Project Management Institute.

PMI® Authorized Certified Associate in Project Management (CAPM)® Exam Prep Course

Predictive Methodologies

Planning, Project Work, and Delivery

المنهجية التنبؤية

In This Session

- When should you choose a predictive, plan-based methodology?
- Process groups of the predictive, plan-based approach
- Tailoring a predictive life cycle
- Creating a project charter
- Building the project team
- Developing a project management plan
- Directing and managing project work
- Monitoring and controlling project work
- Closing the project or phase

When Should You Choose a Predictive, Plan-Based Methodology?

Primary Considerations

The quickest way to determine whether to use a predictive or plan-based approach to project management is to ask yourself several questions.

Are the **requirements** stable and fixed?

Will the customer/end user not be available to provide feedback during development?

Is a **single point of delivery** possible in the project with very limited refinements?

Is the development and delivery process well understood with a low risk of change?

Would incremental delivery and feedback be difficult to arrange?

Primary Considerations

If the answer to any of these questions is “yes,” you should consider the predictive approach.

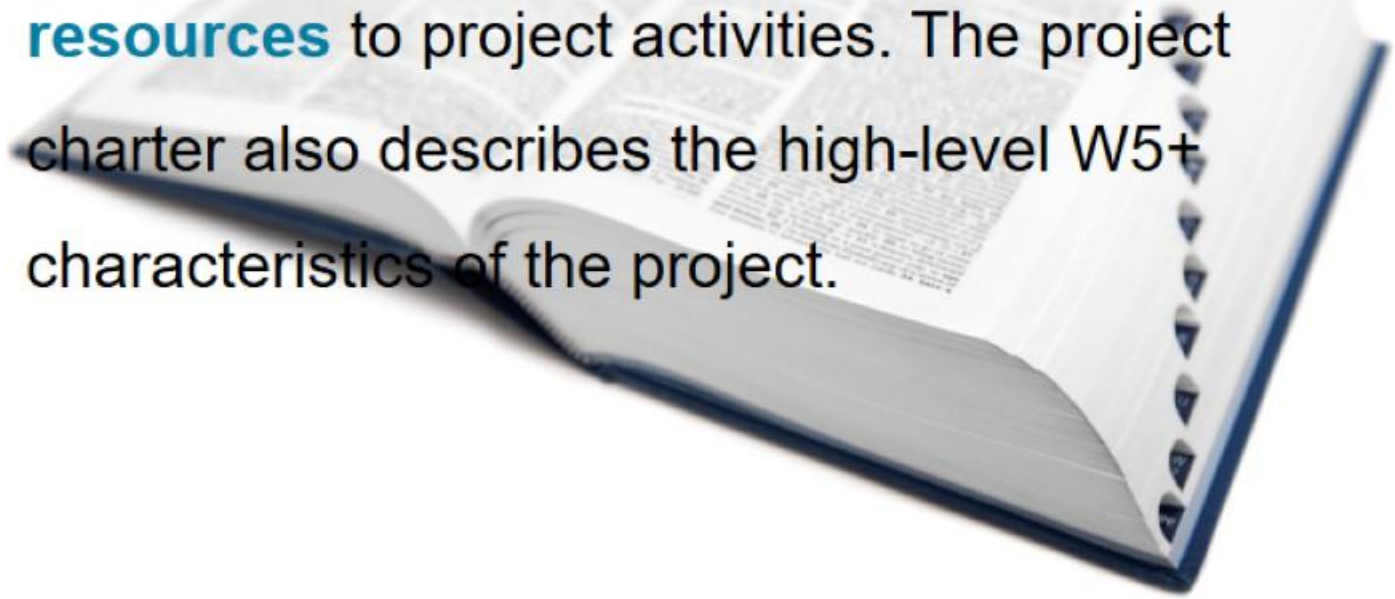
Creating a Project Charter

Creating the Project Charter

Process Group	Performance Domain	Processes
Initiating	Stakeholders	Develop Project Charter Identify Stakeholders

What Is a Charter?

