appropriate quality standards

  and operational definitions are used
- **Perform Quality Control :**
  - Monitor and record results
  - Assess performance
  - Recommend necessary change

TQM

PROJECT QUILITY MANAGEMENT

Implementation of PQM

- These processes interact with each other as well as with the processes of other knowledge areas
- Each process involves an effort of one or more individual or group of individuals based on the need of the project.
- Each process occurs at least once in every project phase during the project life cycle.

Definitions of Quality (External)

- Transcendent definition: **Excellence**
- Product-based definition: **Quantities of product attributes**
- User-based definition: **Fitness for intended use**
- Value-based definition: **Quality vs. Price**
- Manufacturing-based definition: **Conformance to specifications**

Nature of PQM

- Project quality management must address both the management of the project and the product of the project.
- Failure to meet quality requirements in either dimension can have serious and negative consequences for any or all of the project stakeholders

PROJECT QUILITY MANAGEMENT

Quality Planning

- Quality Planning involves identifying with **quality standards**
- It is a key facilitating process during the **Project planning Process**
- In modern quality management quality is planned in and **not inspected in**
- Prior to the development of ISO 9000 series, quality planning concepts were widely discussed as part of **quality assurance.**

PROJECT QUILITY MANAGEMENT

Quality Planning Flowchart

Inputs

.1 Scope baseline
.2 Stakeholder register
.3 Cost performance baseline
.4 Schedule baseline
.5 Risk register
.6 Enterprise environmental factors
.7 Organizational process assets

Tools & Techniques

.1 Cost-benefit analysis
.2 Cost of quality
.3 Control charts
.4 Benchmarking
.5 Design of experiments
.6 Statistical sampling
.7 Flowcharting
.8 Proprietary quality management methodologies
.9 Additional quality planning tools

Outputs

.1 Quality management plan
.2 Quality metrics
.3 Quality checklists
.4 Process improvement plan
.5 Project document updates

PROJECT QUILITY MANAGEMENT

Quality Assurance

- Process of **auditing the quality requirements** and the results from quality control measurements to ensure appropriate quality standards and operational definitions are used
- Continuous process improvement reduces **waste and eliminates** activities that do not add value.

PROJECT QUILITY MANAGEMENT

Quality Assurance Flowchart

Inputs	Tools & Techniques	Outputs
.1 Project management plan .2 Quality metrics .3 Work performance information .4 Quality control measurements	.1 Plan Quality and Perform Quality Control tools and techniques .2 Quality audits .3 Process analysis	.1 Organizational process assets updates .2 Change requests .3 Project management plan updates .4 Project document updates

PROJECT QUILITY MANAGEMENT

Quality Control

- The process of **monitoring and recording results** of executing the quality activities to assess performance and recommend necessary change
- Quality control is often performed by a **quality control department**
- The project management team should have a working knowledge of statistical quality control especially sampling and probability to help evaluate and control outputs.

PROJECT QUILITY MANAGEMENT

- **The project management should be aware of the following among other subjects:**

  Prevention (keeping errors out of the process)

  Inspection (keeping errors out of the customers hand)

  Attribute sampling (for conformity of results)

  Variable sampling (where the results are rated on a continuous scale that measures the degree of conformity or non conformity

  Tolerances (specified range of acceptable results)

  Control limits (thresholds, which can indicate whether the process is out of control)

CHAPTER FIVE
PROJET EVALAUTION AND REVIEW

Introduction

- **Project Evaluation:** The systematic and objective assessment of an on-going or completed project or program, its design, implementation and results.
- The **aim** is to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact and sustainability.
- Evaluations investigate the reasons why certain aspects of a project or program have or have not been implemented as planned.
- *Evaluation* involves the systematic collection of information about the activities, characteristic and outcomes of an activity or action, in order to determine its worth or merit.

INTRODUCTION CON…

- Project evaluation assesses the economic, social, environmental and financial impacts of a project and combines these to provide an overall assessment of the project.
- Evaluations are carried out either during the project cycle (Mid-term Evaluation, Formative Evaluation) or at the end of a project or programme (Ex-post Evaluation, Final Evaluation, Impact Evaluation, Summative Evaluation).

EVALAUTION CTITERIA

Relevance: Are we doing the right thing? How important is the relevance or significance of the intervention regarding local and national requirements and priorities?

