

Final Project

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Lecture 7

The triple constraint

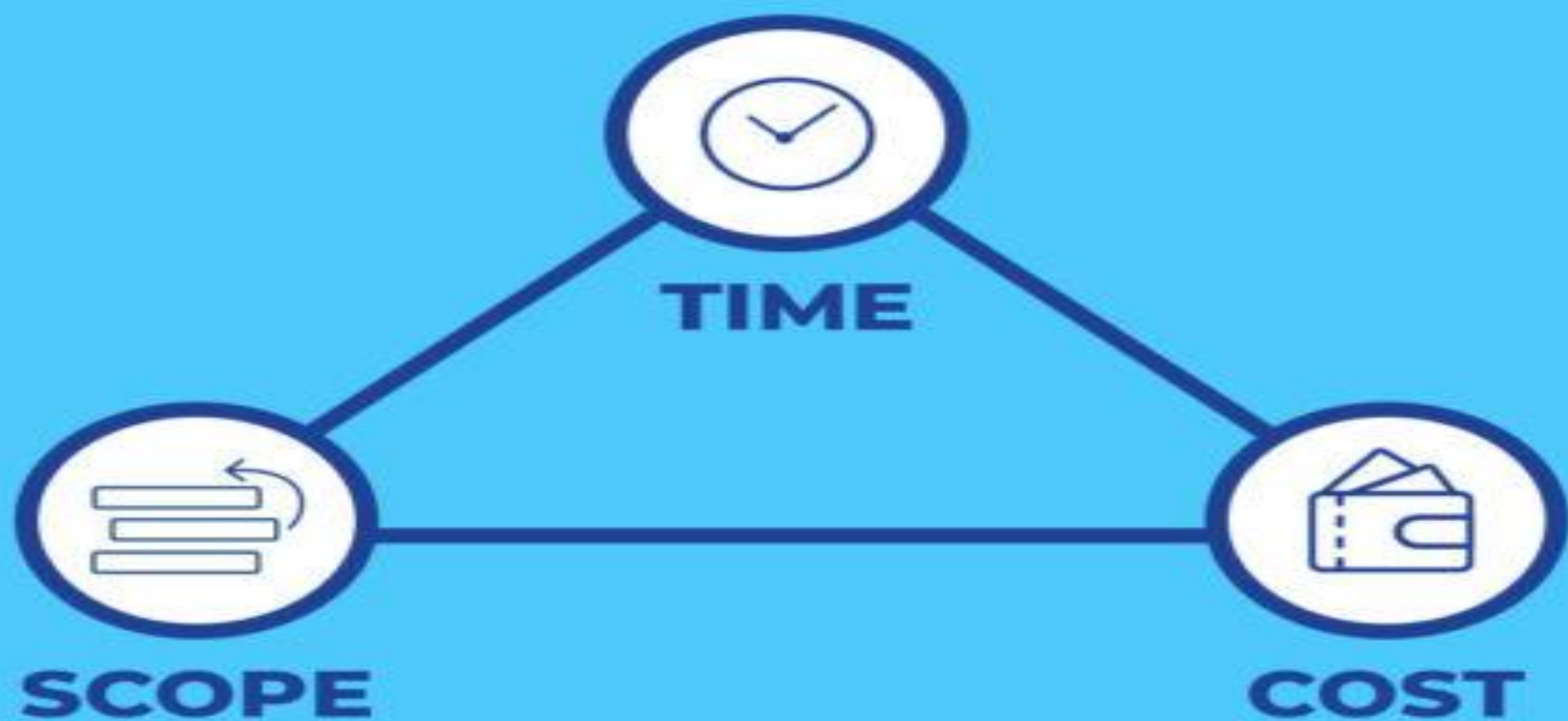


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جامعة الأزهر
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THE TRIPLE CONSTRAINT



PROJECT MANAGER

Get organized. Do amazing things.

Triple Constraint

It has been given many names – the Project Management Triangle, Iron Triangle and Project Triangle – which should give you an idea of how important the Triple Constraint is when managing a project. If you're managing a project, then you're working with the Triple Constraint.

- Therefore, it can be easily argued that the Triple Constraint might be the single most important concept in the history of project management. The genius who invented this model is on par with the person who first produced the wheel

Triple Constraint

1. Cost:

The financial commitment of the project is dependent on several variables. There are the resources involved, from materials to people, which include labor costs. There are other outside forces that can impact a project, which must be considered in the cost of the work.

