PMP® EXAM PREP

PMI Authorized Training Partner

BOOTCAMP

Session 2

Class will begin at 10 am EST

Attendance Alert

Please make sure you log into Zoom with your correct first name and last name and enter the same information for every session.

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PMP® Exam Prep

This course will assist learners in preparing for PMI's PMP Exam (2021 Update)

Today's Session Topics (Mapped to the PMP Student Manual)

	Creating a High-Performing Team Lesson 1	Starting the Project Lesson 2	Doing the Work Lesson 3	Keeping the Team on Track Lesson 4	Keeping the Business in Mind Lesson 5
Topic A	Build a Team	Determine Appropriate Project Methodology/Methods and Practices	Assess and Manage Risks	Lead a Team	Manage Compliance Requirements
Topic B	Define Team Ground Rules	**Plan and Manage Scope**	Execute Project to Deliver Business Value	Support Team Performance	Evaluate and Deliver Project Benefits and Value
Topic C	Negotiate Project Agreements	**Plan and Manage Schedule**	Manage Communications	Address and Remove Impediments, Obstacles, and Blockers	Evaluate and Address Internal and External Business Environment Changes
Topic D	Empower Team Members and Stakeholders	**Plan and Manage Budget and Resources**	Engage Stakeholders	Manage Conflict	Support Organizational Change
Topic E	Train Team Members and Stakeholders	**Plan and Manage Quality of Products and Deliverables**	Create Project Artifacts	Collaborate with Stakeholders	Employ Continuous Process Improvement
Topic F	Engage and Support Virtual Teams	Integrate Project Planning Activities	Manage Project Changes	Mentor Relevant Stakeholders	
Topic G	Build Shared Understanding about a Project	Plan and Manage Procurement	Manage Project Issues	Apply Emotional Intelligence to Promote Team Performance	
Topic H		Establish Project Governance Structure	Ensure Knowledge Transfer for Project Continuity		
Topic I		Plan and Manage Project/Phase Closure			

Plan and Manage Scope

TOPIC B

Deliverables and Tools

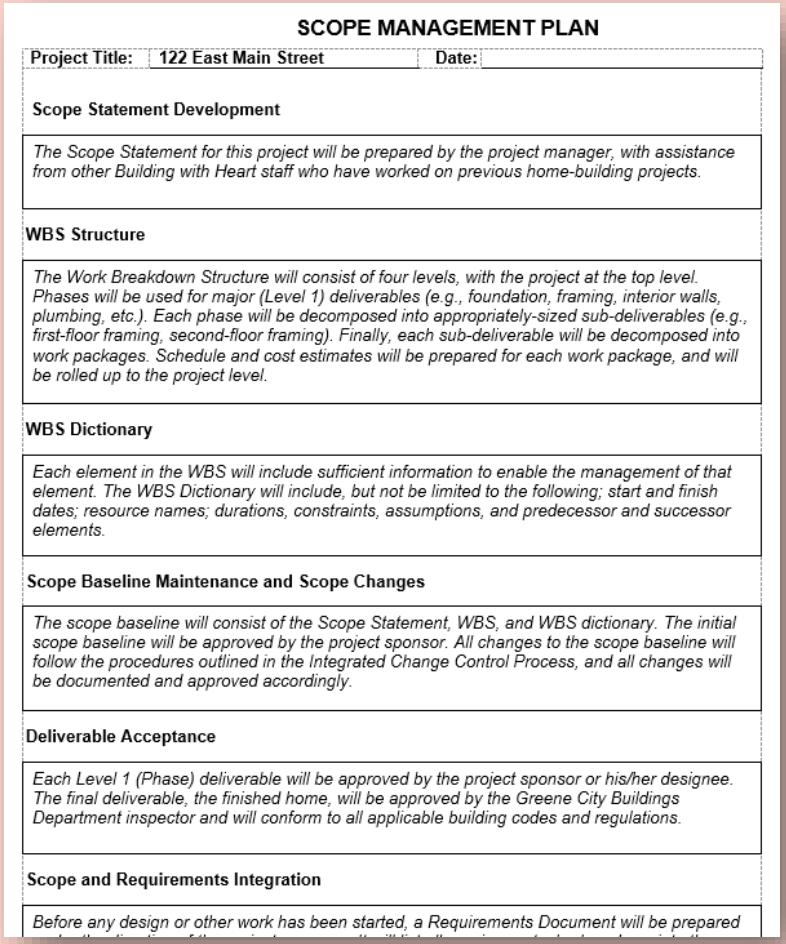
Requirements Documentation
Work performance reports
Requirements Traceability Matrix

Agile estimating
Product backlog
Change requests
Product backlog
Scope management plan and
Requirements management plan

Plan and Manage Scope
LESSON 2
TOPIC B

Scope Management Plan

- ✓ Should include processes to prepare a project scope statement
- ✓ Enables the creation of the WBS from the detailed project scope statement
- ✓ Establishes how the scope baseline will be approved and maintained
- ✓ Specifies how formal acceptance of the completed project deliverables will be obtained.
- ✓ Can be formal or informal, broadly framed or highly detailed.



SCOPE MANAGEMENT PLAN

Project Title:	122 East Main Street	Date:	

Scope Statement Development

The Scope Statement for this project will be prepared by the project manager, with assistance from other Building with Heart staff who have worked on previous home-building projects.

WBS Structure

The Work Breakdown Structure will consist of four levels, with the project at the top level. Phases will be used for major (Level 1) deliverables (e.g., foundation, framing, interior walls, plumbing, etc.). Each phase will be decomposed into appropriately-sized sub-deliverables (e.g., first-floor framing, second-floor framing). Finally, each sub-deliverable will be decomposed into work packages. Schedule and cost estimates will be prepared for each work package, and will be rolled up to the project level.

WBS Dictionary

Each element in the WBS will include sufficient information to enable the management of that element. The WBS Dictionary will include, but not be limited to the following; start and finish dates; resource names; durations, constraints, assumptions, and predecessor and successor elements.

Scope Baseline Maintenance and Scope Changes

The scope baseline will consist of the Scope Statement, WBS, and WBS dictionary. The initial scope baseline will be approved by the project sponsor. All changes to the scope baseline will follow the procedures outlined in the Integrated Change Control Process, and all changes will be documented and approved accordingly.

Deliverable Acceptance

Each Level 1 (Phase) deliverable will be approved by the project sponsor or his/her designee. The final deliverable, the finished home, will be approved by the Greene City Buildings Department inspector and will conform to all applicable building codes and regulations.

Scope and Requirements Integration

Before any design or other work has been started, a Requirements Document will be prepared

Scope Management Tools and Techniques

Expert judgment

Internal and external experts

Alternatives analysis

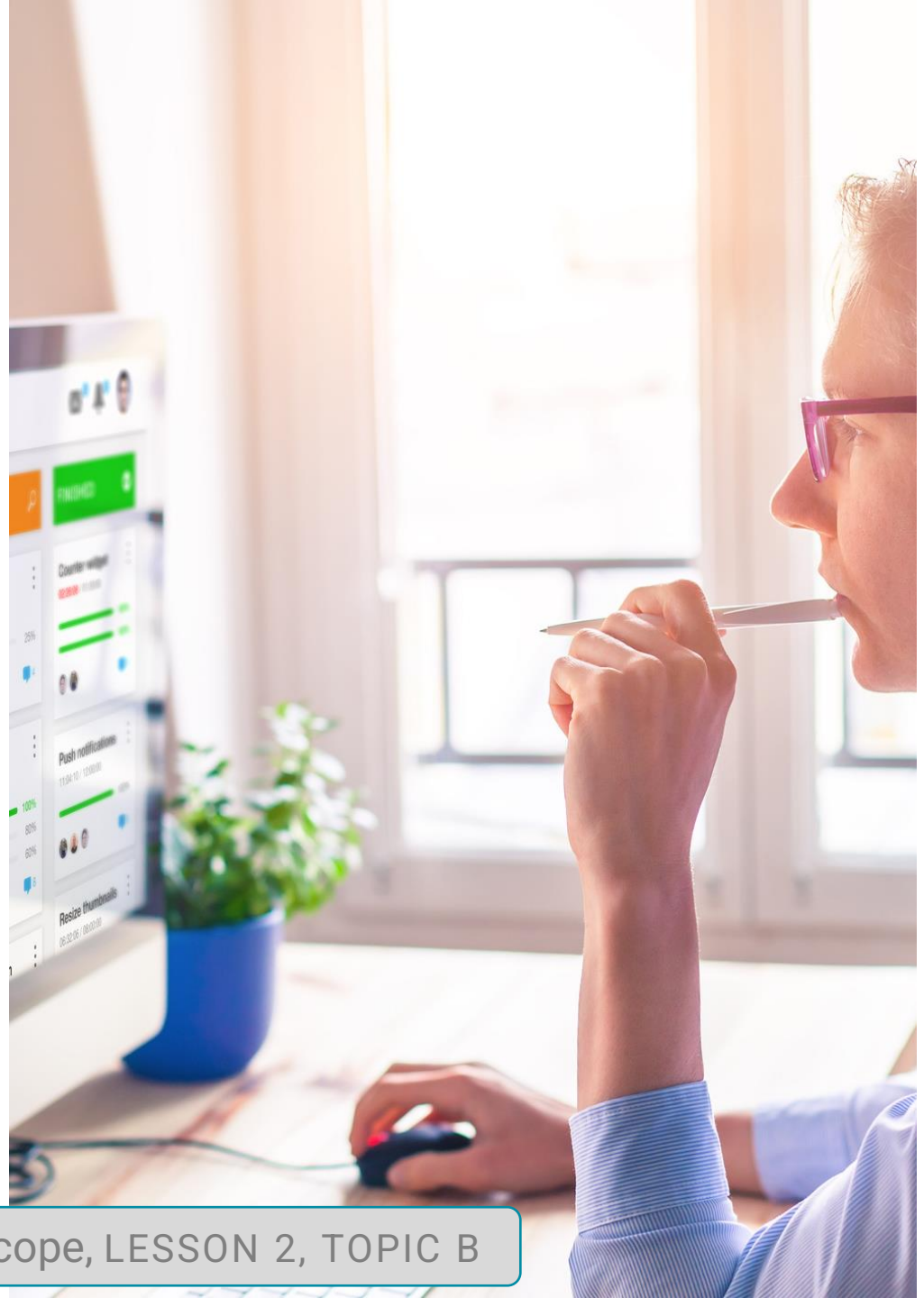
Used to evaluate identified options in order to select the options or approaches to use to execute and perform the work of the project.

Meetings

Team members help create the scope management plan

Project and Product Requirements

- ✓ High-level requirements might be documented in the project charter.
- ✓ Verify that all requirements are determined and documented.
- ✓ Provide the foundation for building the WBS.



Project and Product Scope

- ✓ **Predictive** - The scope baseline for the project is the approved version of the project scope statement, work breakdown structure (WBS), and associated WBS dictionary.
- ✓ **Agile - Backlogs** (including product requirements and user stories) reflect current project needs.
- ✓ **Measure completion** of **project scope** against the project management plan.
- ✓ **Measure completion** of the **product scope** against product requirements.

Tolerances

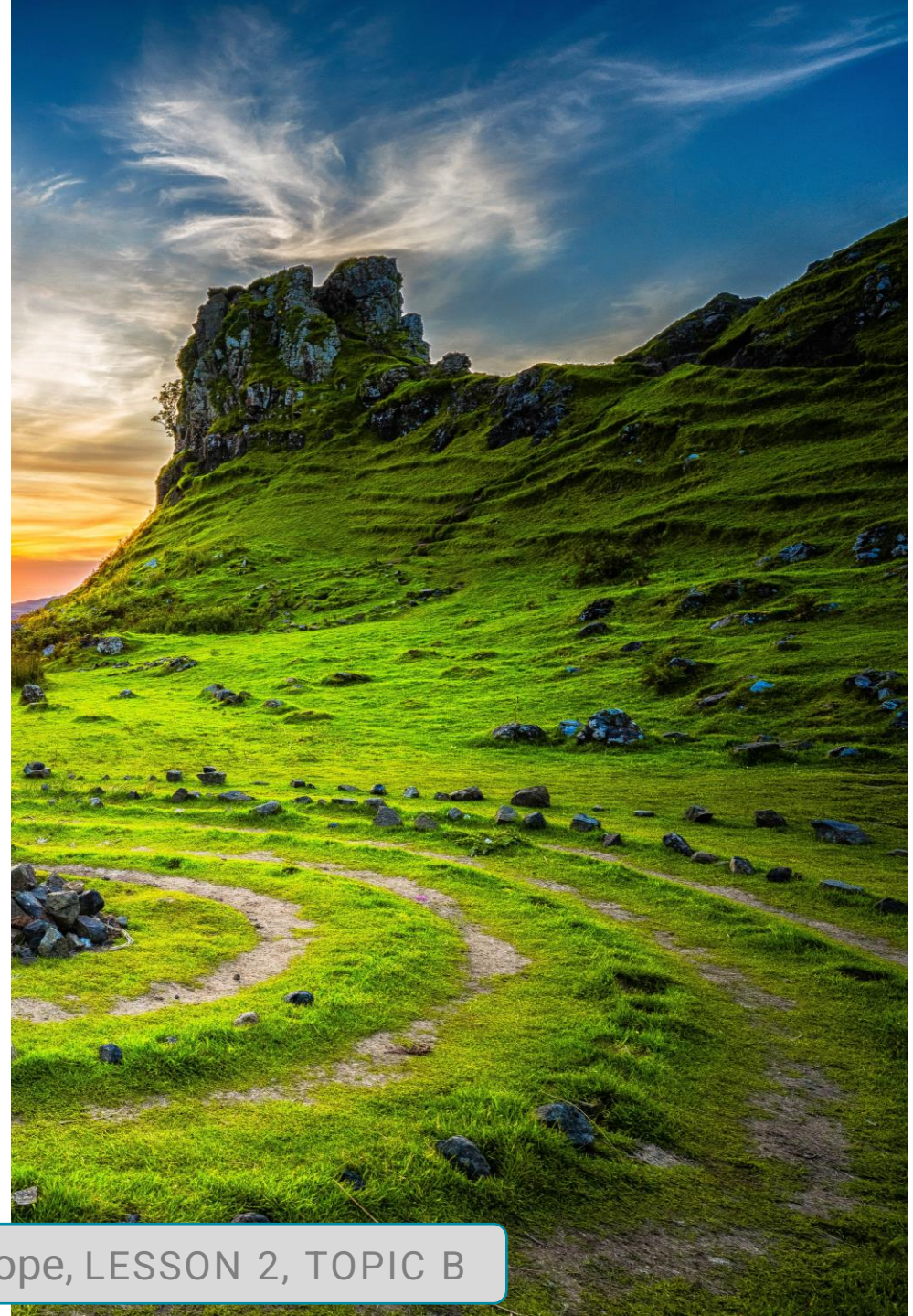
Tolerance levels enable you to effectively manage an issue without needing to escalate it every time.

