GEPM-375

Project Planning and Construction Management

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Project Scheduling

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Previous Classes – Fundamental Financial principles

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Project & Project Life Cycles

What we are going to learn today?

- What is Project?
- What is Project life cycle?

Scheduling

- Definition.
- Steps of developing a project schedule.
- Step -1: Plan schedule management
- Step-2: Define activities.

Project: A project is defined **as a specific, finite activity** that **produces an observable and measurable result** under certain **preset requirements.**

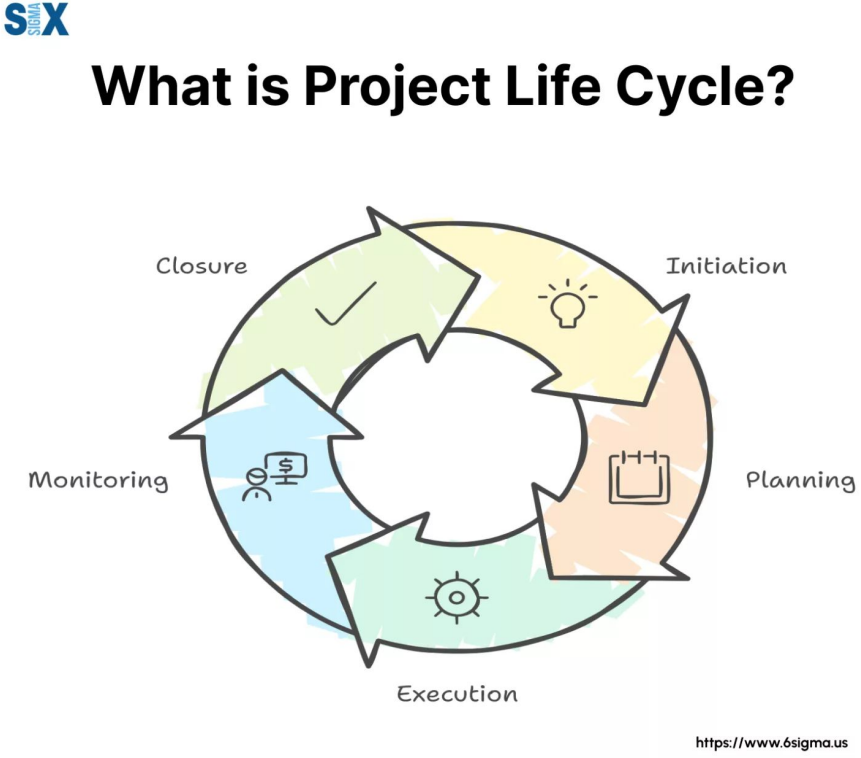
Project life cycle.

- A project life cycle is the **sequence of phases** that a **project goes through** from its **initiation to its closure**.

- Project lifecycle can be **defined and modified** as per the needs and aspects of the organization.

Chronological Perspective of Project Life Cycle

- **Initiation**
- **Planning & Scheduling**
- **Execution**
- **Monitoring and Control**
- **Closure**



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Project Scheduling

Project Scheduling

What is scheduling?

- Scheduling is the **allocation of resources** to project planning.

-Conceptual sense, **resources** are **time and energy**.

-But in practical sense, **resources** are **time, space, equipment and efforts** applied to material.

Definition 1:

- Mechanical process **of formalizing the planned function.**

- **Assigning** the starting and completion **dates** of each part of work (activity); in a such a manner that the **whole work (project) proceeds** in a **logical sequences**, an **orderly and systematic manner.**

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Steps to Process in developing Project Scheduling

Project Scheduling

Definition 2:

- Scheduling is the **laying out of the actual activities of the project in the time order** in which they are to be performed.

And **calculating the manpower and material requirements** (or resource requirement in general) needed in each stage of production/output along with the expected completion time of each activity.

6-Steps: Processes in developing a project schedule. (PDSEED)

Step 1: Plan Schedule Management

Step 2: Define Activities

Steps 3: Sequence Activities

Steps 4: Estimate Activities Resources

Steps 5: Estimate Activities Durations

Steps 6: Develop Schedule

Step 1: Plan Schedule Management:

- **Define the policies, procedures, and documentation which will govern** the formulation of the project schedule.