A document issued by the **project initiator or sponsor** that formally **authorizes** the existence of a project and provides the project manager with the **authority to apply organizational resources** to project activities. The project charter also describes the high-level W5+ characteristics of the project.



Project Management Institute. (2022). A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Seventh Edition. *Project Management Institute.*

Why Is a Charter Important?

- Authorizes the project to **start**
- Lists the **high-level project requirements** as far as they are known at that point.
- Creates a **shared understanding** of the W5+
- Identifies **stakeholders**
- Describes how the project **links to ongoing work** and aligns with the organization's **mission and goals**

Creating the Project Charter

Business case

Agreements

Data gathering

Expert judgment

Interpersonal skills

Project charter

Project Charter Template

Here's a template you can use to get started on a project charter.

Project Title	
Introduction	
Problem Statement	
Scope Outline	
Definition of Success	
Risk Summary	
Constraints and Assumptions	
Business Case	
Schedule	
Deliverables Schedule	
Budget	
Team Structure	
Organizational Structure	
Project Approach	
Steering Committee Decision	

Two of These Things Don't Belong

A Project Charter Contains These Elements

Risk Register	Scope Outline	Definition of Success
Team Structure	Identify Stakeholders	Project Activities

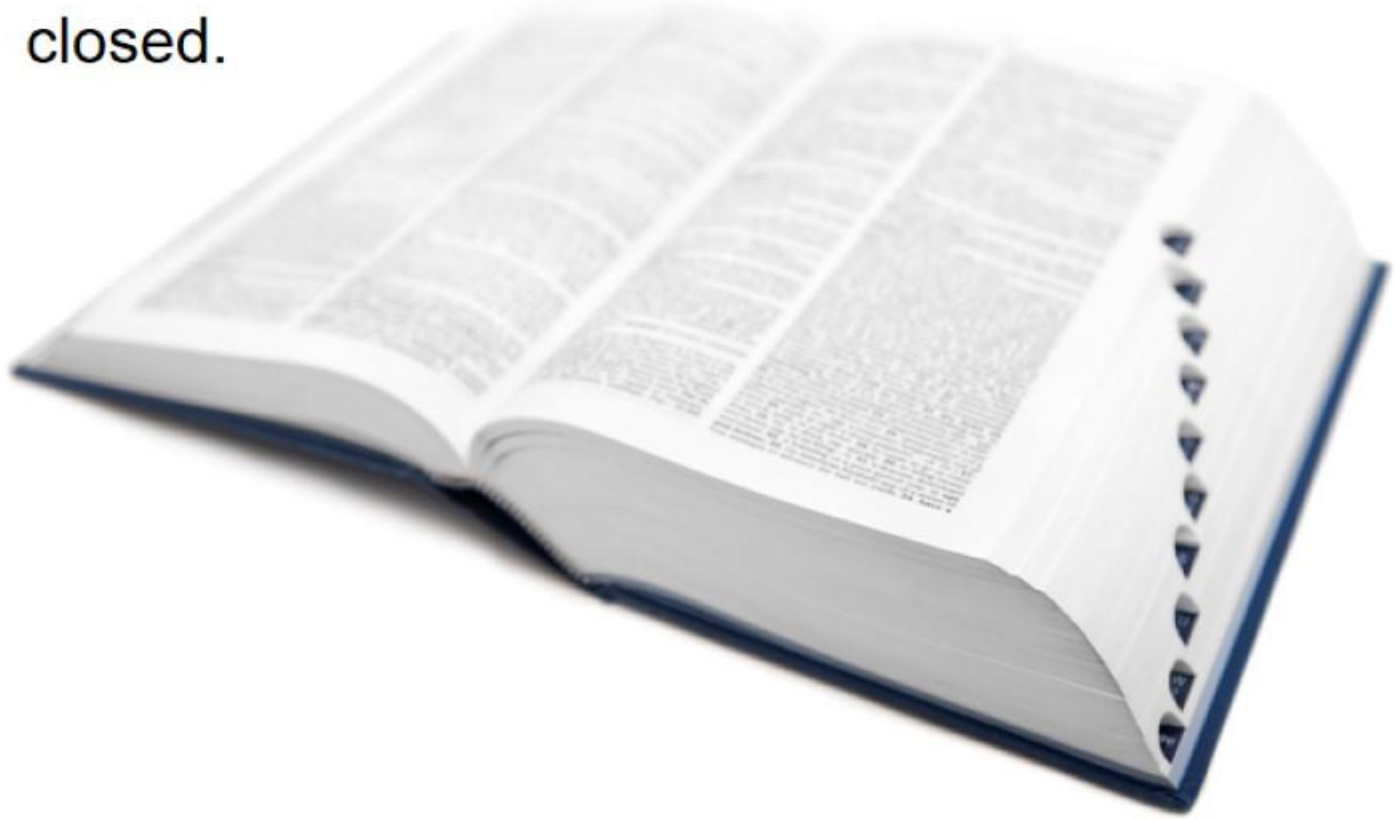
Developing a Project Management Plan

Developing a Project Management Plan

Process Group	Performance Domain	Processes
Planning	Development Approach and Life Cycle Planning	Collect Requirements Define Scope Create WBS Define Activities Sequence Activities Estimate Activity Durations Develop Schedule Plan Quality Management Plan Resource Management Identify Risks Plan Risk Responses

What Is a Project Management Plan?

A document that describes **how** the project will **be executed, monitored and controlled**, and closed.



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Steps to Developing a Project Management Plan

- Collect the requirements and define the **scope**
- Create a **work breakdown structure**
- Estimate the **effort**, **duration**, and **resources** needed to complete the project.
- Identify the **critical path**
- Develop a **schedule**

SCOPE

SCOPE BASELINE

Collect Requirement

