PLANNING

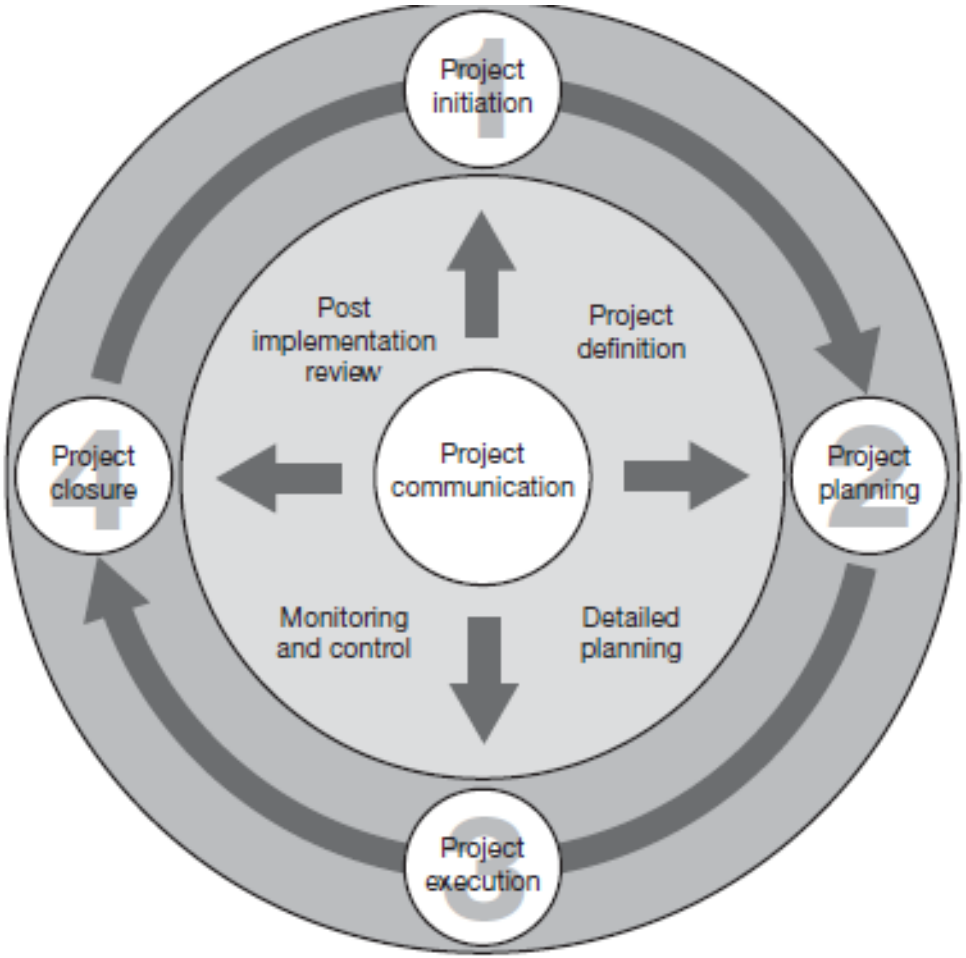
Ahmed Elyamany, PhD

Lecture Topics

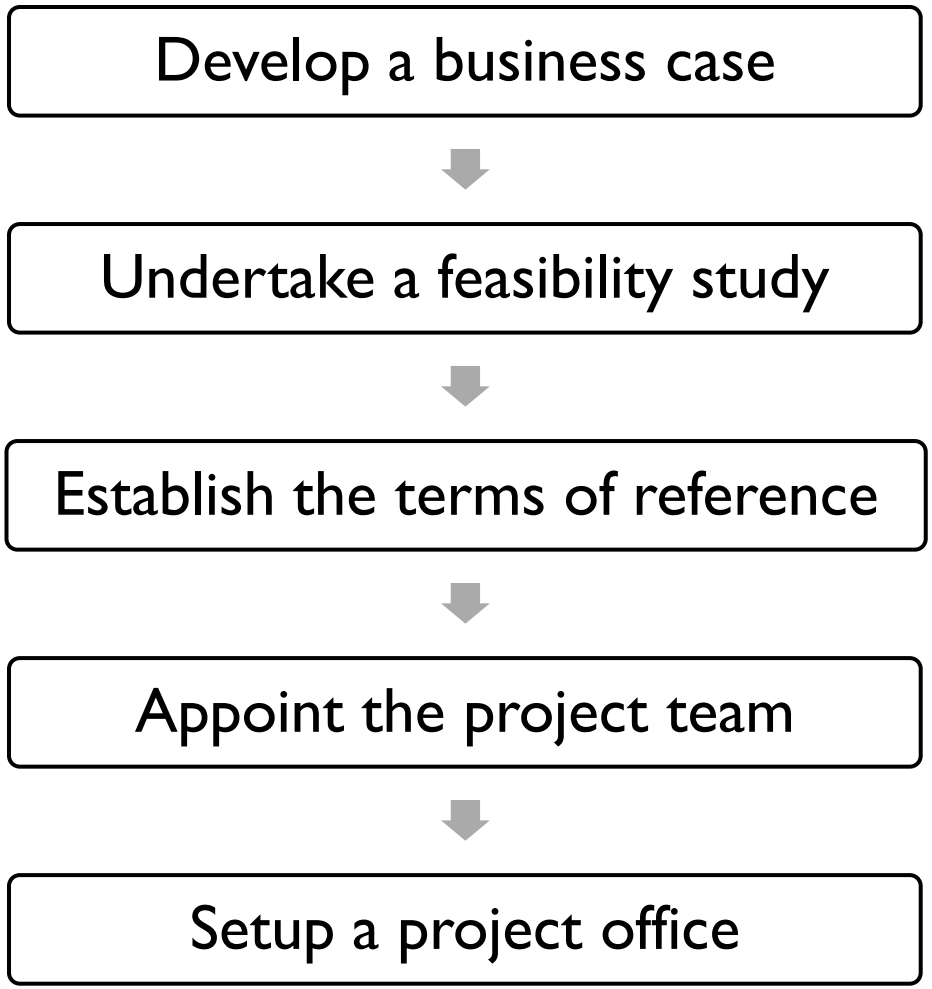
- Benefits of Planning
- Use of Project Plan
- Problems with "Day-to-Day" Planning
- Problems Caused By Not Planning
- Definition of "Activity"
- Activity durations
- Sequencing Activities

The Project Life Cycle

- The project life cycle consists of four phases
  - Project Initiation
  - Project Planning
  - Project Execution
  - Project Closure



Project Phases-project Initiation



Project Phases-project Planning

Project Phases-project Execution

- Implementing the plans created during the project planning phase.
- The deliverables being monitored and controlled during execution.
- All deliverables have been produced
- The customer has accepted the final solution
- The project is ready for closure.

Project Phases-project Closeout

- Releasing the final deliverables to the customer
- Handing over project documentation to the business,
- Terminating supplier contracts
- Releasing project resources
- Communicating the closure of the project to all stakeholders

Planning

- The Development of a workable program of operations to accomplish established objectives when put into action.

Planning

- Planning is important to managing a construction project.
- Done before project starts
- The plan needs to be communicated.
- Planning for:
  - Construction process
  - Jobsite safety
  - Jobsite layout
  - Workforce

Planning need ..

- Decision making
- Information gathering
- Identifying/defining activities
- Creativity
- Flexibility
- Interrelationships

Benefits of Planning

- Able to analyze the entire project

- Efficiencies gained from planning:
  - Saving cost
  - Saving time
  - Increase quality
  - Reduces problems
    - Avoid work conflicts
    - Ensures safety

Problems with "Day-to-Day" Planning

- Wasted time
  - Labor cost
  - Longer construction time
- Possible rework
  - Not anticipating future work
  - Cost and time impact
- Inadequate project quality
- Conflicts between subcontractors
- Safety planning gets overlooked

How Planning Was Successful

- Savings:
  - Cost
  - Time
- Quality improvements
- Solved problems
- Avoided problems

What did inadequate planning do?