Areas of tolerance might include:

- ✓ Budget
- ✓ Schedule
- ✓ Quality
- ✓ Accepted or baselined requirements, including:
  - Solution – functional/non-functional
  - Business and Stakeholder
  - Quality

EEFs and OPAs

- ✓ Projects exist and operate in environments that may influence them, favourably or unfavourably.
- ✓ EEFs and OPAs are two major categories of project influences.



Enterprise Environmental Factors (EEFs)

Internal	External
✓ Organizational culture, structure, and governance ✓ Geographic distribution of facilities and resources ✓ Infrastructure ✓ Resource availability ✓ Employee capability	✓ Marketplace conditions ✓ Social and cultural influences and issues ✓ Legal restrictions ✓ Commercial databases ✓ Academic research ✓ Government or industry standards ✓ Financial considerations ✓ Physical environmental elements

Plan and Manage Scope, LESSON 2, TOPIC B

Organizational Process Assets (OPAs)

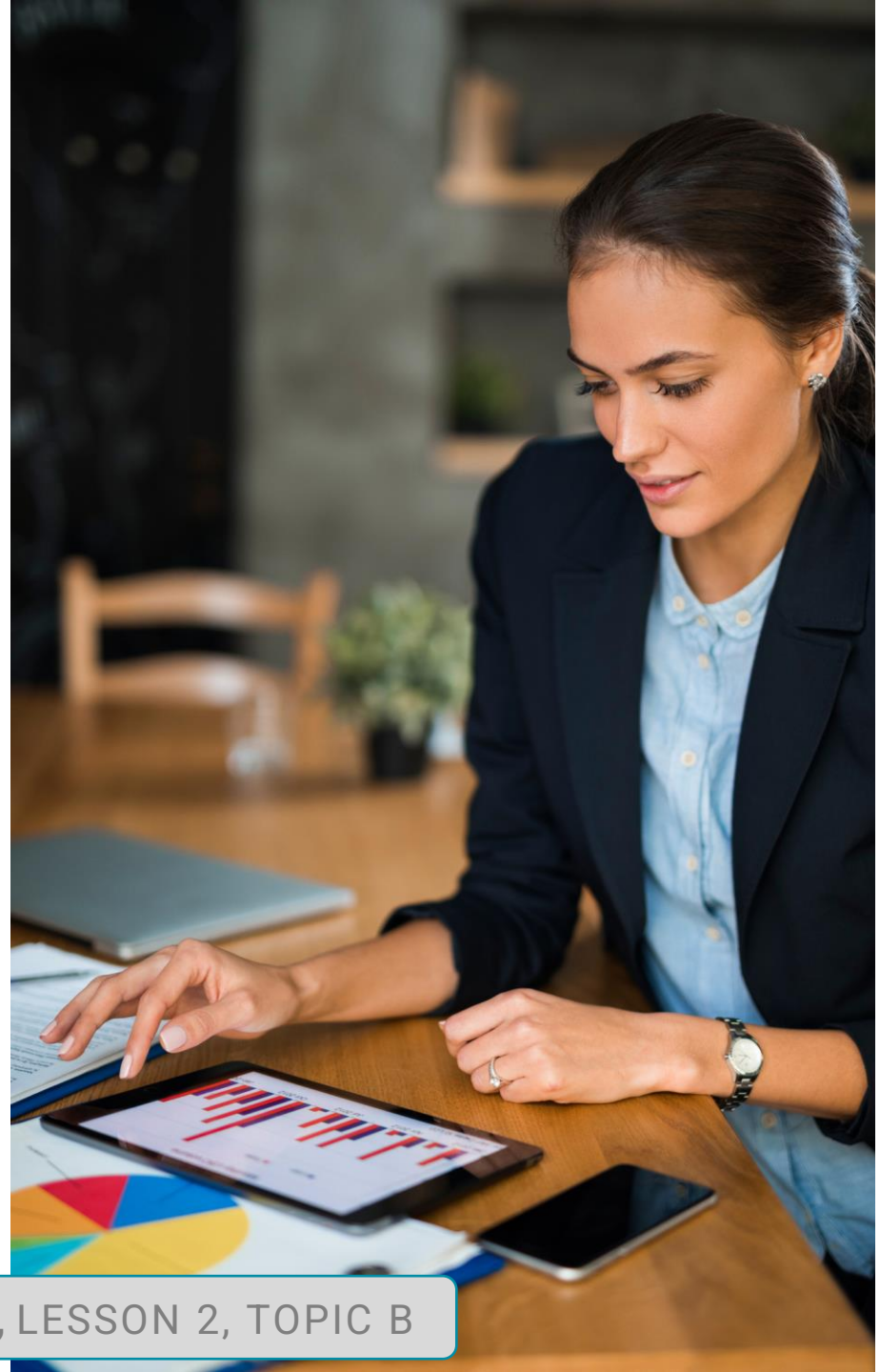
Processes, **policies**, and **procedures** are:

- ✓ Established by the project management office (PMO) or another function outside of the project.
- ✓ Not updated as part of project work

- ✓ **Templates**, **lifecycles**, and **checklists** can be tailored, but not updated, for a project.

Organizational knowledge bases are:

- ✓ Updated throughout the project with project information
- ✓ Updated information such as financial performance, lessons learned, performance metrics and issues, and defects.



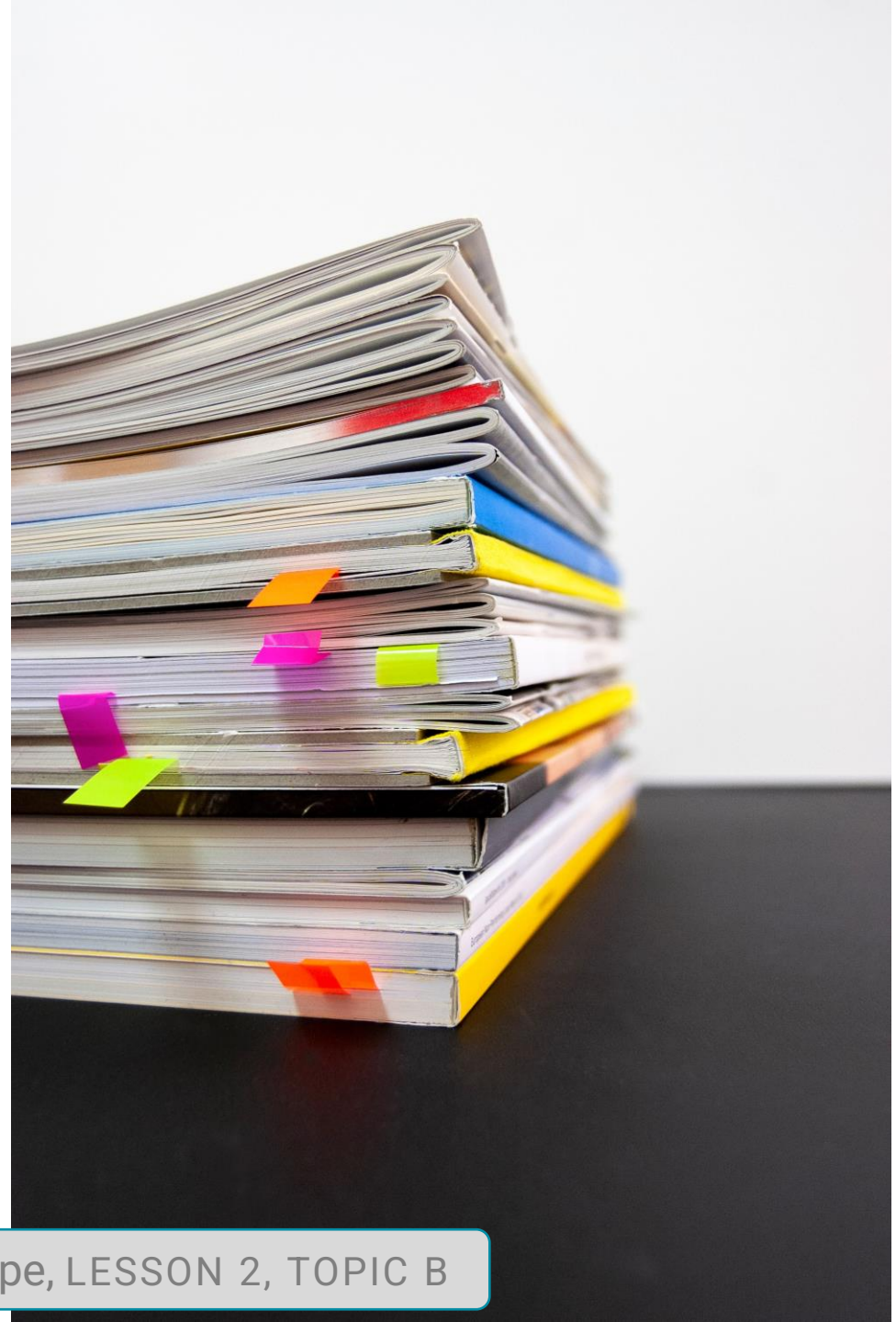
More about...

Course: Selecting a Project Management Approach (2021 Update)
Video: Environmental Influences and Organizational Assets (2:40 run time)

Document Analysis

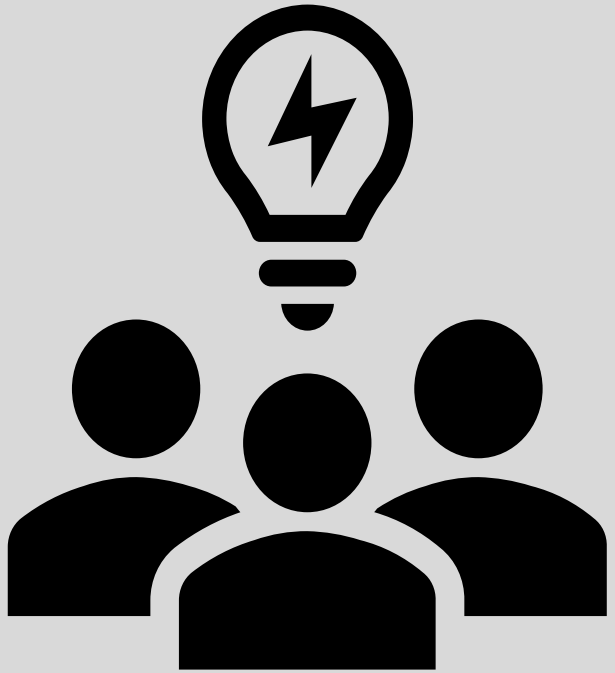
Derive new project requirements from existing documents such as:

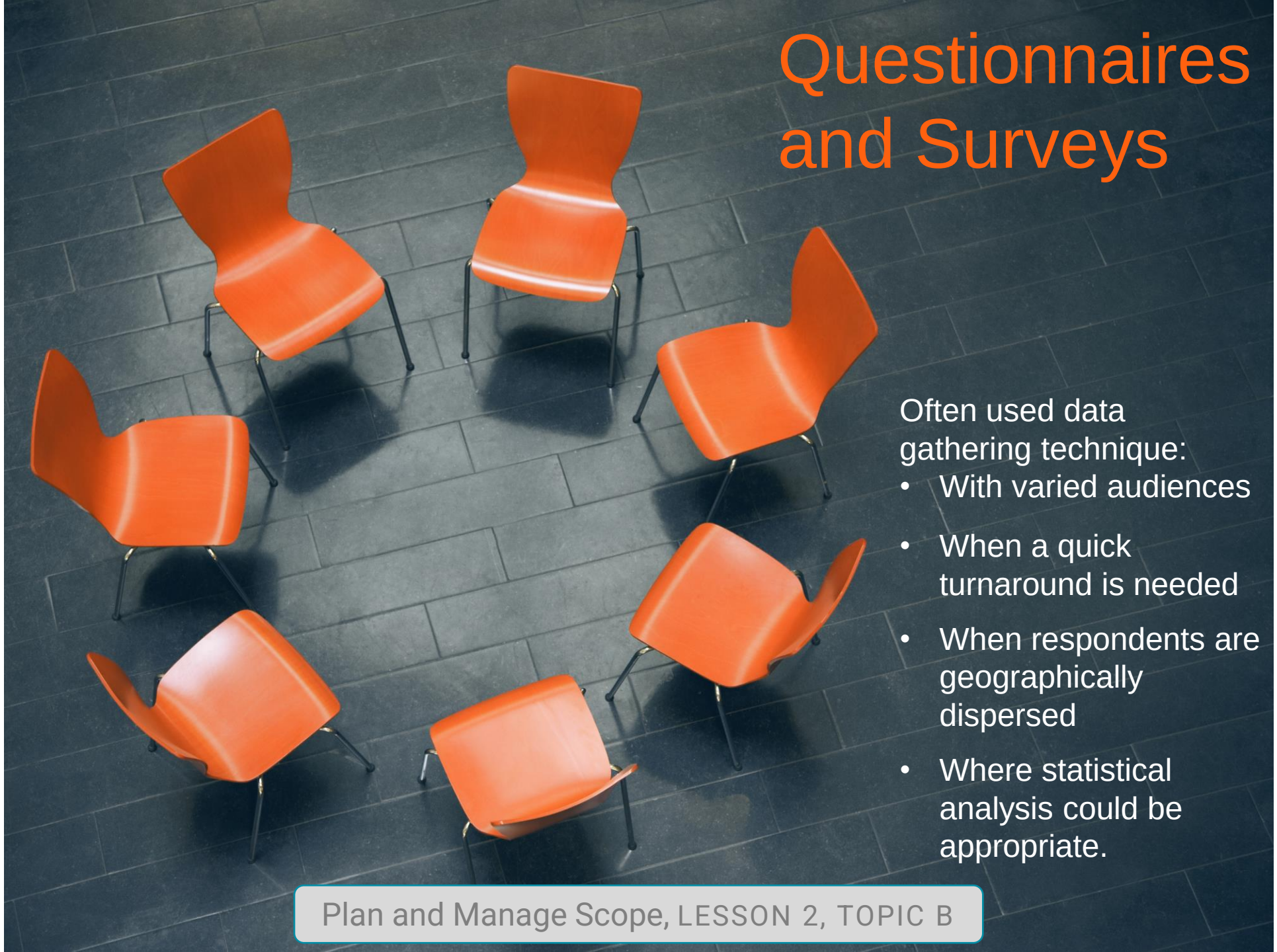
- ✓ Business plans
- ✓ Service agreements
- ✓ Marketing materials
- ✓ Current process diagrams
- ✓ Application software documentation



Focus Groups

- ✓ Loosely structured, information-sharing sessions
- ✓ Moderator-guided, interactive
- ✓ Includes stakeholders and SMEs
- ✓ Qualitative research





Questionnaires and Surveys

Often used data gathering technique:

- With varied audiences
- When a quick turnaround is needed
- When respondents are geographically dispersed
- Where statistical analysis could be appropriate.