For small projects, it specifies the **formulation of a Schedule Management Plan**, which is a component of the overall Project Management Plan.

Items to be addressed plan schedule management (CR-TOS)

- **Contingencies:** How big will they be, and how will they be calculated?

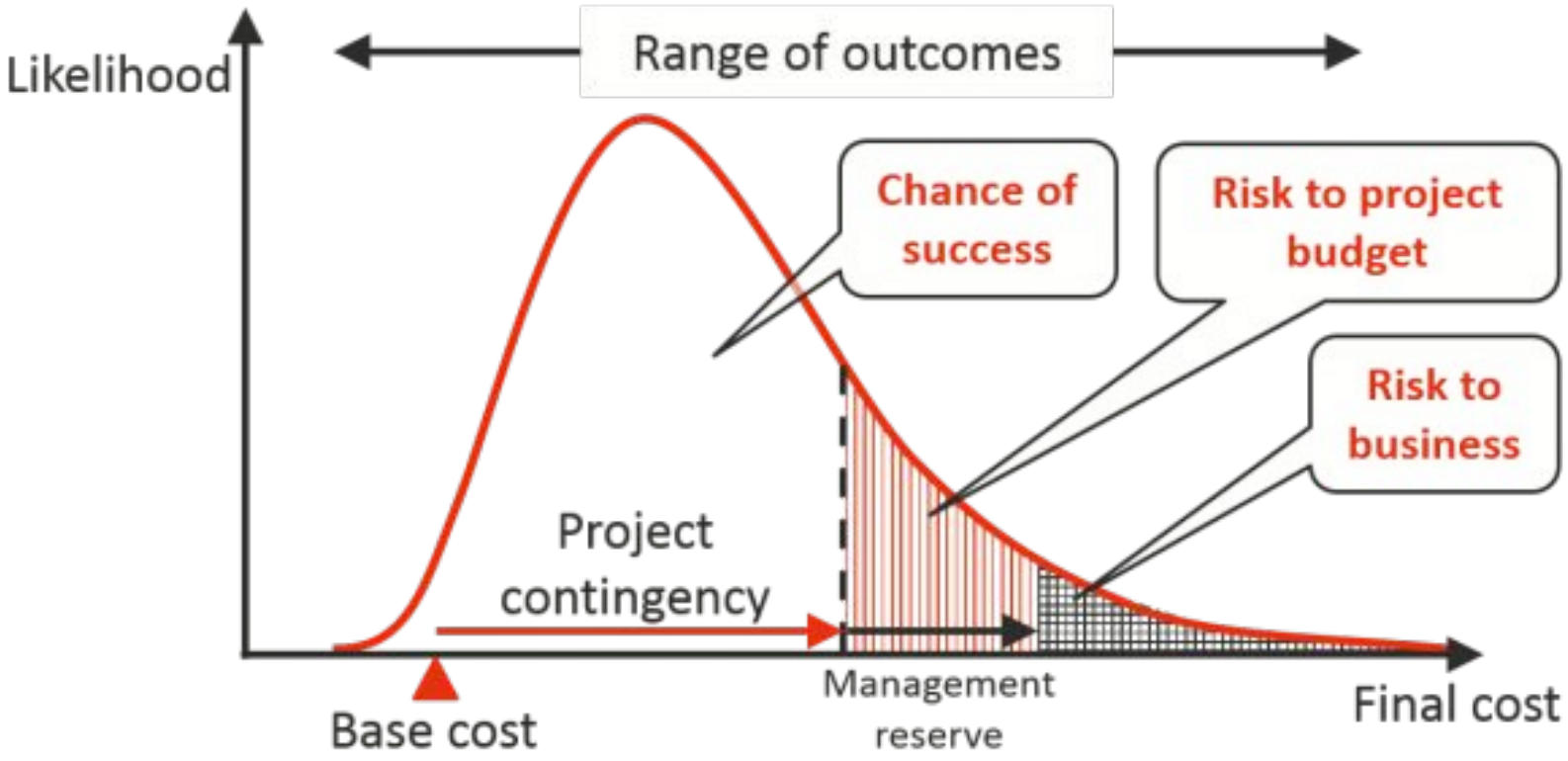
- **Resources:** Are there any resources who's availability **has a major effect** on the schedule?