- Delayed project
- Incurred additional costs
  - Labor
  - Material
- Strained relations with Architect/Engineer
- Strained relations with rebar supplier

Problems Caused By Not Planning

- Additional costs
- Project delays
- Conflicts with other parties
- Quality problems

Who Needs Planning

- Owner
- Designer
- Contractor
  - Pre-tendering planning
  - Project Planning

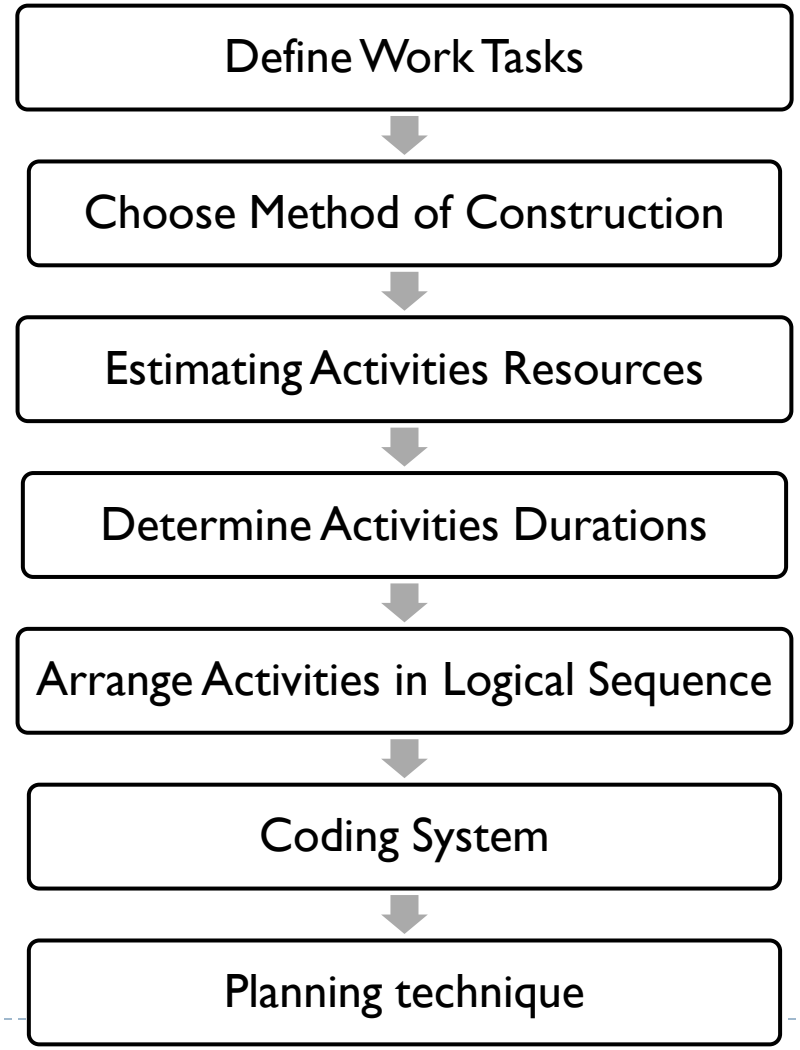
Preliminary Planning

- Preliminary planning is a quick overall picture of the project and the capacity of the unit to accomplish it.
- Serves as a guide for detailed planning.
- Includes preliminary material and equipment estimates, and procurement of critical items, identify work activities.

Detailed Planning

- Detailed planning includes:
  - Reviewing project specifications and drawings.
  - Detailed estimates of resources,(i.e. equip. hours).
  - Scheduling work activities.
  - Procurement of materials.