Benchmarking

- ✓ **Evaluates** and **compares** a business' or project's practices with others.
- ✓ Identifies **best practices** in order to meet or exceed them.

Interviews

- ✓ Helps to identify a stakeholder's requirements, goals, or expectations for a project.
- ✓ Use to identify/define features and functions of desired project's deliverables.

Group Decision-Making Techniques

Voting

Collective decision-making and assessment

Determines several alternatives, with future actions as the expected outcome

Use to generate, classify, and prioritize product requirements

Autocratic decision making

One team member makes the decision for the group.

Multicriteria decision analysis

Method - Establish criteria in decision matrix *e.g. risk levels, uncertainty, and valuation*

Uses a systematic, analytical approach

Evaluate and rank many ideas

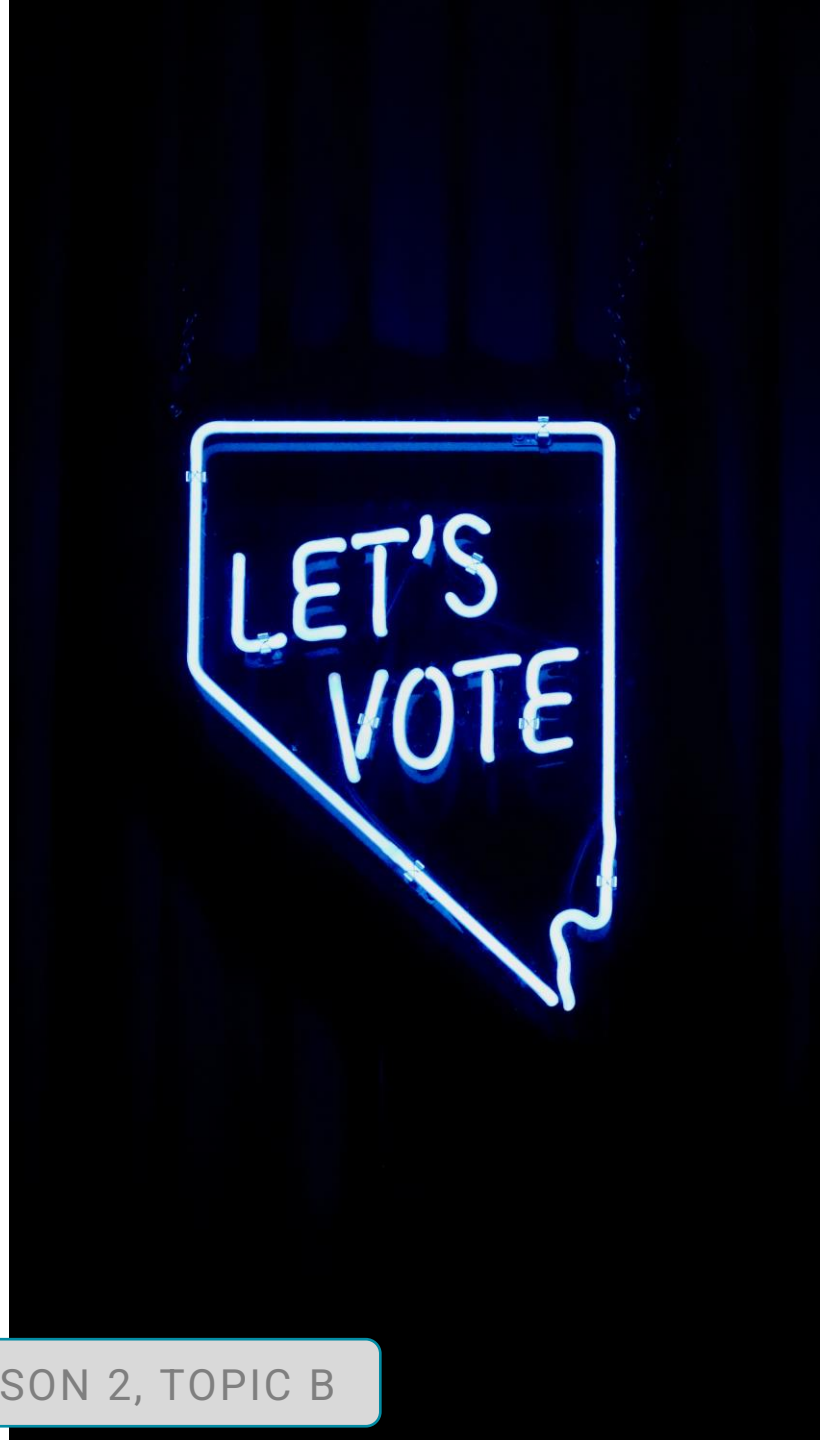
Types of Voting

Unanimity
Everyone agrees on a single course of action.
Useful in project teams with great cohesion.
Example: Delphi technique

Majority
Decision reached with > 50% of group support
Tip: Create groups of an uneven number of participants to ensure decisions are made and tie votes avoided.

Plurality
Decision reached with largest block in a group deciding, even if majority is not achieved.
Use this method when more than 2 options are nominated.

Agile Methods
Thumbs up/down/sideways
Fist of Five

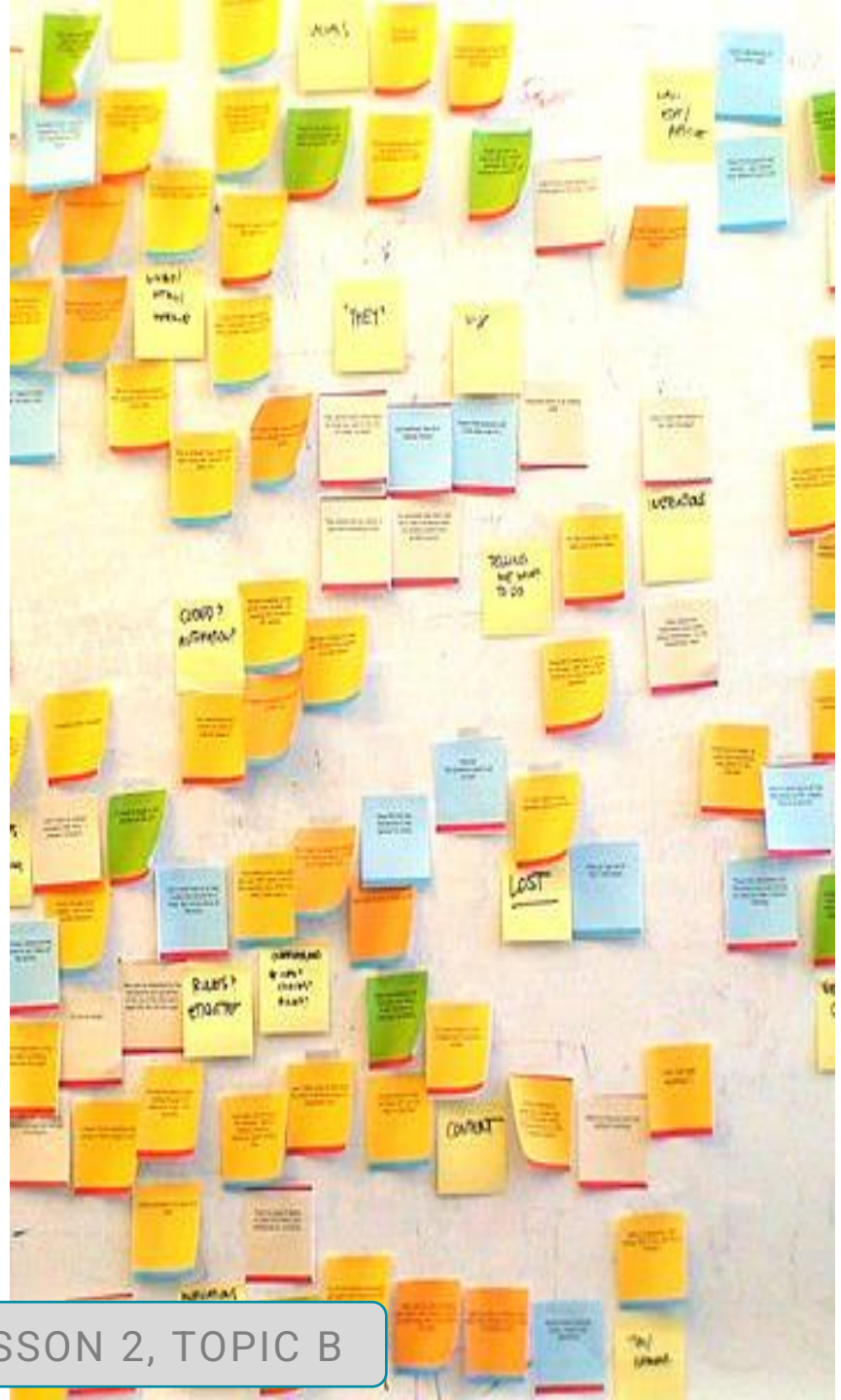


Data Representation

Tailor to project context and decision-making criteria.

- ✓ **Mind Mapping** – Consolidate ideas created through individual brainstorming sessions into a single map to reflect commonality and differences in understanding and to generate new ideas

- ✓ **Affinity Diagram** – Allows large numbers of ideas to be classified into groups for review and analysis



More about...

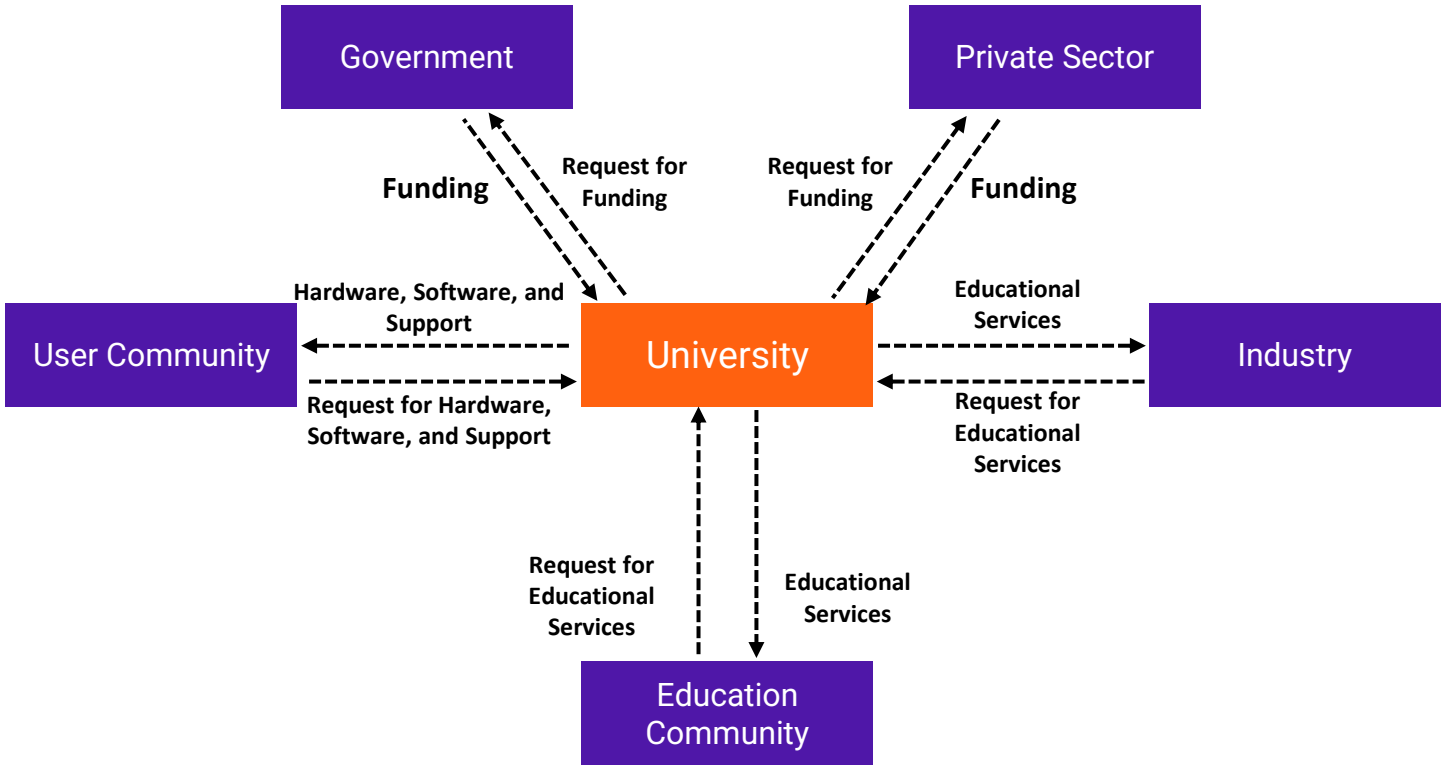
Course: Managing the Project Scope (2021 Update)

Video: Collecting Requirements (10:49 run time)

Watch: Start to 2:19 and 3:57 to 6:02

Context Diagrams

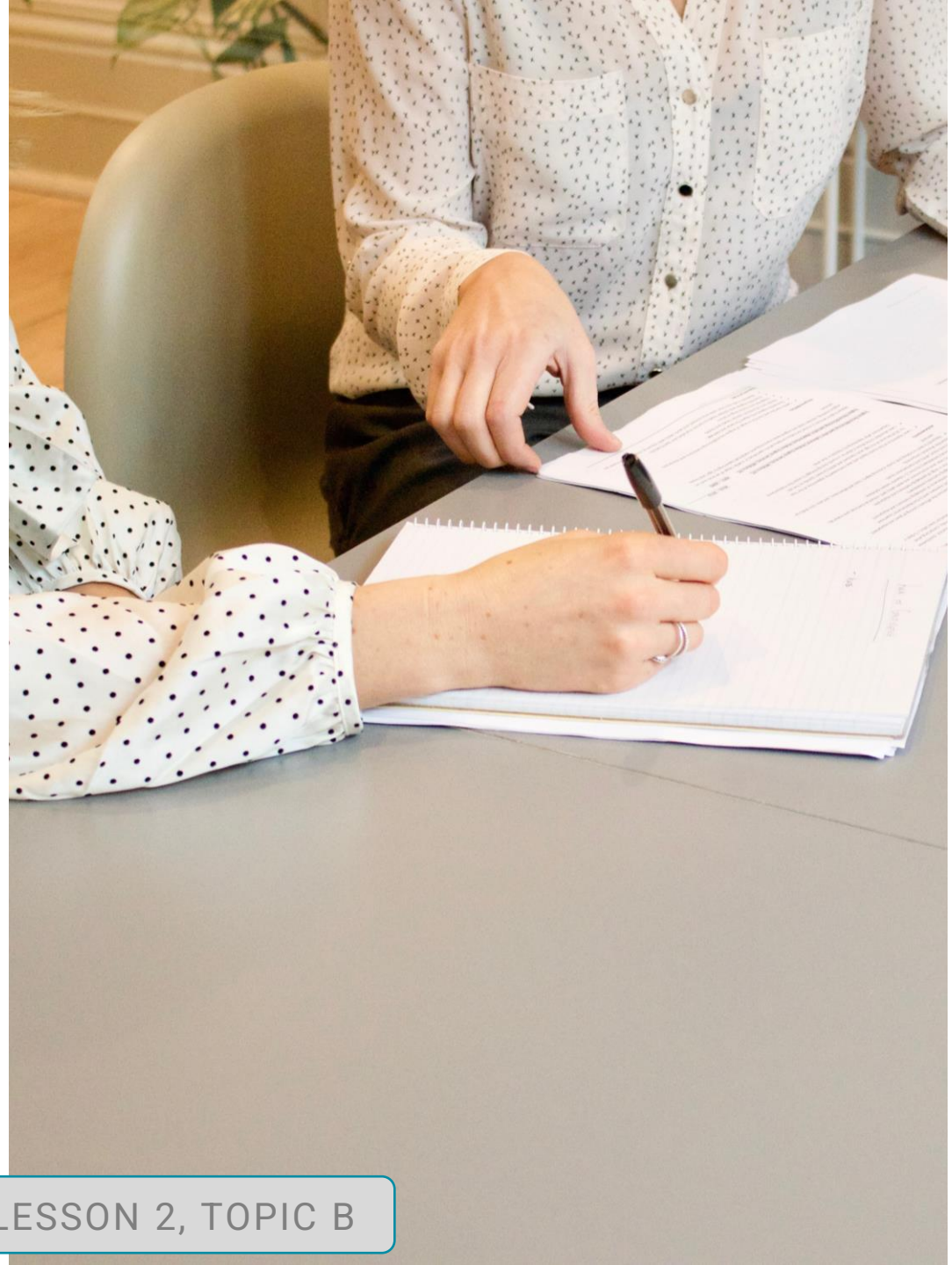
Business Context Diagram Sample



Plan and Manage Scope
LESSON 2
TOPIC B

Requirements Documentation

- ✓ Describes how individual requirements meet project business need.
- ✓ Starts at a high level before providing details.
- ✓ Requirements need to be unambiguous (measurable and testable), traceable, complete, consistent, and acceptable to key stakeholders.
- ✓ Format can be simple (document listing all requirements, categorized by stakeholder and priority) or more elaborate (executive summary, detailed descriptions, attachments).



Types of Requirements

Business

Higher-level needs of the organization e.g. business issues or opportunities, and reasons why a project has been undertaken.

Stakeholder

Stakeholder or stakeholder group needs. Reporting requirements.

Transition and Readiness

Temporary capabilities
e.g. data conversion and training requirements needed to transition from the current as-is state to the desired future state.

Quality

Condition or criteria needed to validate the successful completion of a project deliverable or fulfilment of other project requirements e.g. tests, certifications, validations.

Project

Actions, processes, or other conditions the project needs to meet e.g. milestone dates, contractual obligations, constraints.

Solutions (Functional and Non-functional)

Describe features, functions, and characteristics of the product, service, or result that will meet the business and stakeholder requirements.

Functional requirements - Describe the behaviors of the product
e.g. actions, processes, data, and interactions that the product should execute.

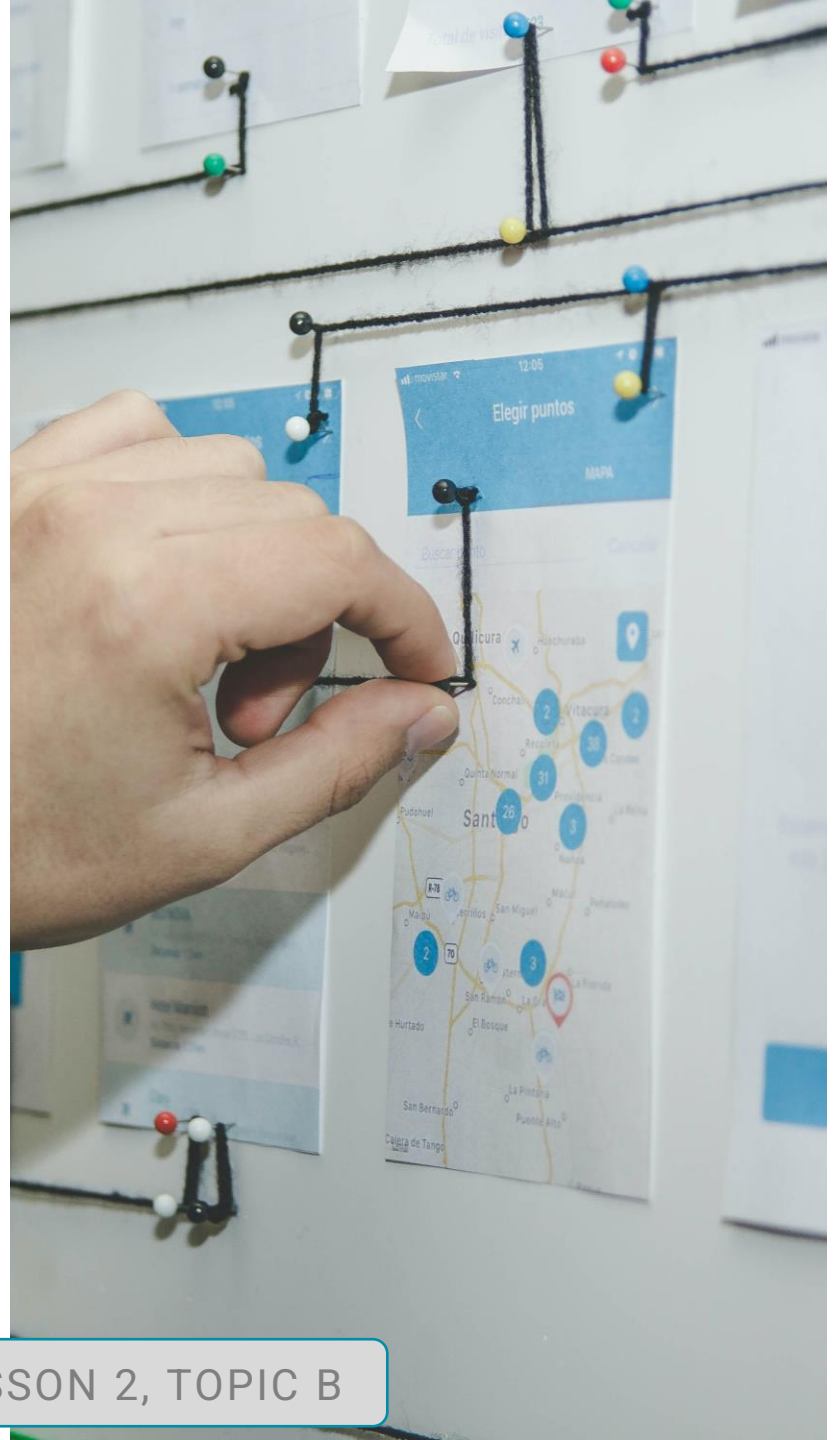
Non-functional requirements - Supplement functional requirements to describe environmental conditions or qualities required for the product to be effective
e.g. reliability, security, performance, safety, level of service, supportability, retention/purge, etc.

Nonfunctional Requirements

Type	Considerations
Availability	• How and when is the service available? • If the service were to become unavailable, how quickly can it be restored to working?
Capacity	• What level of service performance, speed, and throughput is required? • Given the number of stakeholders using the service, is there enough supply to meet demand?
Continuity	• If there were a disaster of some kind, how quickly could the service be recovered to support operations.
Security	• How well is the service and its information protected from security risks and threats? • How do you guarantee the confidentiality, integrity, and availability of the information?

Requirements Management Plan

- Planning, tracking, and reporting information for requirements activities.
- Configuration management activities:
  - Version control rules
  - Impact analysis
  - Tracing, tracking, and reporting
- Required authorization levels for change approval
- Prioritization criteria / process
- Product metrics and accompanying rationale
- Traceability structure, including requirement attributes



Requirements Traceability Matrix

Requirements Traceability Matrix								
Project Name:								
Cost Center:								
Project Description:								
ID	**Associate ID**	**Requirements Description**	**Business Needs, Opportunities, Goals, Objectives**	**Project Objectives**	**WBS Deliverables**	**Product Design**	**Product Development**	**Test Cases**
001	1.0							
	1.1							
	1.2							
	1.2.1							
002	2.0							
	2.1							
	2.1.1							
003	3.0							
	3.1							
	3.2							
004	4.0							
005	5.0							

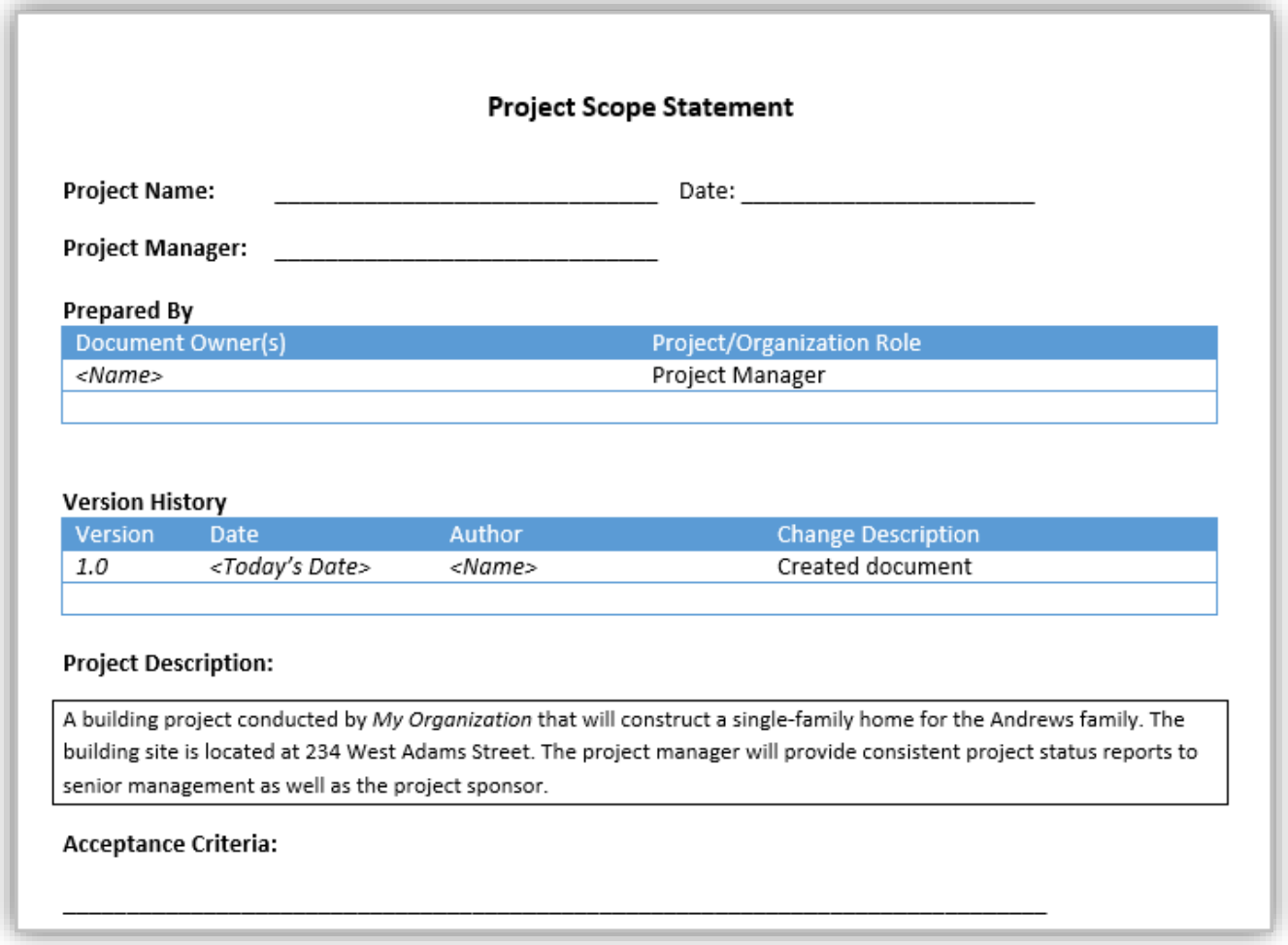
GUIDELINES

Collecting Project Requirements

- Review:
  - Scope management plan
  - Requirements management plan
  - Stakeholder engagement plan
  - Project charter
  - Stakeholder register
- Use tools and techniques such as interviews, focus groups, facilitated workshops, group creativity techniques.

Plan and Manage Scope
LESSON 2
TOPIC B

Project Scope Statement



Project Scope Statement

Project Name: _____ Date: _____

Project Manager: _____

Prepared By

Document Owner(s)	Project/Organization Role
<Name>	Project Manager

Version History

Version	Date	Author	Change Description
1.0	*<Today's Date>*	*<Name>*	Created document

Project Description:

A building project conducted by *My Organization* that will construct a single-family home for the Andrews family. The building site is located at 234 West Adams Street. The project manager will provide consistent project status reports to senior management as well as the project sponsor.

Acceptance Criteria:

_____

Scope Tools and Techniques

Expert Judgment

Judgment provided by a group or person, based upon expertise in an application area, Knowledge Area, discipline, industry, etc.

Facilitation

Effective guidance of a group to a successful decision, solution, or conclusion.