Collecting the Requirements and Defining the Scope

Requirement: A condition or capability that is necessary to be present in a product, service, or result to satisfy a business need.

This effort will lead to a **scope statement**.

This is a **formal document**, signed by stakeholders, that provides the basis for making all project decisions.

It ensures all the **products**, **services**, and **results** to be provided.

It ensures **customer satisfaction** and is the basis for avoiding **scope creep**.

Requirements Traceability Matrix

REQUIREMENTS TRACEABILITY MATRIX: A grid that links product requirements from their origins to the deliverables that satisfy them.

As you collect requirements, document them—along with various attributes—in a requirements traceability matrix.

If there is a **problem**, the requirements traceability matrix can help the project manager determine the **root cause requirement that needs to be modified**.

Requirement	Scope	Deliverable	Acceptance Criteria	Assumptions	Constraints

Avoiding Scope Creep

- **Scope Creep** The uncontrolled expansion to product or project scope without adjustments to time, cost, and resources.
- **Stakeholders** might request **scope changes** during project implementation.
- The scope of a project may **gradually increase over time** without being recognized as a **formal project change.**
- i.e. without the need to **possibly approve changes** to the schedule and budget.
- This condition is called **scope creep**.

Define Scope

- **Define Scope** is the process of developing a **detailed description** of the project and product.
- The **key benefit** of this process is that it **describes the product, service, or result** boundaries and acceptance criteria.
- Define Scope process results in the selection of the **final project requirements** from the requirements documentation developed during the **Collect Requirements process.**
- then develops a **detailed description** of the project and product, service, or result.
- The output of this process is **Project scope statement which is** The description of the **project scope, major deliverables, and exclusions.**

Project Scope Statement Example

Project Scope Statement

Project Name: _____
Project Manager: _____
Date: _____

Project Scope Description:

_____

_____

Acceptance Criteria:

_____

_____

Deliverables:

_____

_____

Project Exclusions:

-

Constraints:

-
-
-

Assumptions:

-
-

Comments:

_____

_____

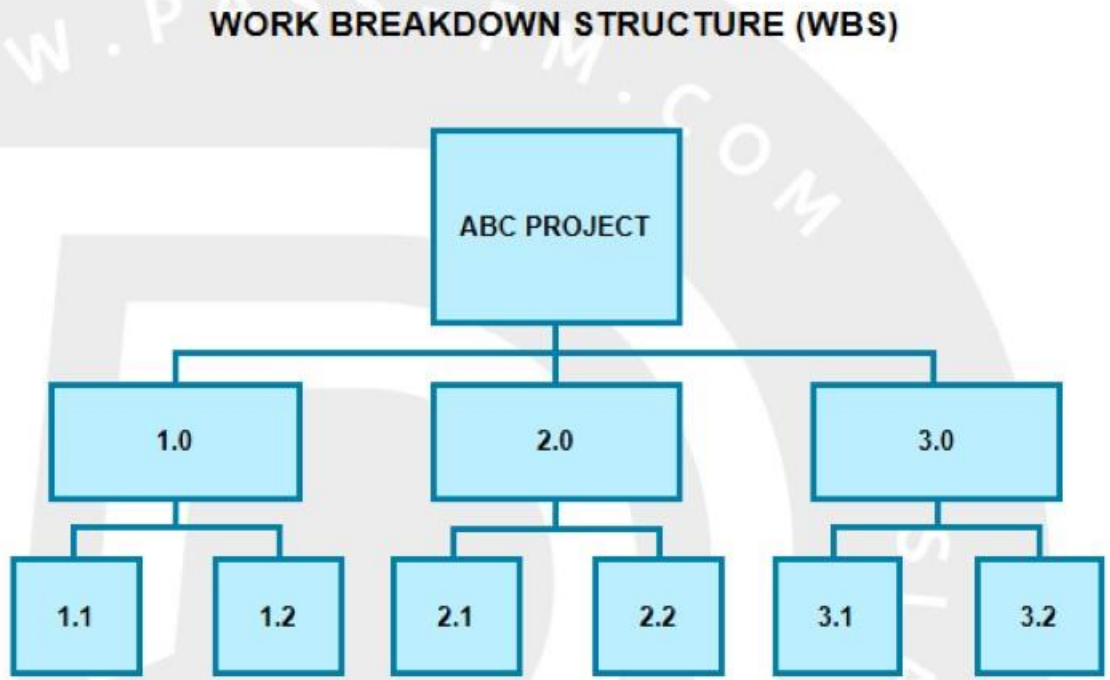
_____

Create Work Breakdown Structure (WBS)

The WBS is a hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables.

- **Create WBS** is the process of subdividing project deliverables and project work into smaller, more manageable components.
- The **key benefit** of this process is that is it provides a **framework** of what must be delivered.
- The **planned work** is contained within the **lowest level** of WBS components, which are called work packages.
- A **work package** can be used to group the activities where work is scheduled and estimated, monitored, and controlled.

Create Work Breakdown Structure (WBS) Example.



Developing a Project Schedule:

Work Breakdown Structure (WBS)

The work breakdown structure is created using a process called **decomposition**, which is the subdivision of the scope into smaller, more manageable pieces.

A work package represents a specific deliverable and is the **smallest unit** in the WBS.

Creating a Work Breakdown Structure

STEP 1

Decompose requirements into smaller activities

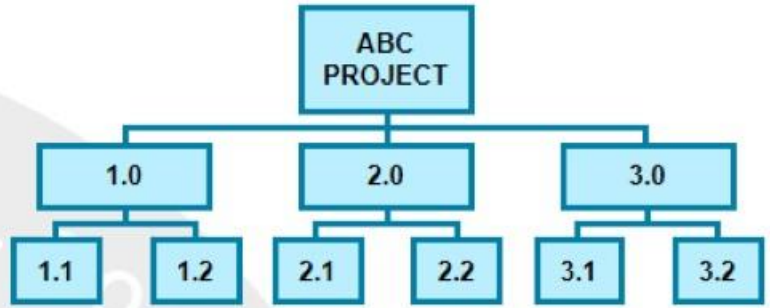
STEP 2

Assign ownership to a person

STEP 3

Specify a measurable deliverable

WORK BREAKDOWN STRUCTURE (WBS)