Steps of Planning



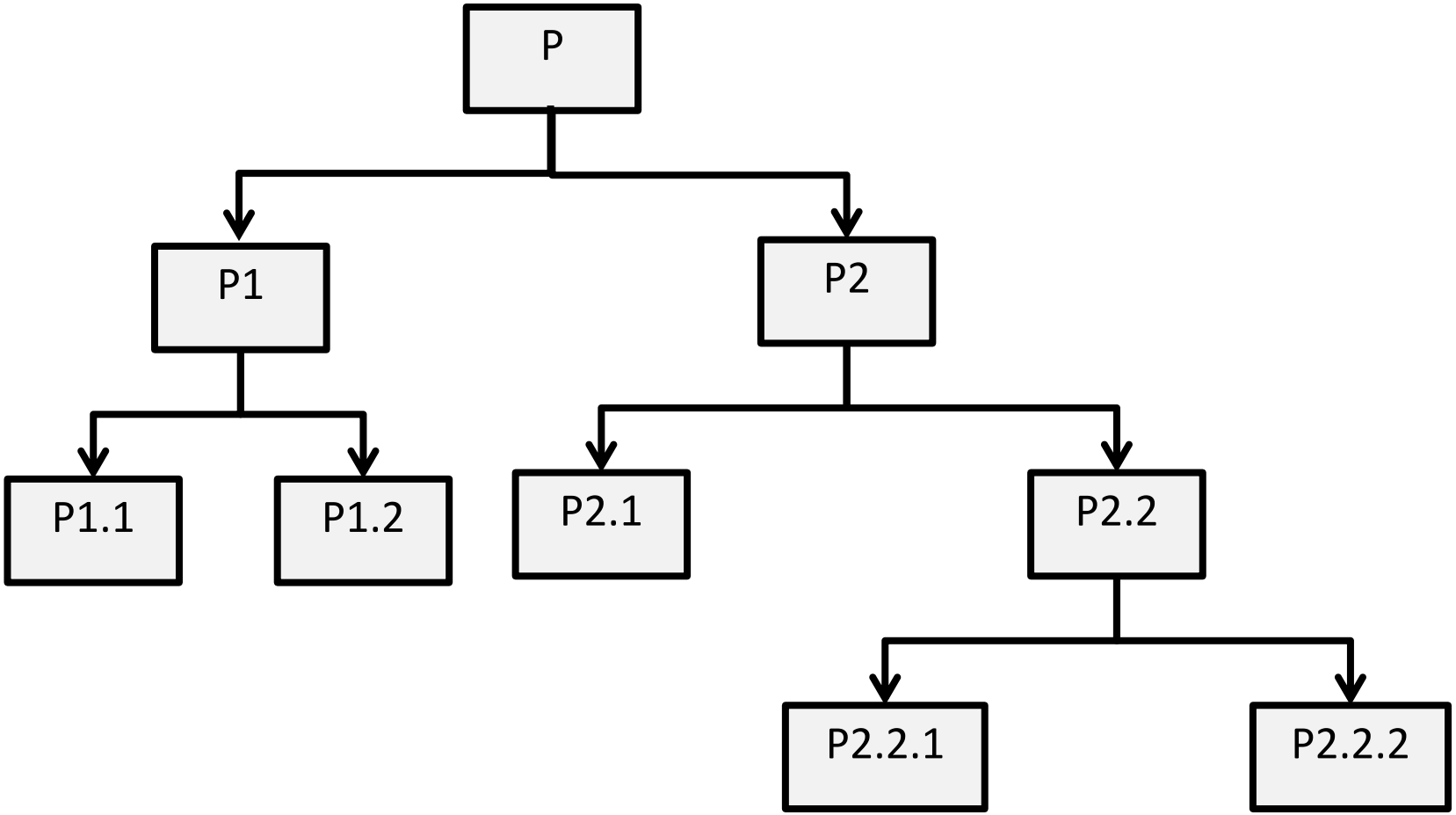
Work Breakdown Structure (WBS)

- A task-oriented "family tree" of activities, which organizes, defines, and graphically displays the work to be accomplished.

WBS Steps

- Listing of project tasks to be performed
- Starts at the major project view
- Next the major phase levels are added
- Then details for each phase are added

Project Tree



WBS Construction

- There are many ways of breaking down the activities in a project, but the most usual is into:
  - Work packages
  - Tasks
  - Deliverables
  - Milestones

An Activity…

- Is a specific task
- Has a beginning and an end
- Has a duration
- Usually consumes resources
  - Material, labor, equipment, subcontractors

An Activity…

- Is assignable (someone does it)
- Is measurable in quantity or time
- Has a relationship to other activities
- Has delivery associated with it

Activity Scope

- Relates to quantity of installation and time
- Relates to size of project
- Relates to crew size and number of crews
- Relates to detail required by contract documents
- Relates to the amount of jobsite control of the schedule

Comparison of Activity Detail

- Form and pour footings

- footings layout
- footings Forms
- footings rebar Installation
- footings pouring
- footings form removal

Duration of Activities

- The amount of time between the start and the finish of the activity
- Usually in "days", "Day" = working day
- Need to make accurate estimate of time
- Account for minor delays in activity duration
- Activity Duration = $\dfrac{\text{Work Quantity}}{\text{No. of Crew x Production Rate}}$

Sequencing Activities

- Assemble activities in "logical sequence"
- How are we going to build the project?
- No right or wrong way
- Always trying to be efficient
- Continuous flow of work

Questions?

http:\\drahmedelyamany.weebly.com

drahmedelyamany@yahoo.com