Product Analysis

Defines products and services. Includes asking questions about a product/service, forming answers to describe the use, characteristics, and other relevant aspects of what is going to be delivered

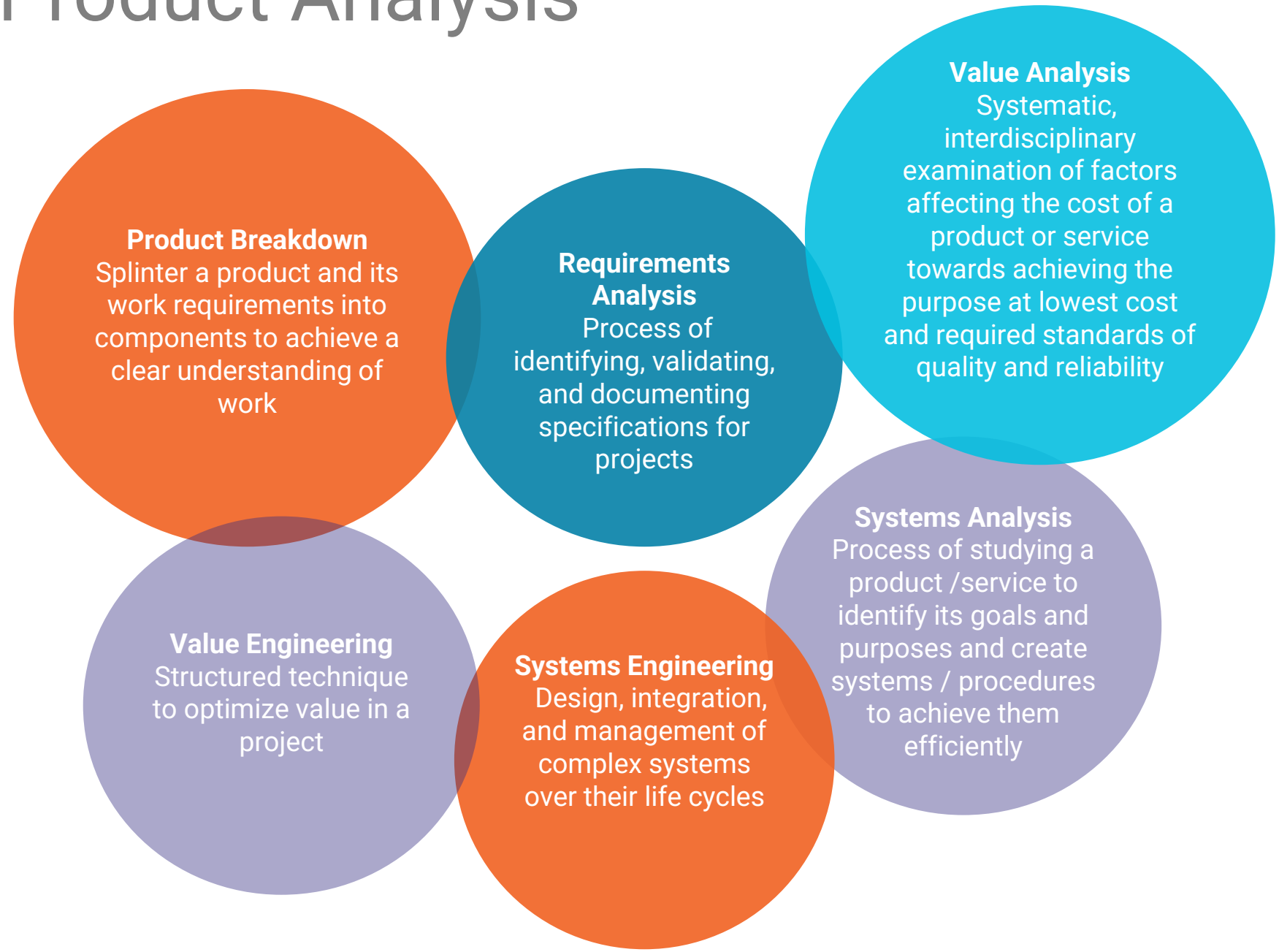
Multi-criteria decision analysis

Technique of organizing decision factors in a matrix to evaluate options

Alternatives analysis

Evaluation of choices available to reach an objective.

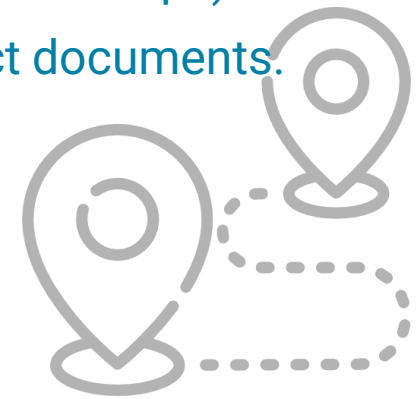
Product Analysis



GUIDELINES

Develop a Project Scope Statement

- Review:
  - Scope management plan (developing, monitoring, and controlling project scope activities)
  - Project charter (high-level project description and product characteristic and project approval requirements)
- Requirements documentation
- OPAs – templates, processes, and procedures
- Use tools and techniques to define the project scope (expert judgment, product analysis, alternatives generation, and facilitated workshops).
- Document the project scope statement and update project documents.

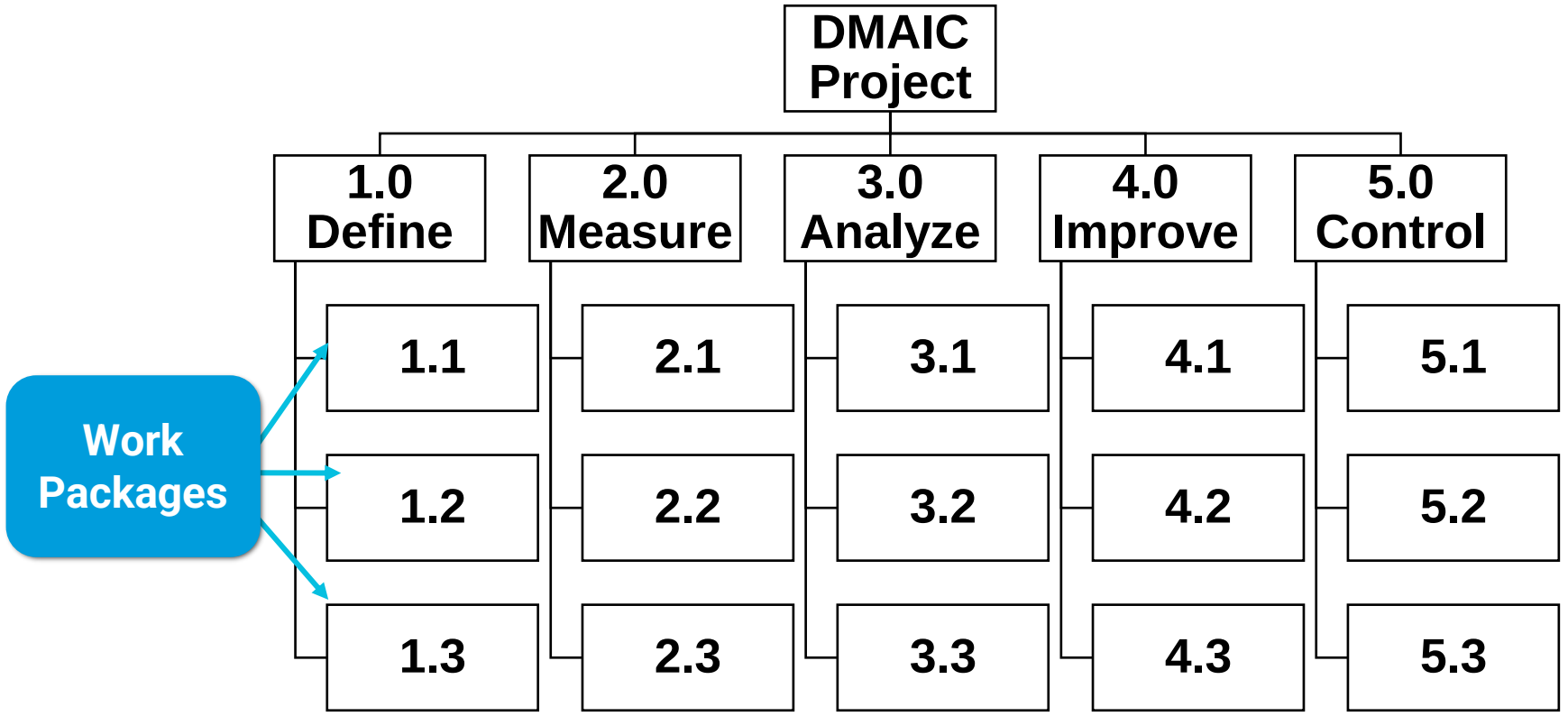


Plan and Manage Scope
LESSON 2
TOPIC B

Decomposition - Example

1.0 Value Management System Project
- 1.1 Needs Assessment
  - 1.1.1 Current System Audit
    - 1.1.1.1 Components Identification
    - 1.1.1.2 Components Analysis
  - 1.1.2 Requirements Determination
    - 1.1.2.1 Gap Assessment
    - 1.1.2.2 Requirements Changes Identification
  - 1.1.3 Alternatives Development
    - 1.1.3.1 Alternatives Identification
    - 1.1.3.2 Alternatives Analysis
  - 1.1.4 Systems Requirements Development
- 1.2 Standards Development
- 1.3 Systems Engineering
- 1.4 Project Management

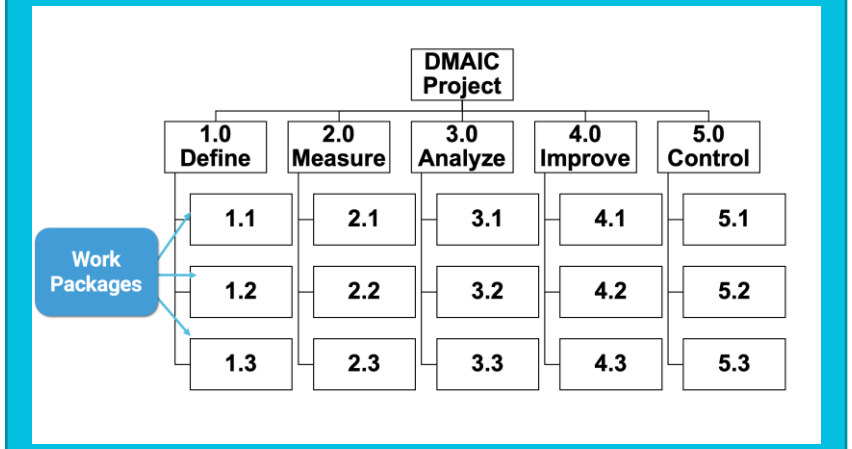
Work Breakdown Structure

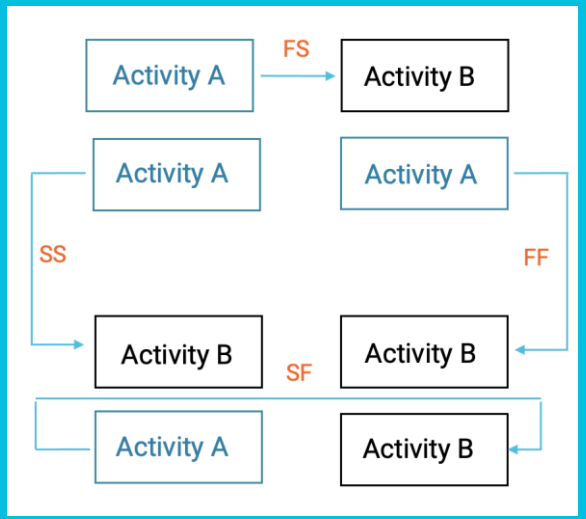


WBS Dictionary

Can include:

- ✓ Code of account identifier
- ✓ Description of work
- ✓ Assumptions and constraints
- ✓ Responsible organization
- ✓ Schedule milestones
- ✓ Associated schedule activities
- ✓ Resources required to complete the work
- ✓ Cost estimations
- ✓ Quality requirements
- ✓ Acceptance criteria
- ✓ Technical references
- ✓ Agreement information





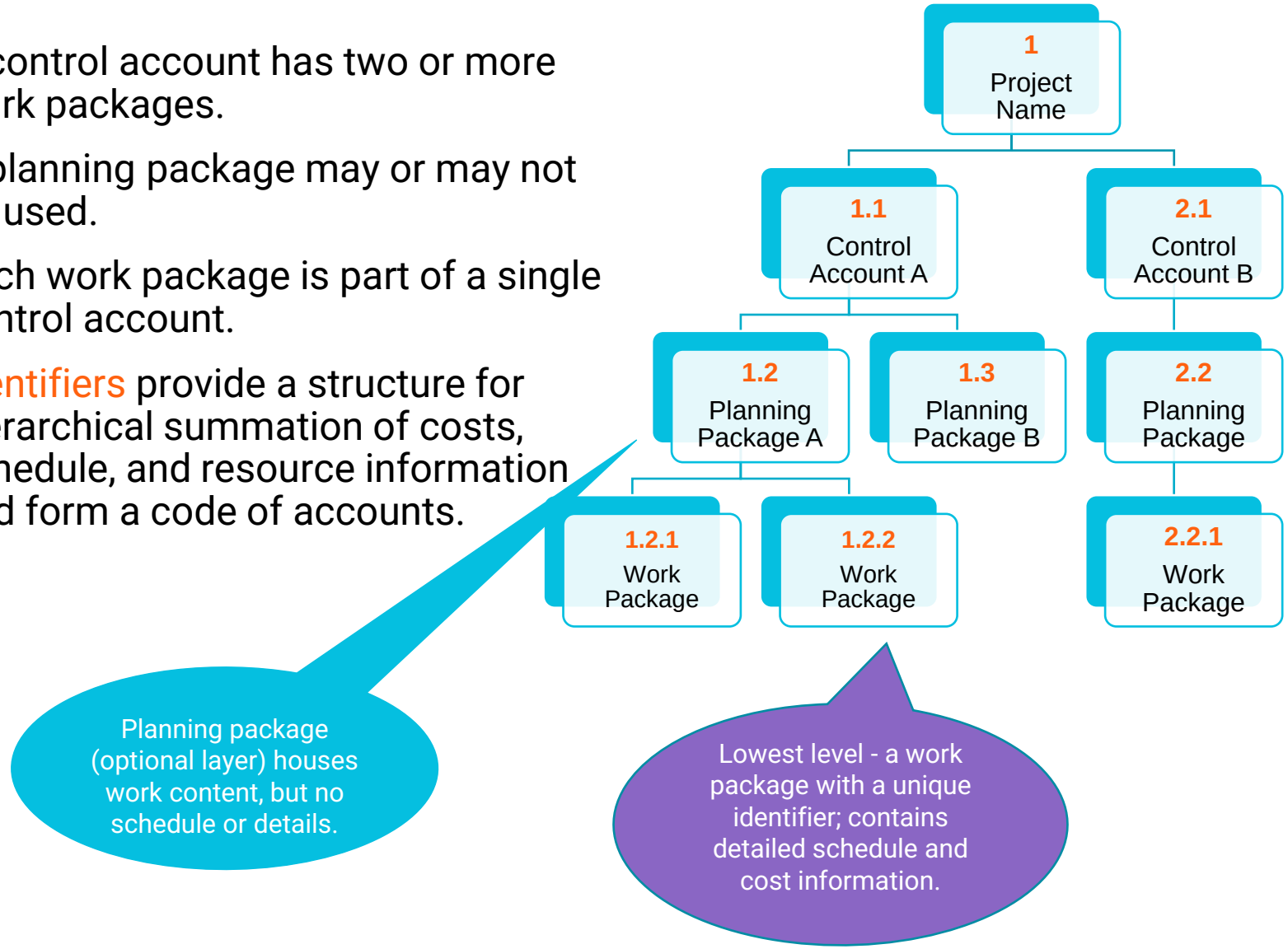
Plan and Manage Scope
LESSON 2
TOPIC B

Control Accounts, Work and Planning Packages

Let’s explore the units of work in a project WBS.

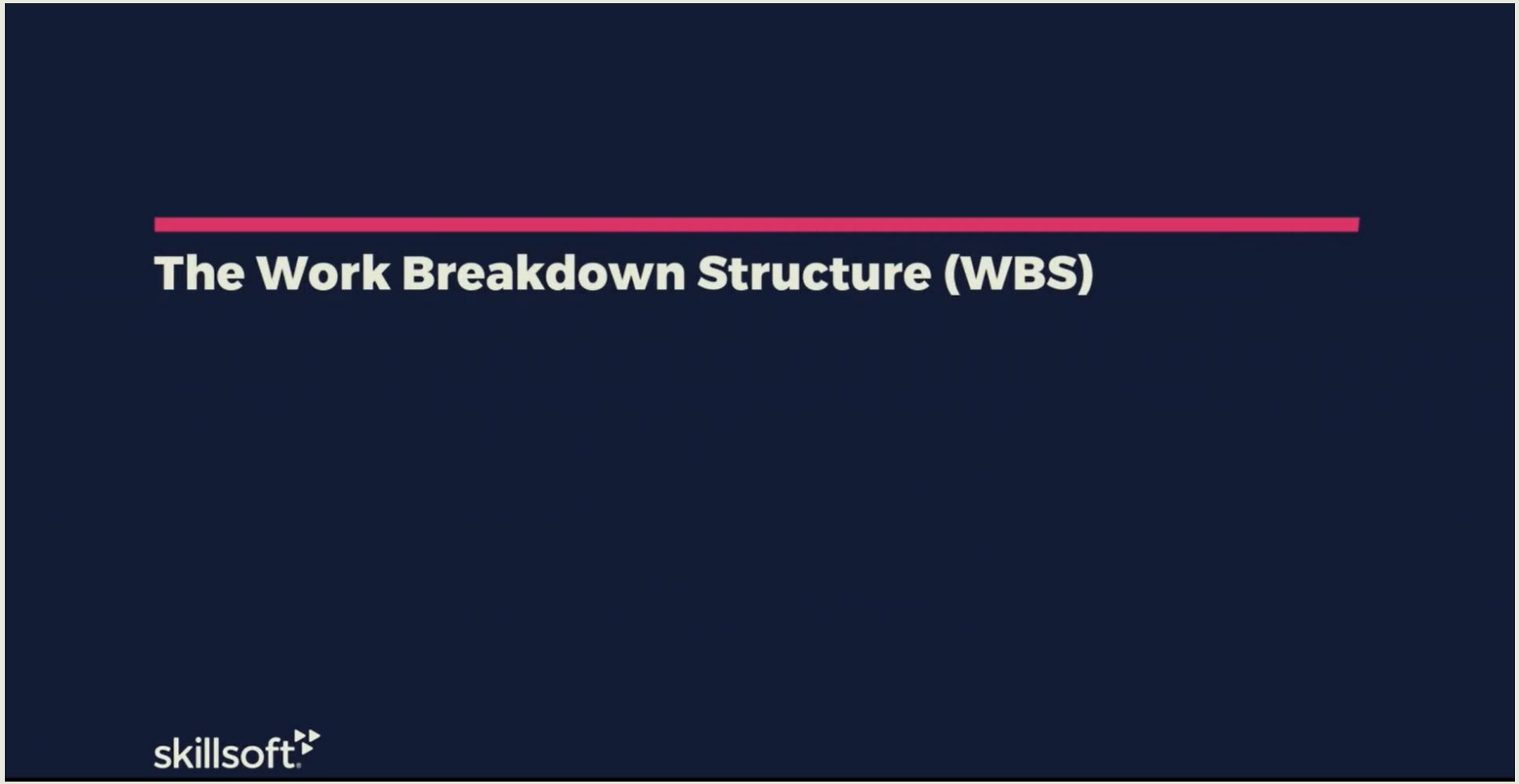
Planning Work Using a WBS

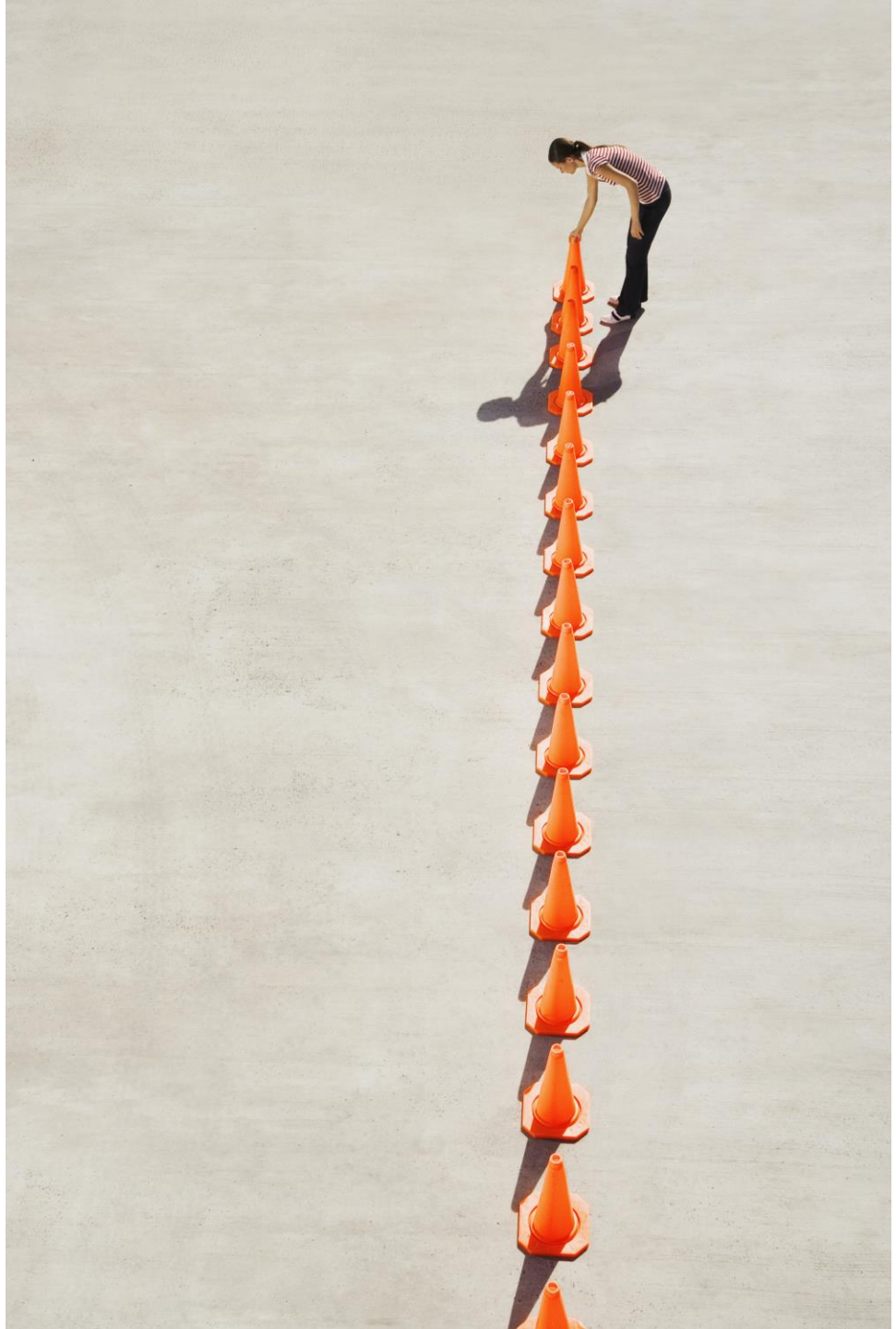
- ✓ A control account has two or more work packages.
- ✓ A planning package may or may not be used.
- ✓ Each work package is part of a single control account.
- ✓ Identifiers provide a structure for hierarchical summation of costs, schedule, and resource information and form a code of accounts.



More about...

Course: Managing the Project Scope (2021 Update)
Video: The Work Breakdown Structure (WBS) (5:43 run time)





Scope Baseline

Components include:

- ✓Project scope statement
- ✓WBS
- ✓Work packages
- ✓Planning package
- ✓WBS dictionary

GUIDELINES

Create a WBS

- Review:
  - Scope management plan
  - Project scope statement
  - Requirements documentation
- EEFs and OPAs
- Use tools and techniques e.g. decomposition
- Use expert judgment
- Include notes on work products that might be delivered incrementally
- Document the scope baseline

Plan and Manage Scope
LESSON 2
TOPIC B

Plan and Manage Schedule

TOPIC C

Deliverables and Tools

- Activity cost estimates
- Activity duration estimates
- Task estimates
- Story estimates
- Feature estimates
- Updated documents
- Backlog
- Velocity data
- Project schedule
- Release plan
- Product Roadmaps
- Earned Value
- Updated schedule
- Updated release plan
- Updated product backlog
- Network diagram
- Planning meetings
- Negotiations

Tools, Activities & Processes

Top-Down Estimating: Expert, Analogous, Parametric

Bottom Up Estimating: Roll up WBS packages

T-Shirt sizing

Estimating using Fibonacci sequences

Story points

Relative estimating

Affinity estimates

PMIS

Process assets

Backlog management

Release planning

Iteration planning

Burndown / Burnup charts

Cumulative flow diagrams

Throughput analysis

Velocity analysis

Retrospectives

Review work produced

Backlog reprioritization

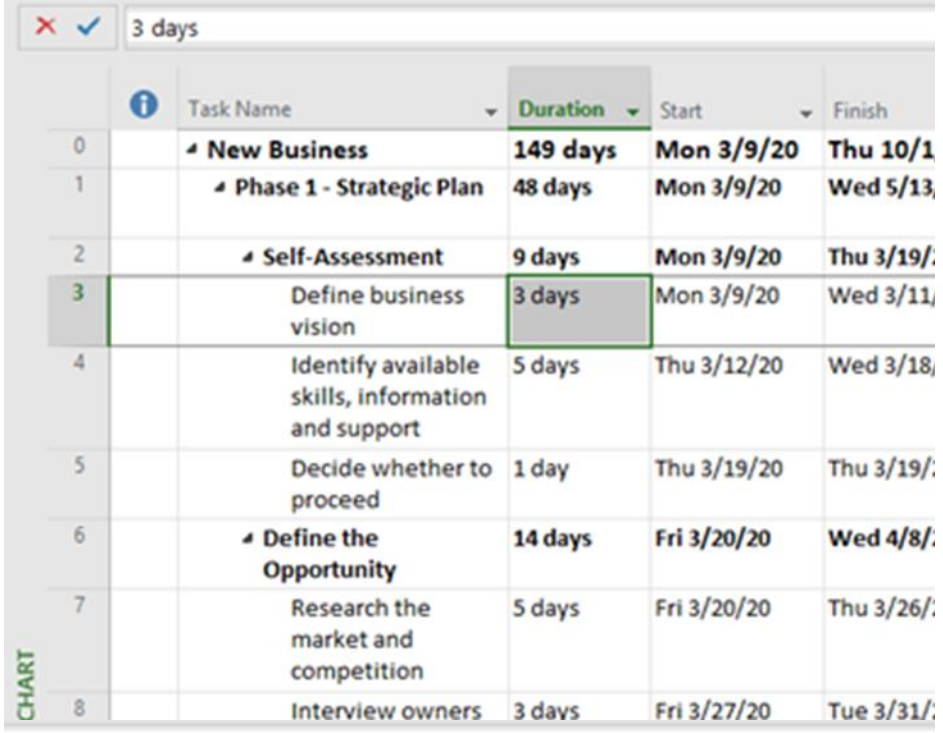
Scaling projects

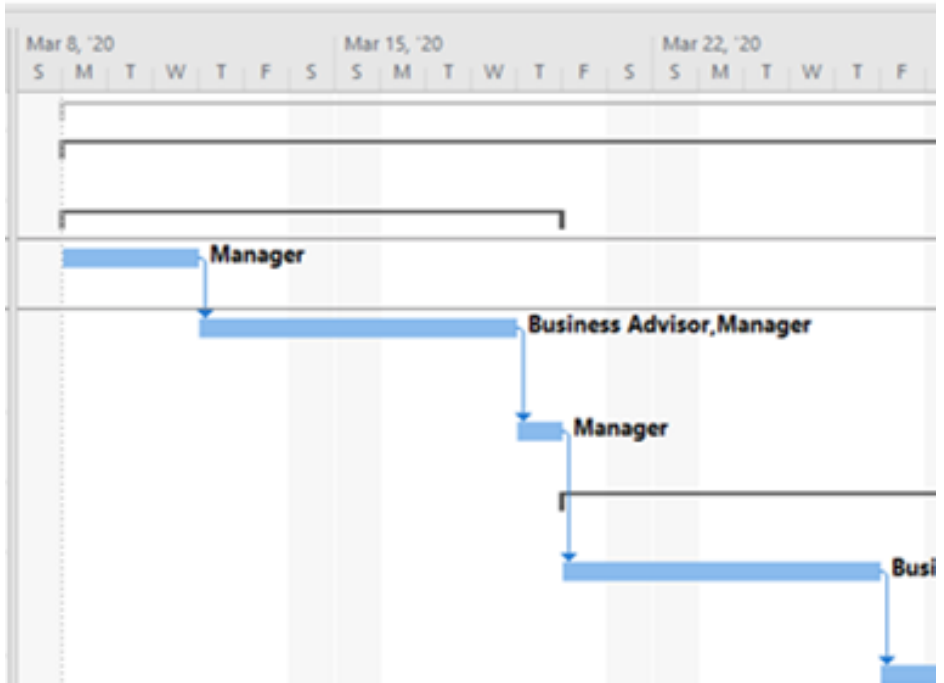
Meetings

Procurement negotiations

Project Schedule

- ✓ Includes start and finish activities
- ✓ Uses specific dates and in a certain sequence
- ✓ Sets dates for project milestones
- ✓ Coordinates activities to ensure on-time project completion
- ✓ Tracks schedule performance and provides visibility of project status to upper management and project stakeholders





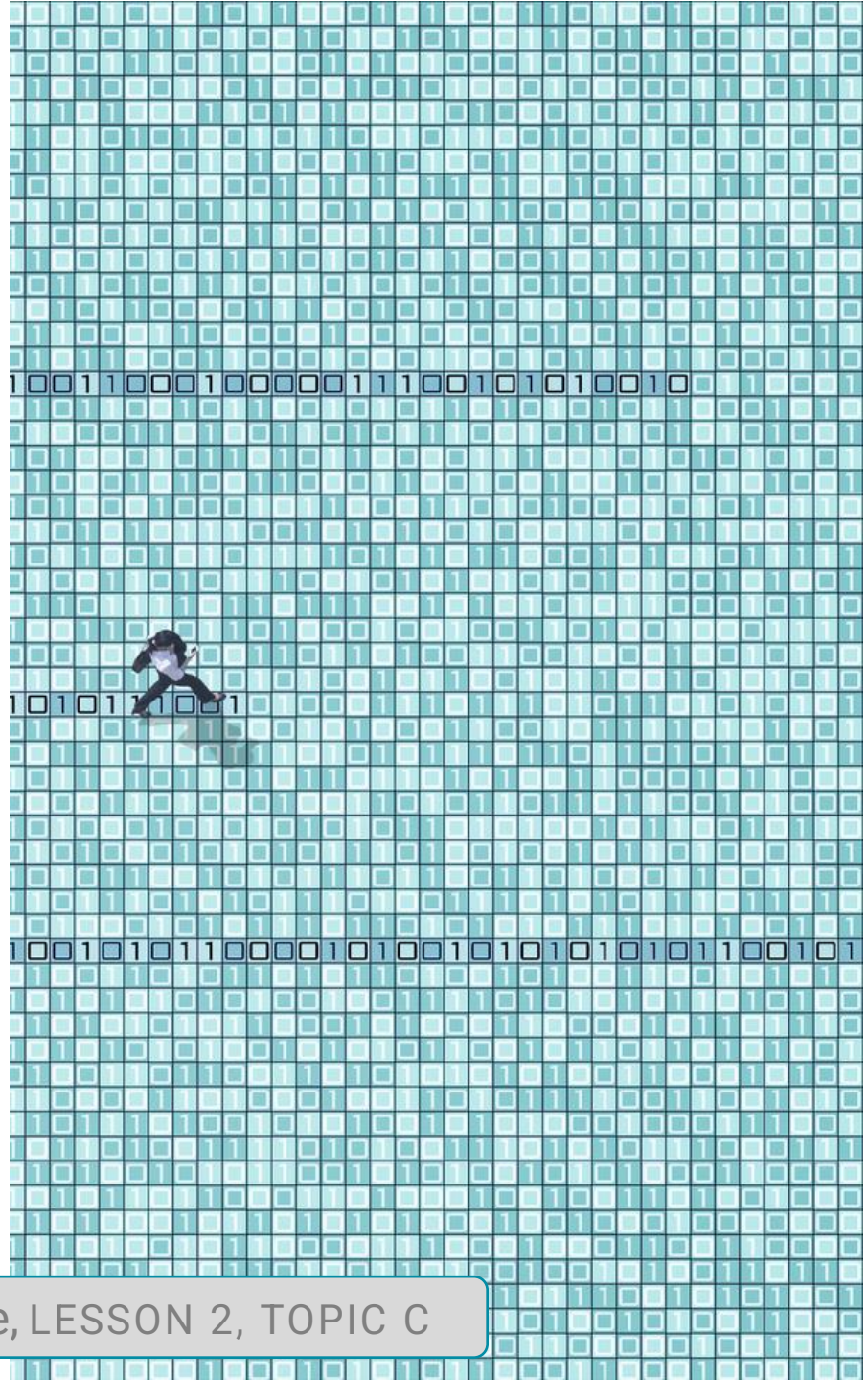
Plan and Manage Schedule
LESSON 2
TOPIC C

Benchmarks and Historical Data

Benchmarking is the comparison of a project schedule to another, similar product/service schedule to **provide a good "starting point" for estimation before detailed analysis.**

Benchmarks can be useful in the initial stage of scheduling to help assess the feasibility of a project.

Historical data can come from other projects completed within an organization for which detailed information is available.



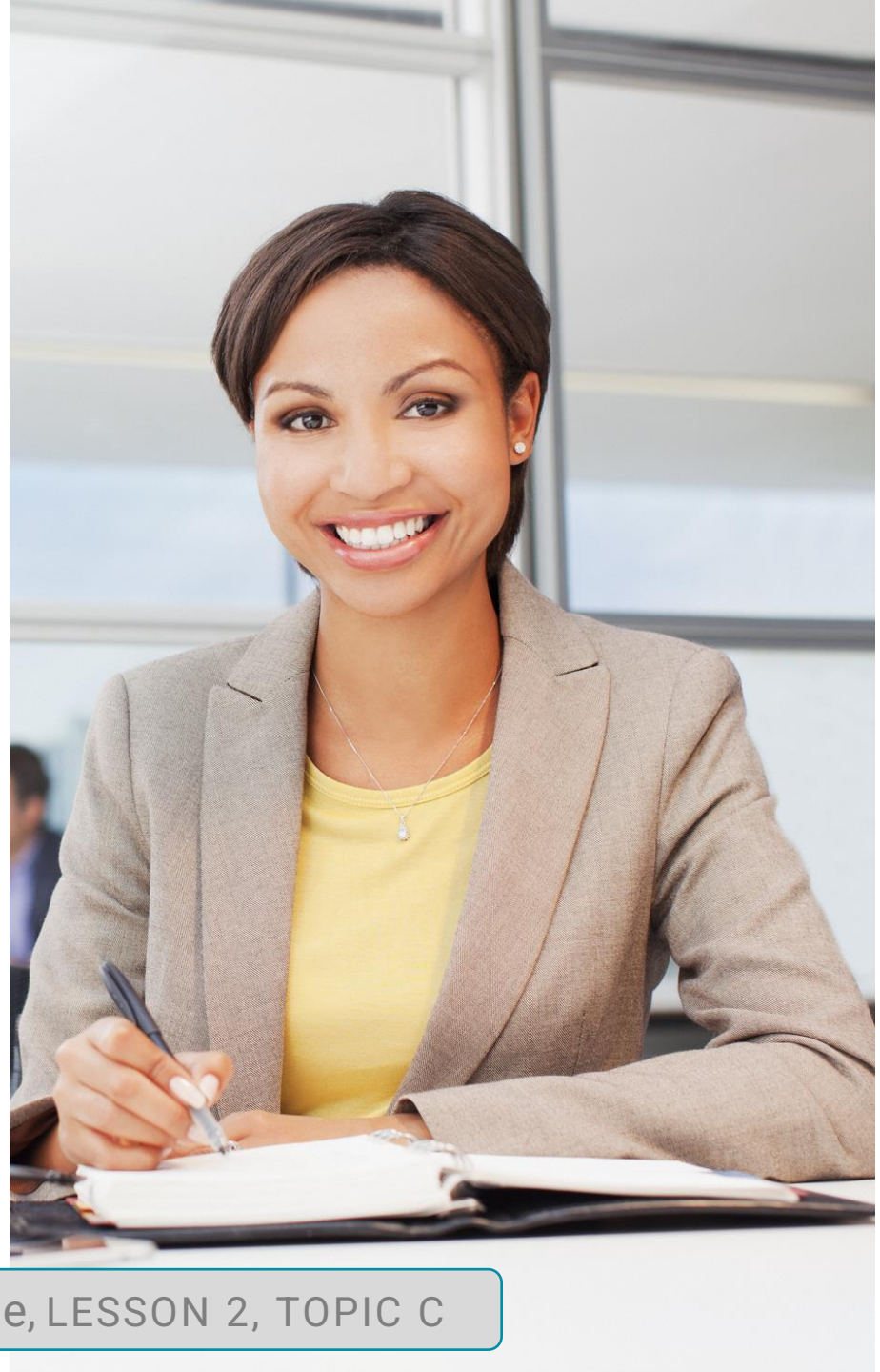
Schedule Management Plan

Describes how activities will be defined and progressively elaborated.

Identifies a scheduling method and scheduling tool to be used.

Determines the format of the schedule.

Establishes criteria for developing and controlling the project schedule.



Components of the Schedule Management Plan

- Accuracy of activity duration estimates
- Project schedule model used
- Organizational procedure links used with the WBS
- Units of measure to be used
- Rules of performance measurements to be used
- Process descriptions to explain how schedule management processes are to be documented throughout the project.
- Reporting formats to be used
- Control thresholds to be used for monitoring schedule performance

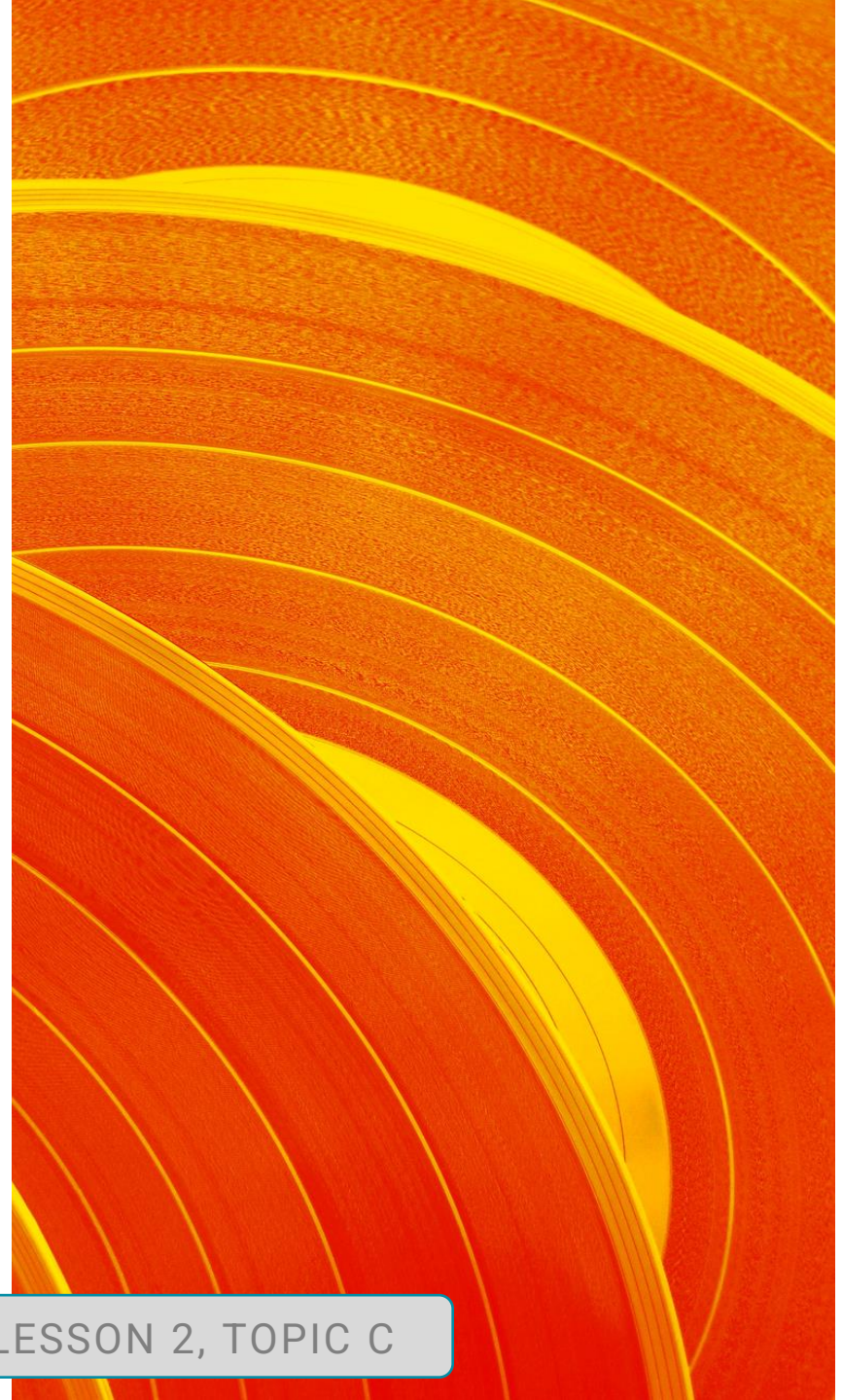
Schedule Management Considerations for Agile/ Adaptive Environments

Consider developing project roadmap.

Schedule individual activities iteratively.

Choose an iterative approach:

- ✓ Iterative scheduling with backlog
- ✓ On-demand scheduling



GUIDELINES

Develop a Schedule Management Plan

- Review the following:
  - Project management plan (for information to develop the schedule)
  - Project charter (for a summary, high-level milestone schedule)
  - EEFs
  - OPAs
- Use tools and techniques such as expert judgment and historical information.
- Use meetings to develop the schedule management plan.
- Document the schedule management plan for the project.

Plan and Manage Schedule
LESSON 2
TOPIC C

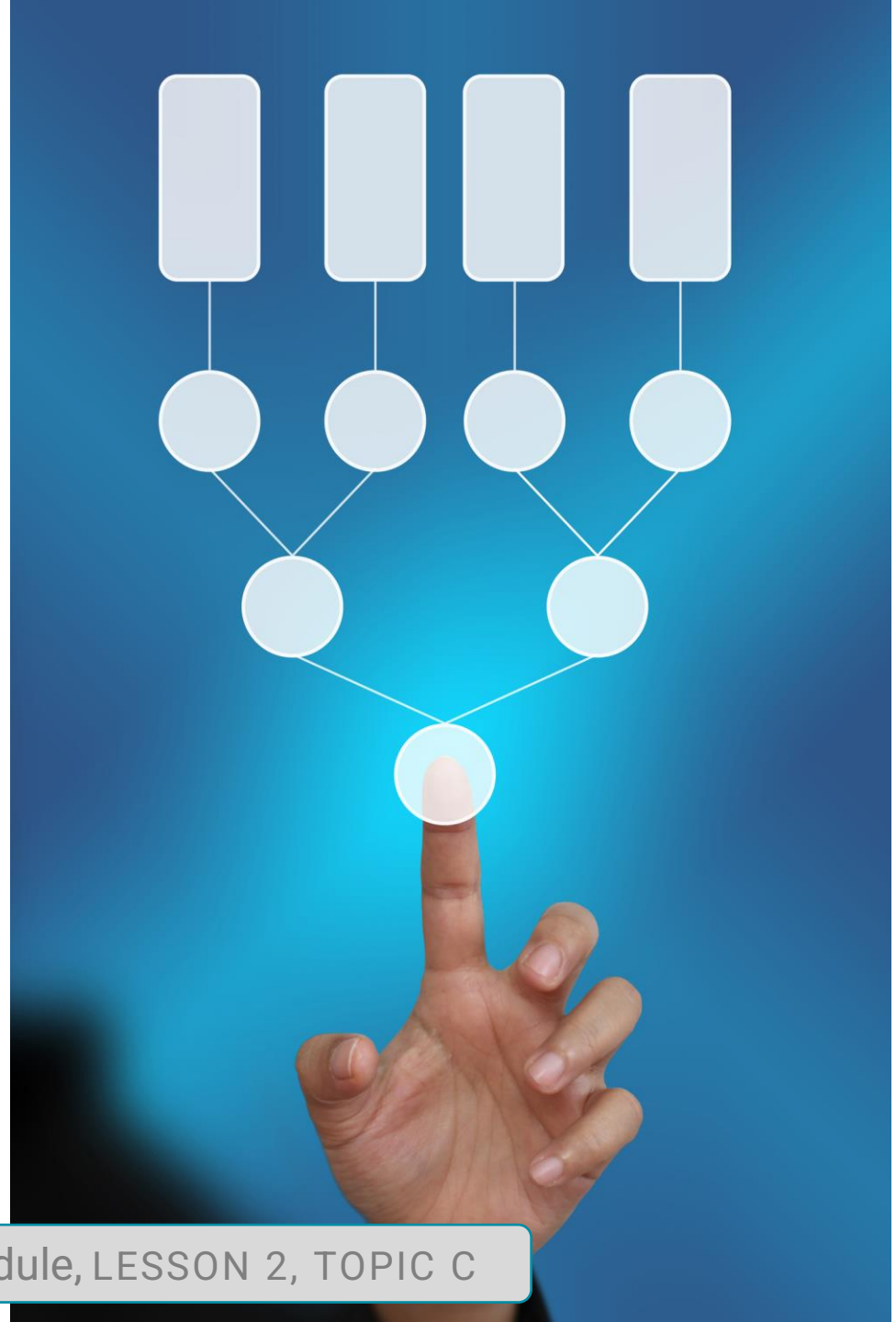
Project Activities

An **activity** is a component of a decomposed work package.