Developing a Project Schedule:

Define and Sequence Activities

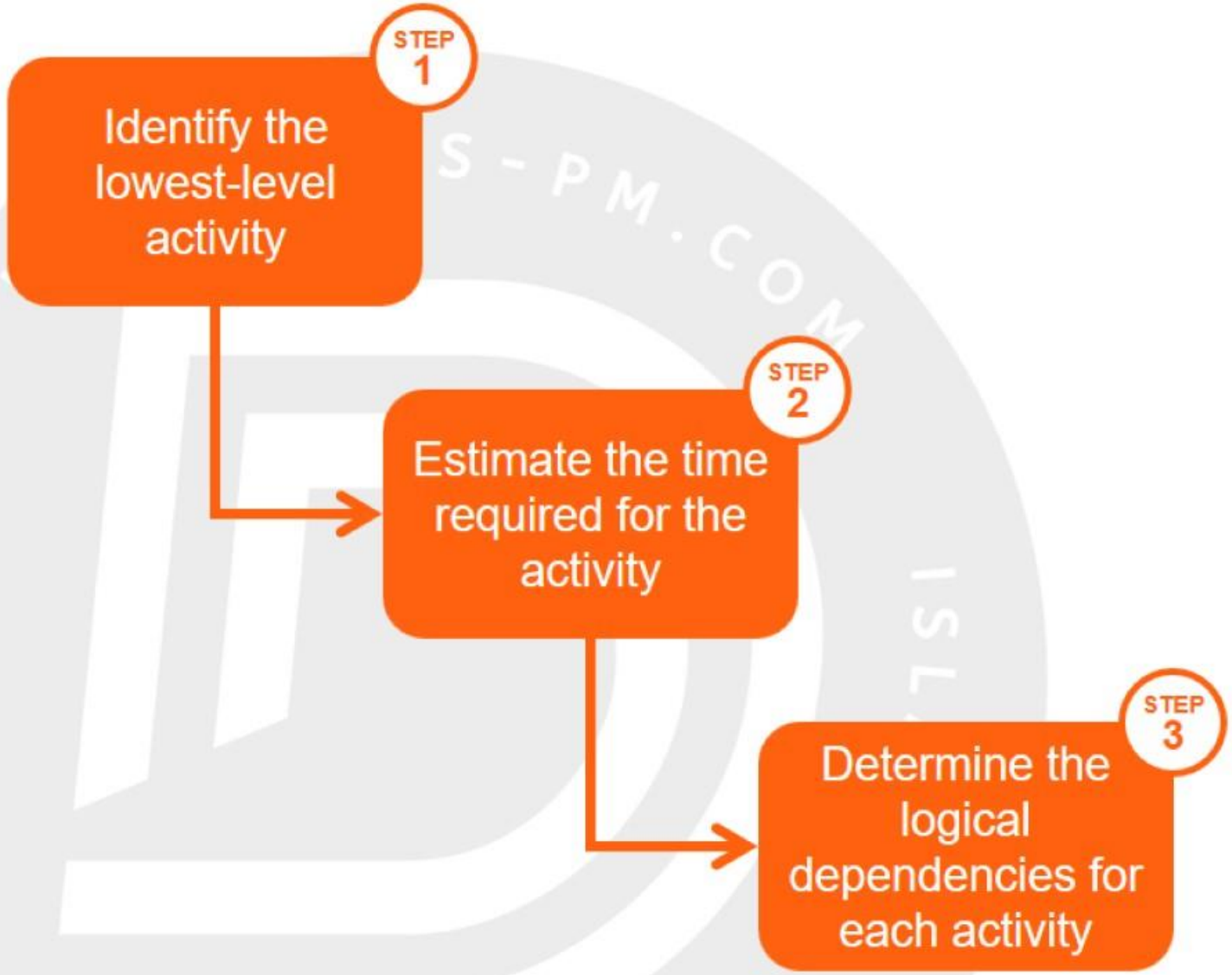
In the first step of schedule development, you need to identify all activities necessary for the delivery of every work package.