Triple Constraint

1. Cost:

- **Historic Data:** Using the costs of similar projects for comparison
- **Resource Costs:** Determining the rate of cost for goods and labor by unit
- **Bottom Up:** Estimating from the lowest- to the highest- level work package
- **Parametric:** Measure statistical relationship between historic data and other variables
- **Vendor Bid:** Average of some vendor bids on project
- **Reserve:** Aggregate cost of activities
- **Quality Analysis:** Estimate cost of highest quality for activities

Triple Constraint

2. Scope

As mentioned, project scope deals with the specific requirements or tasks necessary to complete the project.

Scope is important to manage on any project, whether agile software projects or well-planned waterfall projects, because if you can't control the scope of the project, you're not likely to deliver it on time or under budget.

When managing scope its critical that you prioritize your tasks, enabling you to plan and assign resources effectively. Without creating a sense of order, it's easy to become overwhelmed, enabling scope creep.



Triple Constraint

3. Time

At its basic, the schedule is the estimated amount of time allotted to complete the project or produce the deliverable. Usually, this is figured out by first noting all the tasks necessary to move from the start to the finish of the project.

A Work Breakdown Structure (WBS) is used to take the large project goal and break it down into a series of more manageable tasks. These tasks are then **prioritized**, dependencies are linked and then placed on a timeline.

Triple Constraint

3. Time

A Gantt chart is one way to visualize the project schedule, with each task a point on that timeline, with task dependencies linked, and durations determined. Having historic data can help make more accurate estimates. Different websites features an online Gantt chart that gets updated automatically as your team completes their project tasks, so data is always accurate.



Work Breakdown Structure (WBS)

It is a visual, hierarchical, and deliverable-oriented deconstruction of a project. It is a helpful diagram for project managers because it allows them to work backward from the final deliverable of a project and **identify all the activities** needed to achieve a successful project. All the steps of a project are outlined in the organizational chart of a work breakdown structure, which makes it an essential project management tool for planning and scheduling. The final deliverable rests on top of the diagram, and the levels below subdivide the project scope to indicate the phases, deliverables, and tasks that are needed to complete the project.

What Are The Levels of a WBS?

Tiers of project deliverables and tasks are created to support the planning, execution, and monitoring of projects. There are four main levels of a WBS, which are outlined below:

- **The Top Level:** The project title or final deliverable.
- **Controls Account:** The main project phases and deliverables.
- **Work Packages:** The group of tasks that lead to the controls account level.
- **Activities:** The tasks needed to complete the work package.



Why Use a WBS?

Making a WBS is the first step in developing a project schedule. It defines all the work that needs to be completed (and in what order) to achieve the goals and objectives of the project.

By visualizing your project in this manner, you and your resources can collaborate on defining mission critical tasks, their subtasks and the inter-dependencies between them.

Why Use a WBS?

A well-constructed WBS helps with important project management processes such as cost estimation, resource allocation, and risk assessment. In addition, a WBS helps avoid common project issues such as missed deadlines, scope creep and cost overrun, among others.

Why Use a WBS?

In other words, a work breakdown structure serves as your map through complicated projects.

One project may include several phases, or smaller sub-projects—and even those sub-projects can be broken down into deliverables, sub-deliverables and work packages! In doing so, you gain clarity into the details needed to accomplish every aspect of your project.