Effectiveness: Are the objectives of the development interventions being achieved? How big is the effectiveness or impact of the project compared to the objectives planned (Comparison: result – planning)?

Efficiency: Are the objectives being achieved economically by the development intervention? How big is the efficiency or utilization ratio of the resources used (Comparison: resources applied –results)?

EVALAUTION CTITERIA

Impact: Does the development intervention contribute to reaching higher level development objectives (preferably, overall objective)? What is the impact or effect of the intervention in proportion to the overall situation of the target group or those effected?

Sustainability: Are the positive effects or impacts sustainable? How is the sustainability or permanence of the intervention and its effects to be assessed?

The purpose of project evaluation

- To improve the quality of services,
- To write a final report for funders
- To learn from experience for future projects
- To celebrate success
- To ensure value for money, and
- To prioritize proposed capital projects.

This is achieved through a structured process which makes it possible to:

- Clearly define project objectives, and consider a wide range of options to meet these objectives;
- Carry out economic, social, environmental and budgetary analyses of the project; and
- Identify the net benefit of the project to the community, and the effect on the State Budget

Steps in Evaluation

Step One: Understand What Your Project is Trying to Achieve

- Is your project ready for evaluation? Evaluations don't need to be complicated or overly time consuming; however, it is important to clearly define:
    - the problem being addressed,
    - how this project will address the issue or problem,
    - the target groups or communities; and
    - the primary objective/s or purpose.

Always carefully plan your evaluation.

*In particular, make sure your objectives are **SMART**, that is:*

- *S pecifi c*
- *M easurable*
- *A chievable*
- *R elevant; and*
- *Time bound.*

Steps in Evaluation

Step Two: Develop an Evaluation Plan

- Ideally, project evaluations should be designed at the very beginning of the project so that information or data can be automatically collected along the way.
- However, if this is not possible, don't despair - you may just need to put a little bit more effort into designing the evaluation.

At a minimum, your evaluation findings need to be:

- reliable, accurate and of reasonable quality,
- easy to understand,
- relevant,
- not too critical; and above all else
- useful.

Be very clear about what it is you are evaluating.

.

Steps in Evaluation

Step Three: Selecting Potential Participants

- Whether you are conducting an outcome, impact and/or process evaluation, information or data about a defined group or population needs to be collected.
- If you are dealing with a small population it may be possible to obtain the data from each and every individual.
- However, when the potential population base is large, you may only be able to obtain data from a few people or sample of the total population.

Things to consider in this case might be the mix of:

- genders,
- ages,
- ethnic groups,
- educational levels; and/or
- social status etc.

Steps in Evaluation

Step Four: Collecting the Data

- There are three important questions that need to be answered prior to choosing a data collection method or methods and designing the data collection tools.

1. What do you need to find out?
2. What is the best way of doing this?
3. Who should collect the data?

- In order to be sure that your chosen method of collecting data is right for your particular project evaluation, you could test or pilot the tool prior to use.
- Piloting your data collection tool will help to ensure that it collects the information you need, and at the same time that participants won't be offended by or feel uncomfortable with the process.

Steps in Evaluation

Some of the most common ways of collecting data include:

- **Surveys and Questionnaires** – can be used to obtain a broad understanding from a relatively large population.
- **Interviews** – are more time consuming but also more useful for gathering in-depth information.
- **Observations**-the aim is to systematically observe changes to people and/or their environment.
- **Diaries and Logs** – are used to record the processes and accomplishments of an entire project or a particular activity within a project.

You can use one or several data collection methods at the same time

Steps in Evaluation

Step Five: Analyzing and Interpreting the Data

- Analysis and interpretation has been likened to 'questioning' your data.
- The process generally involves the following three steps:
  1. Preparing your data so that it is all together and easy to read.
  2. Analyzing your data in order to develop a general sense of what it is telling you.
  3. Interpreting your data which involves reflecting upon the analysis and presenting an understanding which integrates the mass of information that has been collected.

Steps in Evaluation

Step Six: Reporting on and Using Your Findings

- This brings us back to the very beginning when we suggested that your evaluation could be used to:
  - establish the differences your project has made;
  - ensure that successes are repeated and the mistakes are not; and
  - demonstrate to funding bodies that your project was worthwhile.