- **Task Dependencies:** Are there any **major task dependencies**; the project depends on, such as completing the foundation before the framing can start?

- **Organizational Procedures:** May be there is a **certain software** that must be used or standard procedures for updating the schedule.

- **Stakeholders:** Who must **approve the schedule**, or to whom must it be **distributed**?

Schedule Management Plan- **Contingencies**



Steps 2: **Define Activities**

- At this point, **start the activity list which is also known** as a **Work Breakdown Structure (WBS)**.

- It is the **process of identifying and documenting the specific actions to be performed** to produce the **project deliverables**.

Key benefit of this process:

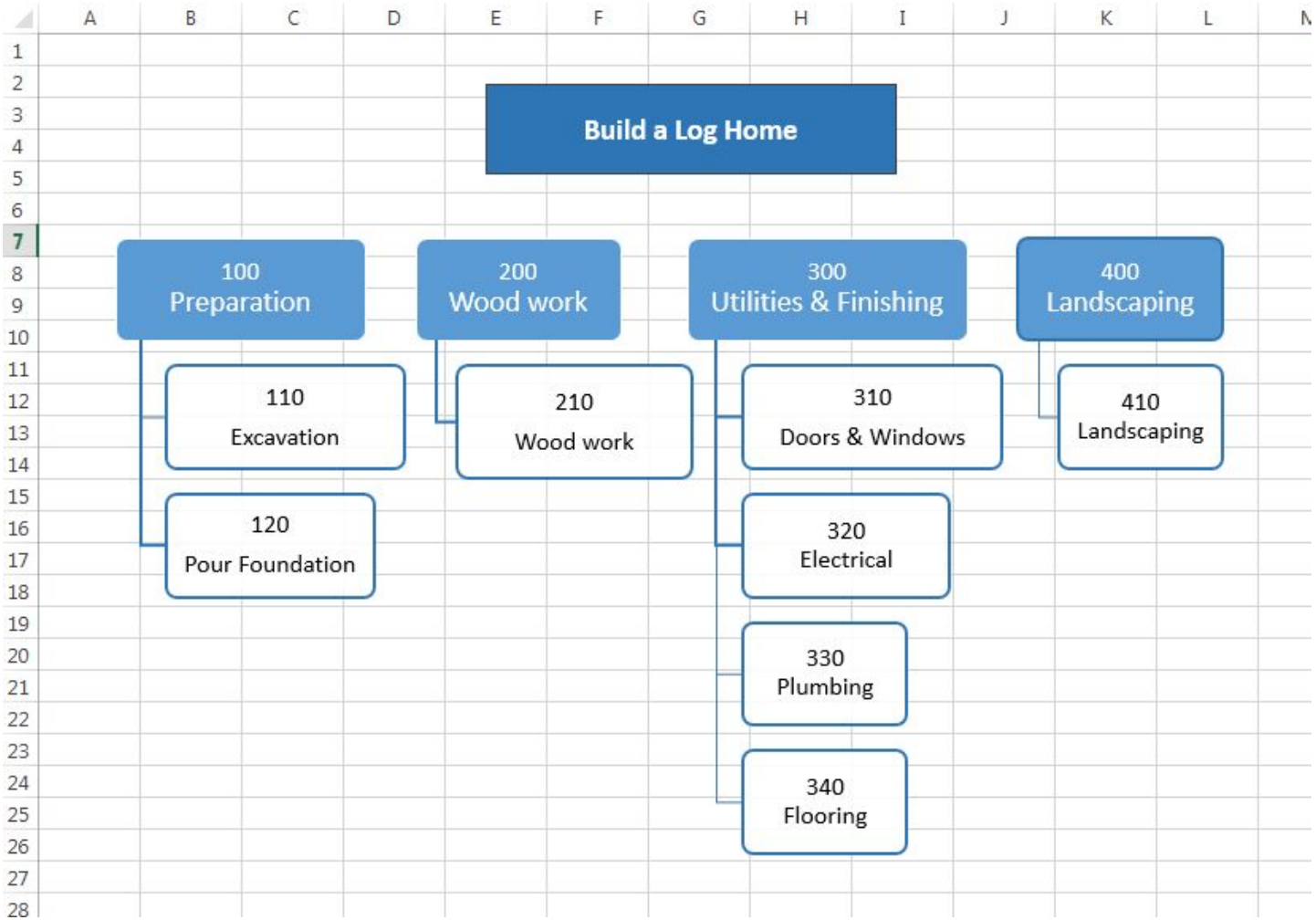
To break down work packages into activities that **provide a basis** for **estimating, scheduling, executing**, **monitoring** and **controlling** the project work.

Steps 2: Define Activities (cont..)

Format of the tasks:

- **Format of the tasks list is irrelevant**, but unless there is a reason to produce something more fancy it should consist of a simple **'List of Tasks'** for Project: **Build a Log Home**.

Task List		
Task ID		**Name**
100 Preparation	110	Excavation
	120	Pour Foundation
200 Wood Work	**210**	Wood work
300 Utilities and Finishing	**310**	Doors and Windows
	320	Electrical & Plumbing
	330	Flooring
	340	Finishing
400 Landscaping	**410**	Landscaping



- **Graphical view is optional** but helps you visualize it to make sure it's all there.
- At this point the **goal is simply to make sure it's all there.** If you missed something, it will almost certainly show up during the project.

Rules of Thumb for Determining the Activity List

Make sure it can be reliably estimated:

- Tasks should be **broken down to a point** where a reliable estimate can be produced.

  If you are still **unsure** about the **cost and/or duration** of the task, consider **breaking it down further**.

Based it on Deliverables.

- Each deliverable should have a **clearly defined task, or set of tasks in place,** to produce it.

Rules of Thumb for Determining the Activity List (cont..)

Have only one Responsible Party:

- When you have **multiple people and/or organizations responsible for the completion of a task,** it is **difficult to control and manage**.

- In the example with the task ***Electrical & Plumbing***, the two independent tasks are grouped together.

- But often these are very well understood tasks and not likely to have major fluctuations.

Match tasks to cost accounts:

- May be your organization has **predefined cost accounts**, such as "Wood work", or "Flooring" that should be used.

Make it measurable:

- It should be **easy to put a percent complete value on a task at any time**. If this is not easy to do, the task should be broken down further.

Rules of Thumb for Determining the Activity List (cont..)

- **Make sure that activity can be reliably estimated**: Tasks should be broken down to a point where a reliable estimate can be produced.
- **Based it on Deliverables:** Each deliverable should have a clearly defined task, or set of tasks to produce it.
- **Have only one Responsible Party**:
- **Match tasks to cost accounts:** Organization has predefined cost accounts, such as “Wood work”, or “Flooring” that should be used.
- **Make it measurable**: Should be easy to put a percent complete value on a task at any time.

Question: Describe the thumb rules for determining the activity lists of a project.

Steps 2: Define Activities (cont..)

Task Length

No universal correct length to a task, **but if you have more than 10 tasks per phase** it becomes difficult to manage and a separate level should be created.

A common yardstick is the 8/80 rule, which states that a **task should be between 8 and 80 man-hours.**

-Project management guideline, work package should take 8 and 80 hrs. of effort to complete.

-Ensure that tasks are **large enough to be meaningful** ($> 8\ hours$) but **small enough to be tracked easily** ($< 80\ hours\ or\ 10\ days$)

If a task requires **less than 8 hours**, it may be too small, causing micromanagement; consider combining it with similar tasks.

If a task requires **more than 80 hours** (10 working days), it is too large to track accurately and should be broken down into smaller components.

Thanks