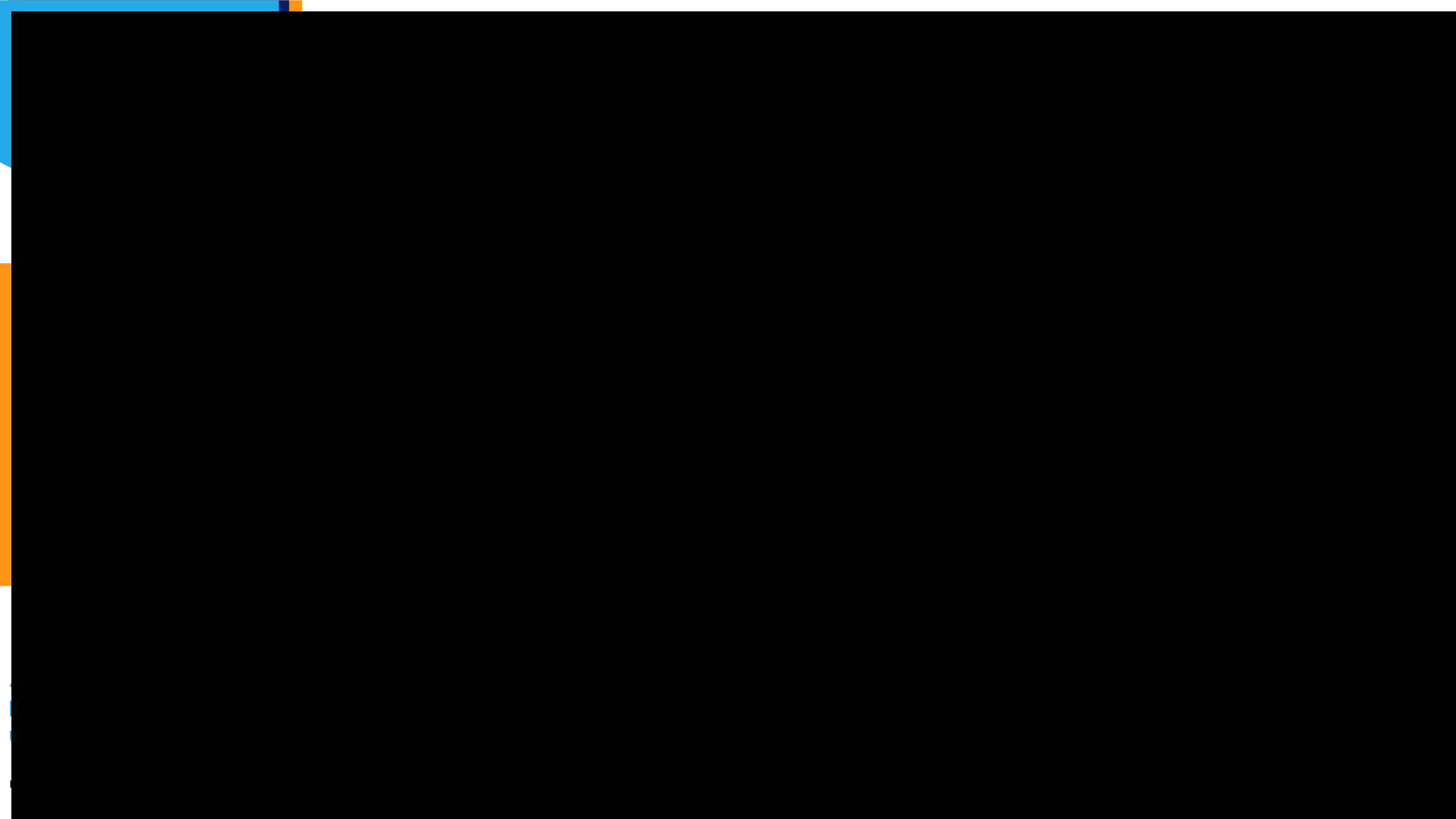
How to Create a Work Breakdown

There are five steps to creating a work breakdown structure.

1. Define the project goals and objectives. Begin with the project charter—the scope, objectives, and who is participating in the project—determine what it is and describe it.
2. The next level down is the project phases: break the larger project statement of intent into a series of phases that will take it from conception to completion.

How to Create a Work Breakdown

3. What are your deliverables? List them all and note what is necessary for those deliverables to be deemed successfully delivered (sub-deliverables, work packages, resources, participants, etc.).
4. Take your deliverables from above and break them down into every single task and subtask that is necessary to deliver them. Make a list of all those tasks.
5. With the tasks now laid out, assign them to the team. Give each team member the tools, resources, and authority they need to get the job done.



work breakdown structure (WBS)

While it's true that the Triple Constraint is an important part of any successful project, it doesn't determine success. Projects are made from many parts, more than the three, albeit major ones, that make up the Triple Constraint. Sometimes you can't play around with the Triple Constraint, but those three factors are always at play in the project.

Traceability Matrix

A requirements traceability matrix is a document that demonstrates the relationship between requirements and other artifacts. It's used to prove that requirements have been fulfilled. And it typically documents requirements, tests, test results, and issues.

Read More: <https://www.perforce.com/resources/alm/requirements-traceability->

[matrix](#)

Traceability Matrix

	Requirement #1	Requirement #2	Requirement #3	Requirement #4	Requirement #5	Requirement #6	Requirement #7	Requirement #8	Requirement #9	Requirement #10	Requirement #11	Requirement #12	Requirement #13
Test Case #1			X				X				X		
Test Case #2		X		X			X						X
Test Case #3	X			X			X			X			
Test Case #4				X	X								
Test Case #5								X					
Test Case #6					X				X				