Schedule Components

Sequence of Activities

Time Estimate for Each

Developing a Schedule



Understanding Dependencies

Finish-to-start dependency

Start-to-start dependency

Finish-to-finish dependency

Start-to-finish dependency

Worksheet for Schedule Development

Activity			ime
A		None	
B		A	0
C	rocure special equipment	A	6
D		C	
E	et a permit	D	0
F		E	2

You can insert a **delay** between tasks.

For example, if paint should dry for 2 days before furniture is replaced in a room, this is designated by a positive lag time (Lag = 2d), or FS+2d.

Estimate Time and Resources

In the early stages of the project, you calculated a **comprehensive budget** and a **schedule estimate** to provide information for approvals.

In this step, you will work with the project team to estimate the **time and effort** required for each of the **individual activities**, then roll them up to the **work breakdown structure**.

Estimation Methods

Analogous estimation

Parametric estimation

Three-point estimation

Beta Distribution (PERT formula)

$$\text{Estimate} = \frac{(\text{Optimistic} + (4 \times \text{Most Likely}) + \text{Pessimistic})}{6}$$

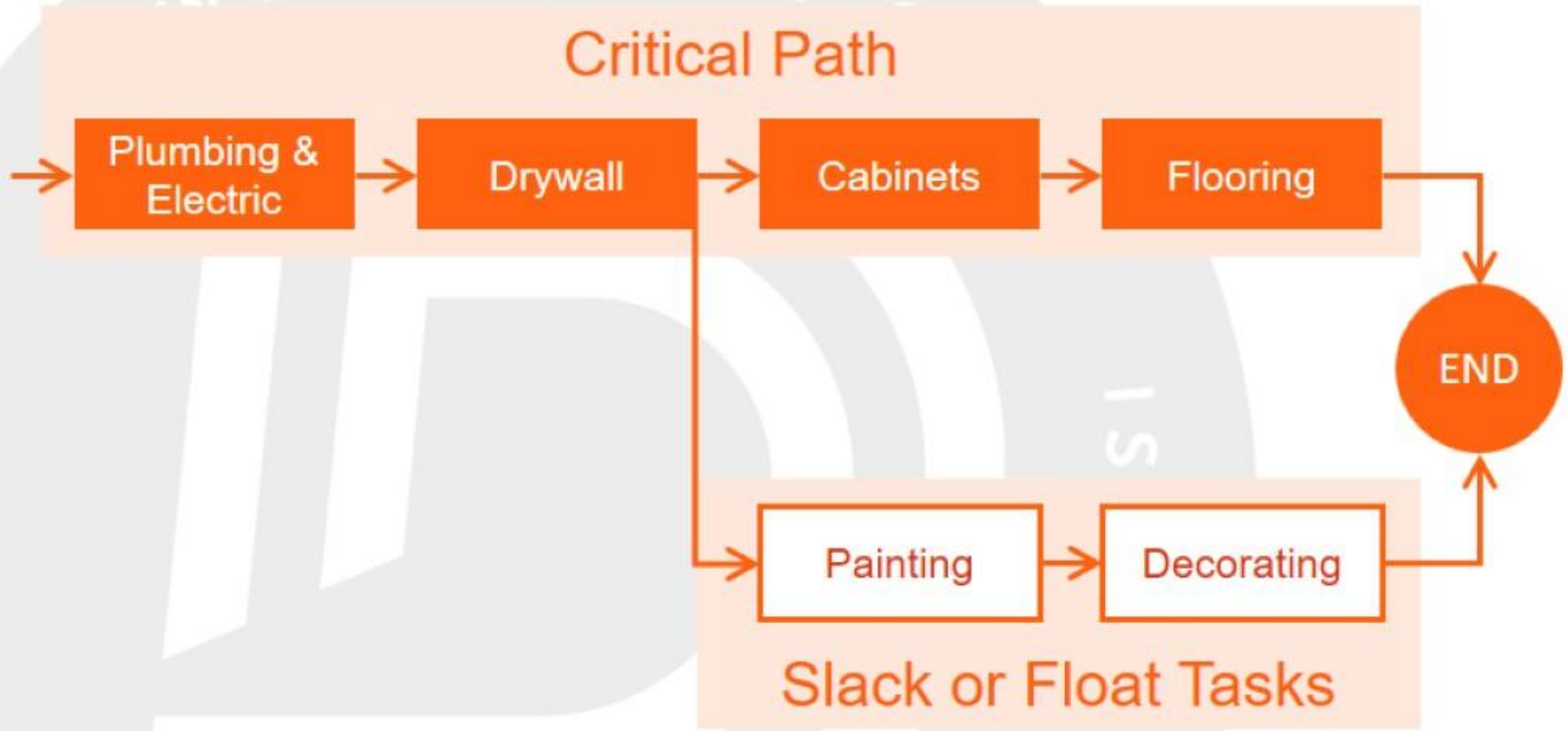
Worksheet for Schedule Development

Activity	Description	Predecessors	Time
A	Find location	None	3
B	Determine the budget	A	10
C	Procure special equipment	A	16
D	Review safety issues	C	1
E	Get a permit	D	10
F	Make a reservation	E	2

Identifying the Critical Path

The critical path provides an **estimate** of the **earliest finish** of the project.

A Critical Path Example



Identifying and Responding to Risk

Positive risks are called **opportunities**.

Negative risks are called **threats**.

Positive and Negative Risk?

Negative risks are called **threats**

Positive risks are called **opportunities**

The purpose of risk management is to actively **predict risks** that might impact the project objectives and to **manage** those that have already occurred.

THREATS

OPPORTUNITIES

Review Your Risk Strategy

Do your risk management plans trigger any **secondary risks**?

Will any **residual risk** remain once your responses have been carried out?

Repeat until residual risk is compatible with the organization's risk appetite.

Matching Activity: Project Management Planning Terms

Click to begin

Next Slide

Directing and Managing Project Work

Directing and Managing Project Work

Process Group	Performance Domain	Processes
Execution	Work Delivery	Acquire Resources Develop Team Manage Team Direct and Manage Project Work Manage Quality Manage Communications Manage Stakeholder Engagement Conduct Procurements