- Activities are not the same as work packages or ‘tasks’.

A **work package** is the lowest level of the WBS.

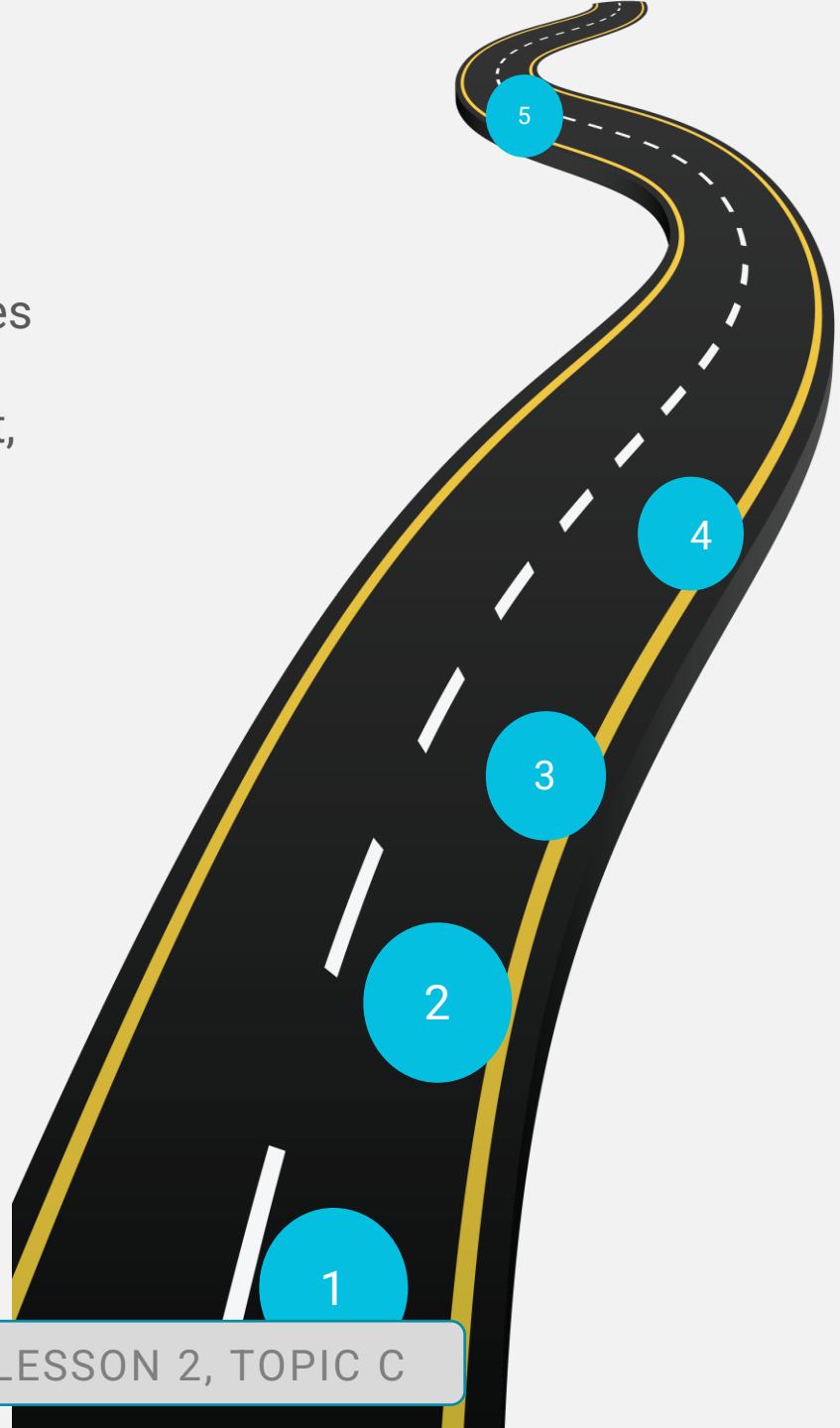
A **task** refers to project management software.



Milestones

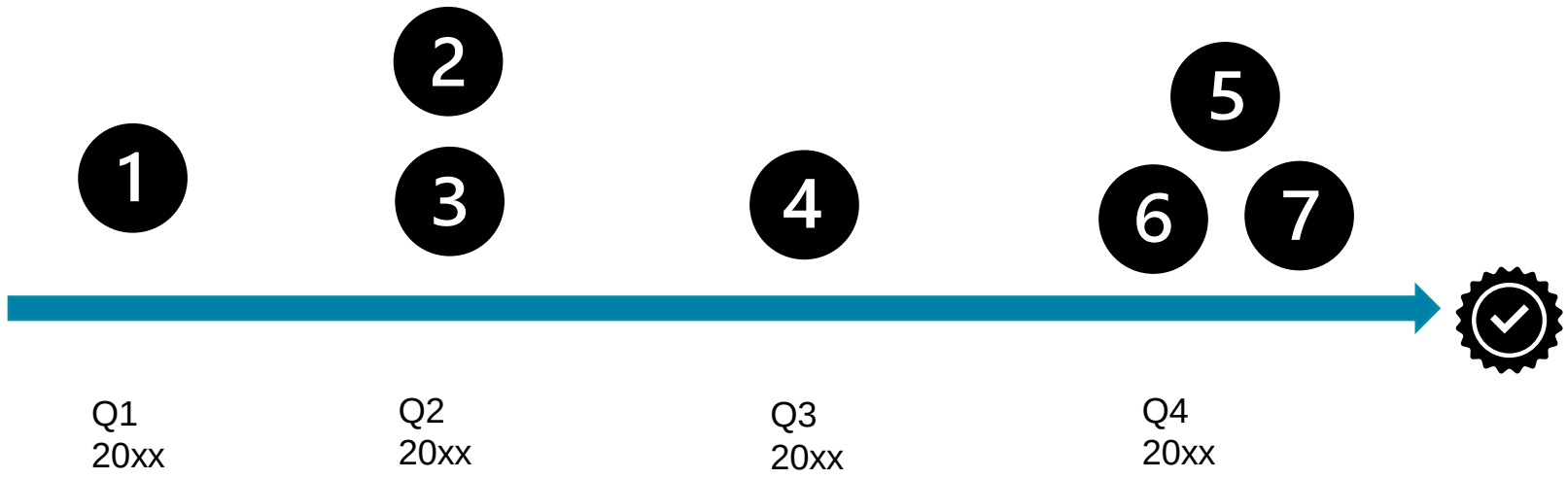
A milestone list identifies all project milestones and indicates whether the milestone is mandatory, such as those required by contract, or optional, such as those based on historical information.

Milestones have zero duration because they represent a significant point or event.



Milestone Chart

- ✓ Provides the summary level view of a project's milestones.
- ✓ Uses icons or symbols.
- ✓ Useful for upper management who only require an overview.



GUIDELINES

Estimating Project Activities

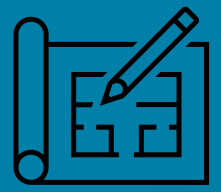
- Review:
  - Schedule management plan
  - Scope baseline for WBS, deliverables, assumptions, and constraints
  - EEFs
  - OPAs
- Analyze and decompose each work package of the WBS into activities that will be required to produce the deliverable.
- Consult SMEs about unfamiliar material.
- Evaluate all constraints and assumptions for their possible impact on activity definition.
- After decomposing each work package into activities, evaluate the activity list.

Activity Dependency

Relationship indicates whether the start of an activity is **contingent on an event** or **input from outside the activity**.

Activity dependencies determine the precedence relationships.

Example activity:
Designing Room Layouts



- Architect needs to assess the functionality of a room design.
- Assessment **cannot start until** workers finish framing the walls, windows, and roof.
- **After** structure is in place, **then** architect can reassess design plans to determine if modifications are necessary.

Types of Activity Dependencies

Mandatory

A relationship that is contractually required or inherent in the nature of the work.

Discretionary

A relationship that is established based on knowledge of best practices within a particular application area or an aspect of the project where a specific sequence is desired.

External

A relationship between project activities and non-project activities.

Internal

Contingent on inputs within the project team's control.

Precedence Relationships

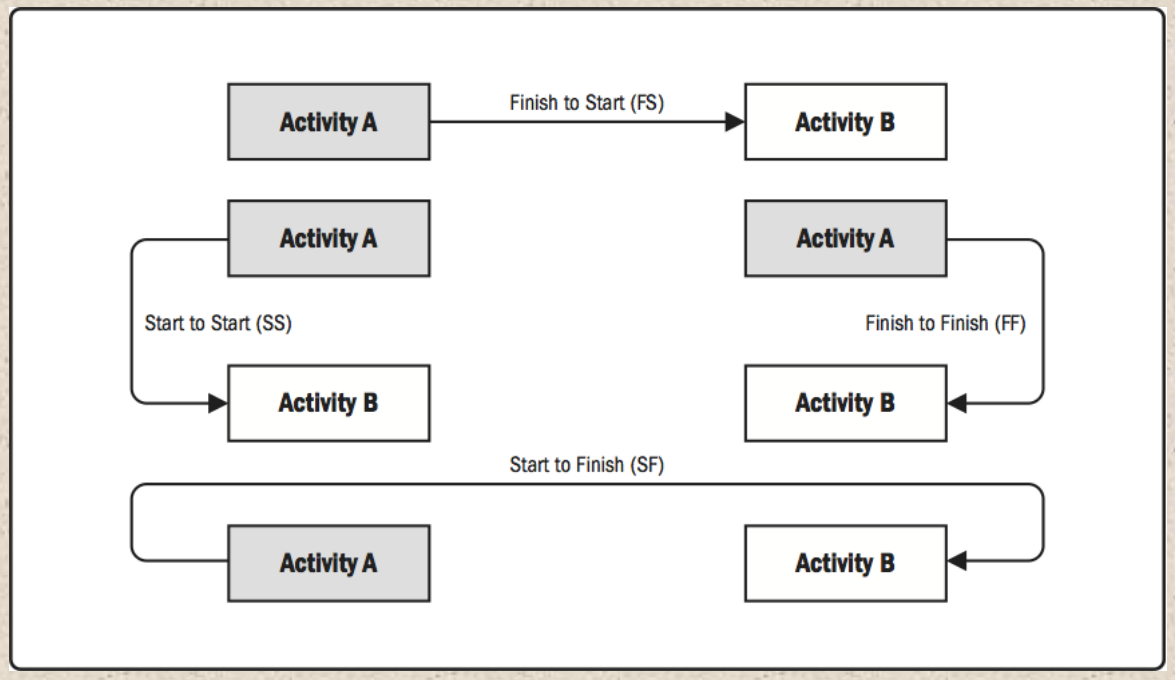
Precedence relationships express a logical dependency in precedence diagramming methods.

It is a logical relationship between activities that describes what the activity sequence should look like.

Precedence relationships are always assigned to activities based on the dependencies of each activity:

- ✓ Predecessor activity drives the relationship; most often, it occurs first.
- ✓ Successor activity is driven by the relationship.

Types of Precedence Relationships



More about...

Course: Deep Dive into the Project Schedule (2021 Update)
Video: Activity Relationships and Dependencies (8:08 run time)

GUIDELINES

Sequence Project Activities

- Review:
  - Schedule management plan (for information on the scheduling method and tool, and information on how activities may be sequenced)
  - Activity list for all project schedule activities
  - Activity attributes for each activity
  - Milestone list for the dates for specific schedule milestone events
  - Project scope statement
  - EEFs
  - OPAs
- Use tools and techniques such as the precedence diagramming method (PDM), dependency determination, and leads and lags to develop the project schedule network diagram.
- Document the project schedule network diagram and update any project documents, as needed.

MASTERY BUILDER

The project team is reviewing the requirements documentation that they are responsible for working on. Which project artifact can they reference to see the connection between the requirements and the business and project objective?

- ❑ Requirements traceability matrix
- ❑ RACI Chart
- ❑ Project charter
- ❑ Scope management plan

Creating a high performing team

MASTERY BUILDER

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Creating a high performing team

MASTERY BUILDER

Months into the project, work on a planning package needs to be further broken down and scheduled. Which of the following should be done by the project team?

- ❑ Keep the original WBS dictionary unchanged.
- ❑ Use the work packages that were defined at the start of the project for the planning package.
- ❑ Update the WBS dictionary as the planning package is converted to work packages.
- ❑ Obtain a change request for the planning package from the change control board.

Creating a high performing team

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Creating a high performing team

MASTERY BUILDER

Which is the best elicitation technique to use when your project team wants to facilitate a discussion with a certain set of users to get a better understanding of how they might use your project's product?

- ❑ Document analysis
- ❑ Focus group
- ❑ Benchmarking
- ❑ Plurality

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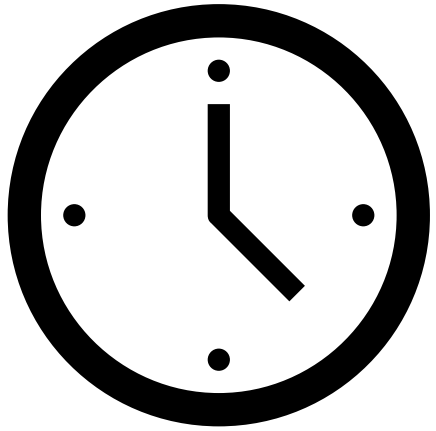
Creating a high performing team

1-Hour Break!



Class resumes at 2:30pm Eastern Time