Findings of your evaluation could also be used to support a learning environment by:

- providing a focus for group reflection,
- empower the group to move forward,
- articulating some of the unsaid knowledge which is often forgotten; and
- documenting the process for new staff.

Project purpose and over all objectives

- The very first step in all projects: business, home, or education, is to define goals and objectives.
- This step defines the projects outcome and the steps required to achieve that outcome.
- Poorly defined goals and objectives, or goals without objectives, pushes a project into overruns, **territory battles**, **personality clashes**, missed milestones, and unhappy clients.
- Goals and objectives must be clear statements of purpose.
- Each with its own purpose that drives the end result of the project.
- Goals and objectives MUST be measurable.

- Goals are broad statements applied to a project.
- Goals are the **"WHAT"** of the process.
- In other words, "what" will the project accomplish? Projects may have more than one goal, but many objectives per goal.

Do not confuse goals with objectives.

Project purpose and over all objectives

- Objectives are the "HOW"
- Objectives are specific statements that support the goal.
- Every goal will have one or more objectives tied to it.
- In essence, the objective is the "how" of the process.
- Always start an objective with an action verb.
- This ensures that the objective is measurable and that the projects end-result is addressed through the action of the objective.
- Each objective becomes a measurable milestone as well.

Project Closure

Project Manager's involvement at the closing stage:

- Project closing is as important as other processes in project management.
- Unless your project has been closed with the planned procedures, it values null and void.
- You might have delivered the deliverables, but this does not mean your project is complete.
- Ignoring this process results incomplete project management at the project manager's end.

1. **Formal Sign-off from the customer**
2. **Final analysis of the product scope**
3. **Release the resources**
4. **Procurement or other contract closure**

Project Closure

5. Indexing of the project files
6. Lessons learned documentation
7. Celebration of a party

CHAPTER SIX
PROJECT PHASES AND PROJECT LIFE CYCLE

What is project life cycle?

- It is a series of phases of project from intiation to completion.

The life cycle gives a practical approach to problem solving applied to all aspects of a project

- Phases in a project cycle encompasses sequential and overlapping phases.
- A project life cycle typically has four phases:
- **Initiation phase**
- **Planning phase**
- **Implementation/execution phase**
- **Closure phase**

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MONITORING PROJECTS: QUALITY AND RESULTS

Monitoring vs evaluation

- Is it the same thing?
  - If no, what are the differences? similarities?
  - What are the objectives of monitoring? Evaluation?
  - Why is monitoring important? Why is evaluation important?
  - What kind of information do we need to monitor a project?
- Monitoring is the **routine assessment**(e.g. daily/monthly/ quarterly) **of information or indicators** of ongoing activities.
- **Monitoring** is the continuous, systematic and critical review of operations in order to measure their evolution and adjust them according to circumstances and project's objectives.

MONITORING PROJECTS: QUALITY AND RESULTS

- Tracks progress toward the set program targets or performance standards
- Identifies aspects of the program that are working according to plan and those that are in need of midcourse corrections so that timely improvements or changes can be made
- Evaluation refers to the **measurement of how much things have changed because of the intervention(s) implemented.**

MONITORING PROJECTS:QUALITY AND RESULTS

- **Differences and similarities between monitoring and evaluation.**

Monitoring	Evaluation
A continuous process	A specific activity or moment
To provide information for day to day decision making(adjustments)	To provide recommendations to strategic decision-making processes
It is carried out by the project team	It is carried out by the evaluation team (internal or external to the project team)
For project team (to adapt and improve the impacts) and donors (to follow up the progress)	For project team and donors (lesson learned)

MONITORING PROJECTS:QUALITY AND RESULTS

- **Monitoring** is a long term **process** / **on going** in order to ensure activities are taking place according to standards and to find out weaknesses and gaps within the project
- **Evaluation**: after the end of the project (or at mid term) to find out the weaknesses and the results of the project (positive outcomes).
- Evaluation can be used as a point of reference for future projects (measure outputs, outcomes and impacts).
- Evaluation is a one time event (happens at the end of the project).

Purpose of monitoring system

- The purpose of monitoring reports is to provide :
  -updates on achievements against indicators and milestones.
  -guidance on the elements that should be adjusted.

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