Factors that Facilitate the Use of An Adaptive Approach

Organizational Process Assets

Enterprise Environmental Factors

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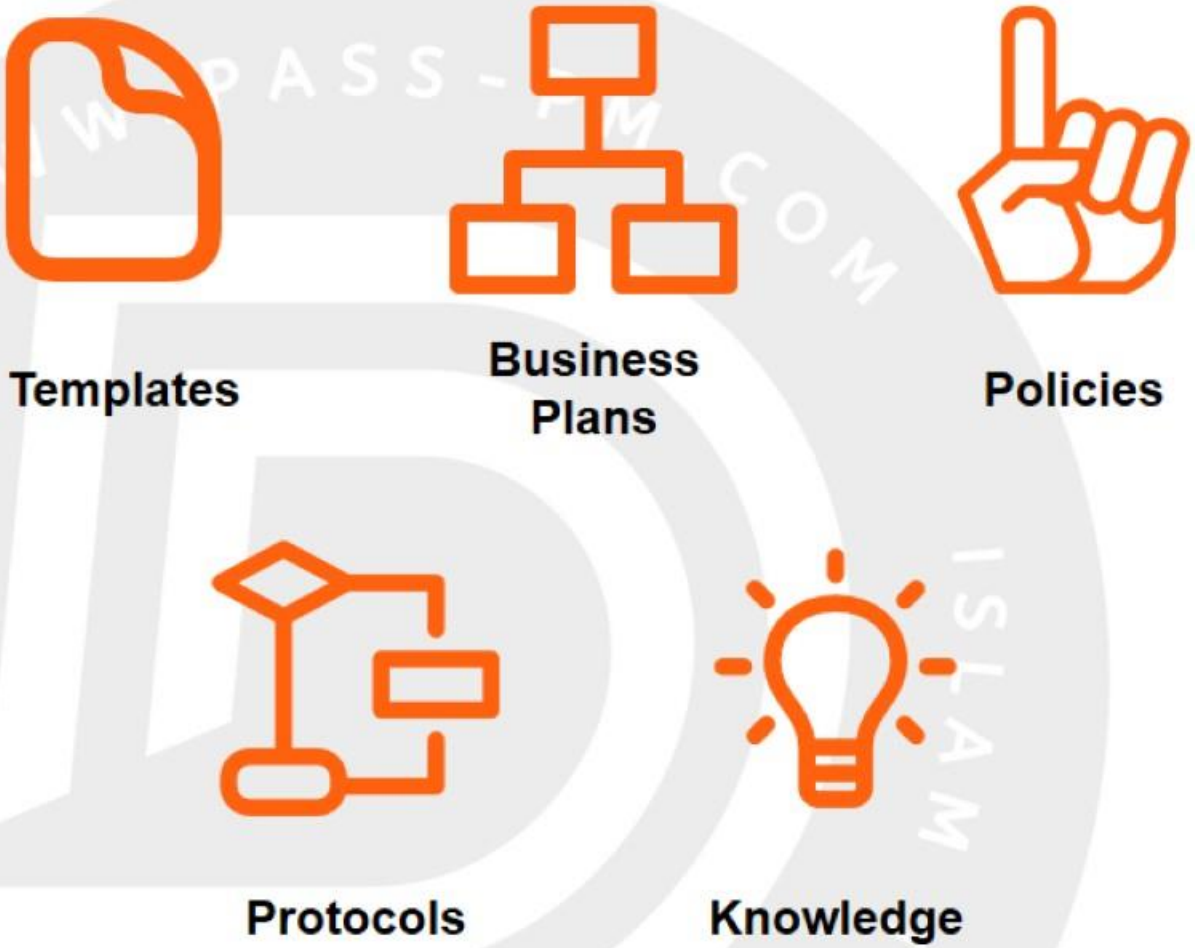
Organizational Process Assets *(OPA)*



Enterprise Environmental Factors (EEF)

INTERNAL	EXTERNAL
■ **Organizational process assets** such as tools, methodologies, approaches, templates, frameworks, or PMO resources ■ **Governance policies** and processes, including procedures and practices for security and safety ■ **IT resources, organizational culture and structure**, **resources**, and **infrastructure**—including their geographic distribution and their capacity and capability	■ **Marketplace conditions**, regulatory environment, social and cultural influences, commercial databases, and industry standards ■ **Political climate**, regional customs and traditions, public holidays and events, codes of conduct, ethics, and perceptions ■ **Academic research** examples, such as industry studies, publications, and benchmarking results

Wrapping Up

Summary

- When should you choose a predictive, plan-based methodology?
- Tailoring a predictive life cycle
- Creating a project charter
- Developing a project management plan
- Directing and managing project work

Do I Already Know That?

Question 1

Which process can a project manager use to determine which activities have the greatest potential impact on the project timeline if they are not completed on time?

1. Collect requirements and define the scope statement

2. Define and sequence activities

3. Estimate effort, duration, and resources

4. Identify the critical path

Up Next:
Project Work and Delivery