



Project Management (Part 3) - Developing Your Game Plan Using a WBS

An Online Continuing Education Course for Engineers

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Project Management (Part 3) -Developing Your Game Plan Using a WBS

In This Course

- ▶ Breaking your work into manageable pieces
 - ▶ Creating a Work Breakdown Structure
 - ▶ Dealing with unknown circumstances
 - ▶ Keeping project information in a WBS dictionary
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The keys to successful project planning and performance are completeness and continuity. You want to identify all important information in your project plan and address every aspect of your plan during project performance.

Describing in detail all the work required to complete your project helps you accomplish these tasks. Your description of project work provides the basis for scheduling, planning resources, defining roles and responsibilities, assigning work to team members, capturing key project performance data, and reporting on completed project work. This course helps you break down your project work into manageable pieces.

Divide and Conquer: Breaking Your Project into Manageable Chunks

Two of my major concerns when I start a new project are remembering to plan for all important pieces of work and accurately estimating the time and resources required to perform that work. To address both issues, I develop a logical framework to define all work that's necessary to complete the project.

A friend who loves jigsaw puzzles once told me about an acquaintance who had asked him to assemble a 5,000-piece puzzle of the United States. When his acquaintance suggested that, before he starts, he determine whether any pieces were missing and, if so, which ones, my friend laughed. He always found out this information by trying to assemble the puzzle and noting any holes that remained after he'd used all the available pieces. How else could he do it?

You've probably had a similar puzzle-like experience with your project assignments. Suppose you're asked to design and present a training program. You and a colleague work intensely for a couple of months developing the content and materials, arranging for the facilities, and inviting the participants. A week before the session, you ask your colleague whether he's made arrangements to print the training manuals. He says that he thought you were dealing with it, and you say that you thought he was dealing with it. Unfortunately, neither of you arranged to have the manuals printed because you each thought the other person was handling it. Now you have a training session in a week, and you don't have the time or money to print the needed training notebooks.

How can you avoid situations like this one in the future? By using a structured approach in the organizing and preparing stage of your project to identify all required project work. The

following sections explain how to accomplish this task by subdividing your project's intermediate and final products into finer levels of detail and specifying the work required to produce them.

Thinking in detail

The most important guideline to remember when identifying and describing project work is this: Think in detail! In my experience, people consistently underestimate the time and resources they need for their project work because they just don't recognize everything they have to do to complete it.

Suppose you have to prepare a report of your team's most recent meeting. Based on your past experience with preparing many similar reports, you quickly figure you'll need a few days to do this one. But how confident are you that this estimate is correct? Are you sure you've considered all the work that writing this particular report will entail? Will the differences between this report and others you've worked on mean more time and work for you? How can you tell?

The best way to determine how long and how much work a project will take to complete is to break down the required project work into its component deliverables, a process called *decomposition*. (A *deliverable*, often called an *objective*, is an intermediate or final product, service, and/or result your project will produce.)

The greater the detail in which you decompose a project, the less likely you are to overlook anything significant. For example, creating the report in the preceding example actually entails producing three separate deliverables: a draft, reviews of the draft, and the final version. Completing the final version of the report, in turn, entails producing two deliverables: the initial version and the edited version. By decomposing the project into the deliverables necessary to generate the final report, you're more likely to identify all the work you need to do to complete the project.



Tip

Follow these two guidelines when decomposing your project:

- ✓ **Allow no gaps.** Identify all components of the deliverable you're decomposing. In the example of creating a meeting report, if you have *allowed no gaps*, you'll have the desired final product in hand after you've produced the draft, the reviews of the draft, and the final version. However, if you feel that you'll have to do additional work to transform these three subproducts into a final product, you need to define the subproduct(s) that this additional work will produce.
- ✓ **Allow no overlaps.** Don't include the same subproduct in your decomposition of two or more different deliverables. For example, don't include completed reviews of the draft by your boss and the vice president of your department as parts of the draft (the first deliverable) if you've already included them with all other reviews under reviews of the draft (the second deliverable).

Using these guidelines as you specify the parts and subparts of your project decreases the chance that you'll overlook something significant, which, in turn, helps you develop more accurate estimates of the time and resources needed to do the project.

Identifying necessary project work with a Work Breakdown Structure

Thinking in detail is critical when you're planning your project, but you also need to consider the big picture. If you fail to identify a major part of your project's work, you won't have the chance to detail it! Thus, you must be both comprehensive and specific.

My friend's jigsaw puzzle dilemma (refer to this section's intro) suggests an approach that can help you achieve your goal. He can count the pieces before assembling the puzzle to determine whether any pieces are missing. However, knowing that he has only 4,999 pieces can't help him determine which piece is missing. He needs to divide the 5,000 pieces into smaller groups that he can examine and understand. Say that he divides the puzzle of the United States into 50 separate 100-piece puzzles, one for each of the 50 states. Because he knows the United States has 50 states, he's confident that each piece of the puzzle should be in one and only one box.

Suppose he takes it a step further and divides each state into four quadrants each comprised of 25 pieces. Again, he can count the pieces in each box to see whether any are missing. However, determining which one of 25 pieces is missing from the northeast sector of New Jersey is easier than figuring out which piece is missing from the 5,000-piece puzzle of the entire United States.

Figure 1-1 shows how you can depict necessary project work in a *Work Breakdown Structure* (WBS), a deliverable-oriented decomposition of the work required to produce the necessary project products and achieve the project's objectives. The different levels in a WBS have had many different names. The top element is typically called a *project* and the lowest level of detail is typically called a *work package*. However, the levels in between have been called *phases*, *subprojects*, *work assignments*, *tasks*, *subtasks*, and *deliverables*. In this course, the top-level box (the Level 1 component) is a *project*, the lowest level of detail is a *work package*, and the elements in between are *Level 2 components*, *Level 3 components*, and so forth. A work package is comprised of activities that must be performed to produce the deliverable it represents.

Specifically, Figure 1-1 shows that you can subdivide the entire project, represented as a Level 1 component, into Level 2 components and then subdivide some or all Level 2 components into Level 3 components. You can continue to subdivide all the components you create in the same manner until you reach a point at which you think the components you defined are sufficiently detailed for planning and management purposes. These Level "n" components, where *n* is the number of the lowest-level component in a particular WBS branch, are called *work packages*.

Figure 1-1: Developing a Work Breakdown Structure.

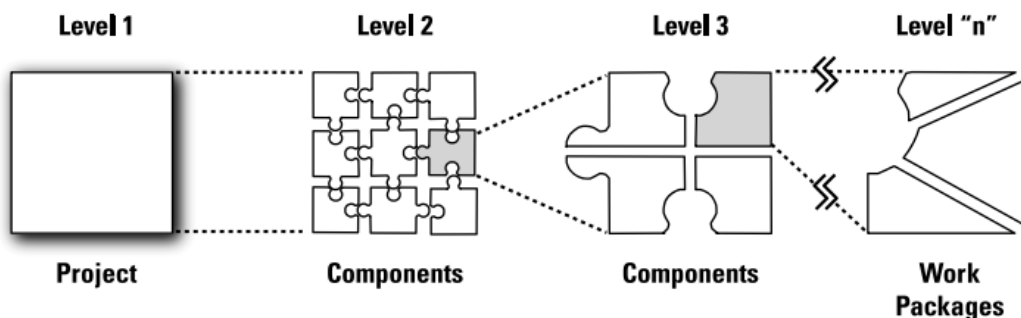


Illustration by Wiley, Composition Services Graphics



Real World Example

Suppose you're responsible for a project titled *Training Program Creation and Presentation* that entails creating and presenting a new training program for your organization. To get started, you develop a WBS for this project as follows:

1. Determine the major deliverables or products to be produced.

Ask yourself, "What major intermediate or final products or deliverables must be produced to achieve the project's objectives?"

You may identify the following items:

- Training program needs statement
- Training program design
- Participant notebooks
- Trained instructor
- Program testing
- Training program presentation



Tip

Creating the WBS with deliverables rather than activities is important because

- It reinforces that in almost all instances, you achieve success by producing desired outcomes, not by...
- It creates... which helps ensure that is, in fact,

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But wh... You can break each of these five items into its component parts and then break those pieces into even more parts. How far should you go? The following sections can help you answer that question.

Asking four key questions

Determining how much detail you need isn't a trivial task. You want to describe your work in sufficient detail to support accurate planning and meaningful tracking. But the benefits of this detail must justify the additional time you spend developing and maintaining your plans and reporting your progress.



Remember

Asking the following four questions about each WBS component can help you decide whether you've defined it in enough detail: