

Chapter 11

Managing Projects

In This Chapter:

- * Handling tasks and resources.
 - * Billing time to clients.
 - * Creating project templates.
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Businesses sell goods and/or services. Goods are generally easy to define and manage, at least from a conceptual standpoint. They're physical inventory items that are usually tracked and priced on a per unit basis. But what about services? They're not always as easy to track and price. Services might be related to goods, as when someone from the electronics store comes to install your flat-screen television set, or services might be the only thing a firm offers, such as legal advice or software development.

Generally, services have three components: **Time, resources and tasks.** Time is self-explanatory; resources are the individuals or entities (such as subcontractors) who actually perform the service; and tasks are the various goals that have to be achieved along the way. So the electronics store sells a service that involves a technician (the resource) for two hours (the time) to install your television set (the task). By the same token, a law firm might supply a team of lawyers (the resources) each billable at their own rate for as long as it takes (the time) to write a contract (the task).

The entire set of tasks necessary to provide a particular service is called a **project**. A task or group of tasks whose successful completion moves the entire project forward is called a **milestone**, and the final milestone is often referred to as the **deliverable**.

If the only thing you're doing with time is billing it to clients, and you don't need to plan or track how time is used, then chances are you don't need any of the additional functionality for project management in Product X. In this case, you simply set up time and/or milestones as inventory items that can be added to customer invoices (see Chapter Six - Invoicing Customers and Paying the Bills). However, if you need to manage projects with multiple tasks and assign resources to each and allow time entry against those tasks,

then you need one or both of two options within Product X, Basic Projects and Advanced Projects. To learn more about these optional features, read on.

A Primer On Project Management

When's the last time you painted a room? Well, painting a room is a classic example of a project. It's made up of a series of tasks, all of which must be performed successfully in a specific order to achieve the desired outcome. A typical painting project might consist of the following:

1. Choose the color and brand of paint.
2. Buy the paint and supplies.
3. Prepare the room:
 - a. Cover the furniture and floor with drop cloths.
 - b. Remove wall decorations.
 - c. Prime the wall.
4. Paint the room.
 - a. First coat.
 - b. Second coat.
5. Clean up.
 - a. Remove the furniture and floor covering.
 - b. Re-hang the wall decorations.

This is called the Work Breakdown Structure (WBS). Notice that some tasks are groups of other, more detailed, tasks. Some of the tasks are independent, meaning that they don't rely on the completion of a prior task before they can be started or completed. Other tasks cannot be started or completed until a prior task has been finished. For instance, Task 3c - Prime the Wall, can't (or shouldn't) be started until the completion of Task 3b - Remove Wall Decorations. Task 3c is said to be dependent upon Task 3b, and the relationship between the two tasks is known as the **dependency**. Table 11-1 shows the WBS with dependencies.

Table 11-1: Work Breakdown Structure (WBS) with dependencies.

<i>Task</i>	<i>Description</i>	<i>Dependency</i>
1	Choose the color and brand of paint.	
2	Buy the paint and supplies.	Task 1
3	Prepare the room:	Task 2
3.a.	Cover the furniture and floor with drop cloths.	
3.b.	Remove wall decorations.	
3.c.	Prime the wall.	Task 3b
4	Paint the room.	Task 3
4.a.	First coat.	
4.b.	Second coat.	Task 4a
5	Clean up.	Task 4
5.a.	Remove the drop cloths.	
5.b.	Re-hang the wall decorations.	Task 5a

In this WBS, tasks are dependent on other tasks at the same level, such as Task 2 being dependent on Task 1, and subtasks are dependent upon other subtasks within the same task group, as in Task 3c being dependent on Task 3b. This tends to be the most streamlined way to organize a WBS. However, in Product X, you can make any task or subtask dependent on any other in the entire project, as you will see later in this chapter.

This WBS assumes you are doing this project alone. That's why preparing the room can't start until you buy the paint and supplies, unless, of course, you clone yourself! But what if a friend helps you? By adding the friend you now have two resources and you can divvy up the work. The dependencies on the WBS change because now someone can shop while the other person prepares the room. Since tasks can now be performed simultaneously, determine whether a dependent task must be completed first or whether it can be started at the same time and indicate finish-to-start or start-to-start on the WBS. This is called the **dependency type**.

Table 11-2 shows the WBS with two additional columns: Dependency Type and Resource.

Table 11-2: WBS with dependency types and resources.

<i>Task</i>	<i>Description</i>	<i>Dependency</i>	<i>Dependency Type</i>	<i>Resource</i>
1	Choose the color and brand of paint.			Kate
2	Buy the paint and supplies.	Task 1	Finish-to-Start	Kate
3	Prepare the room: Cover the furniture and floor with drop cloths.	Task 2	Finish-to-Start	Kate & Adam
3.a.	Remove wall decorations.	Task 3a	Start-to-Start	Adam
3.b.	Prime the wall.	Task 3b	Finish-to-Start	Kate & Adam
3.c.	Paint the room.	Task 3	Finish-to-Start	Kate & Adam
4.a.	First coat.			
4.b.	Second coat.	Task 4a	Finish-to-Start	
5	Clean up.	Task 4	Finish-to-Start	
5.a.	Remove the drop cloths.			Kate
5.b.	Re-hang the wall decorations.	Task 5a	Start-to-Start	Adam

Can you see the story that's unfolding here? Kate is going to pick the color and brand of paint, and then she's going to shop for it. While she's at the store, Adam is going to remove the wall decorations. When she returns with the paint and supplies, they lay the drop cloths together, and then they prime the wall. The reason Task 3c is dependent on Task 3b, and Task 3b is dependent on Task 3a is that 3a and 3b both have to be completed before they can start on 3c - Prime the Wall. However, 3a and 3b can be done at the same time. Once the wall has been primed, Kate and Adam will paint the room together, one coat at a time. They will then assume separate chores in cleaning up the room.

Now, say Kate and Adam were hired by someone else to paint this room. They want to use the WBS to determine how long it will take them to paint the room. Then they need to assign a value to their time, so they can determine a fair price to charge their customer in order to earn a profit. Table 11-3 shows the WBS with three new columns: Hours, Rate and Price with totals.

Table 11-3: WBS with dependency types and resources.

<i>Task</i>	<i>Description</i>	<i>Dependency</i>	<i>Dependency Type</i>	<i>Resource</i>	<i>Hours</i>	<i>Rate</i>	<i>Price</i>
1	Choose the color and brand of paint.			Customer			
2	Buy the paint and supplies.	Task 1	Finish-to-Start	Kate	0.5	17.5	8.75
3	Prepare the room:	Task 2	Finish-to-Start				-
3.a.	Cover the furniture and floor with drop cloths.			Kate	0.25	17.5	4.38
				Adam	0.25	15	3.75
3.b.	Remove wall decorations.	Task 3a	Start-to-Start	Kate	0.75	17.5	13.13
				Adam	1	15	15
3.c.	*Prime the wall.	Task 3b	Finish-to-Start	Kate	1.5	17.5	26.25
				Adam	1.5	15	22.5
4	Paint the room.	Task 3	Finish-to-Start				-
4.a.	First coat.			Kate	3	17.5	52.5
				Adam	3	15	45
4.b.	*Second coat.	Task 4a	Finish-to-Start	Kate	2.5	17.5	43.75
				Adam	2.5	15	37.5
5	Clean up.	Task 4	Finish-to-Start				-
5.a.	Remove the drop cloths.			Kate	0.25	17.5	4.38
5.b.	*Re-hang the wall decorations.	Task 5a	Start-to-Start	Kate	0.75	17.5	13.13
				Adam	1	15	15
				TOTAL	18.75	230	305

* Milestone

Now the WBS shows how long they expect things to take for each of them and what they will charge the customer. The rate chosen is based on Kate and Adam's perceived value of their time (Kate's rate is higher because she's managing the project), but if they were employed by a painting contractor the rate would be based on their actual wage plus any overhead (i.e., the **labor cost**). Also, you're looking at this project from a time and billing perspective and not from a project scheduling perspective. If you were to further develop this WBS, you wouldn't only account for the resource's time and cost, but for the total time necessary to complete each task, which in this case would include how long it takes the paint to dry because you wouldn't want to re-hang the decorations on a wall with wet paint.

The asterisks in Table 11-3 mark the milestones in the project. As was said earlier, a milestone is a task or group of tasks that significantly move the project forward. The first milestone is Task 3c - Prime the wall. All the tasks that come before this are not significant as they can all be easily undone: The paint and supplies can be returned; the drop cloths folded up; and the decorations returned to the wall. But once the wall has been primed, the

painters have added significant value and should be paid for their time. The next milestone is the second coat of paint. At this point, the job is all but done and the painters have a right to their money up to this point. Finally, the last milestone is when they re-hang the wall decorations. Now, the job is complete, and Kate and Adam would have good cause to go to court if the customer decided to withhold payment.

Projects can be billed to customers in a variety of ways, including:

- * **Straight Time:** Only a resource's time is accounted for and billed.
- * **Time and Materials:** The resource's time and any materials used or expenses incurred are billed.
- * **Cost Plus Fixed Fee:** The company's cost, including labor, materials and expenses, plus an additional pre-negotiated fixed sum.
- * **Fixed Fee:** A flat rate for the deliverable.

Billing can occur at scheduled intervals, such as once a month, or when certain negotiated milestones are met.

Product X manages projects from a time and labor perspective. Notice in Table 11-3 that the customer is purchasing the paint and supplies, so this project only has to track time, not materials. If a contractor using Product X provides the paint and supplies, those materials would be accounted for as regular inventory (see Chapter 7 - Managing Inventory and Other Products and Services).

So, that's a basic primer on project management from a time and billing perspective. The rest of this chapter describes how it applies to Product X.

Managing Service-Oriented Tasks

Even without enabling the optional project features, you can track basic tasks in Product X as they pertain to customers. Go to Lists @@--> Relationships @@--> Customers and click Edit next to the name of a customer. Click Task on the Create New bar at the top of the Customer page. Figure 11-1 shows the Create New Task form.

Figure 11-1: The Create New Task form on the Customer page.

Here you can start setting up a basic WBS for tasks related specifically to this customer. They won't be grouped under a project umbrella and you can't identify dependencies or create subtasks, but here's what you can do:

- * **Title:** Identify the task with a name such as Delivery, Installation or Send technician.
- * **Assign To:** Assign any employee in the system as a single resource for this task.
- * **Start Date:** Establish when this task is to begin.
- * **Due Date:** Establish when this task is to be completed.
- * **Date Completed:** Identify when this task was completed.
- * **Insert Before:** Place this task before another task.
- * **Priority:** Set a priority for this task: Low, Medium or High.
- * **Status:** Mark a status for this task: Not Started, In Progress or Completed.
- * **Notes:** Include text describing this task in detail.

When you create a new task in a customer record and click Save, you will find the record on the Activities subtab of the General subtab for that customer. (If you don't want to save this task, click Cancel). Figure 11-2 shows the Activities subtab.

Figure 11-2: The Activities subtab on the Customer page.

You manage tasks, events and phone calls on the Activities subtab, so as you can see, it's not a dedicated project management system.

You can even log the time spent on tasks for a client without turning on any additional features. Click the Time Tracking subtab on the General subtab in Customer page. Click New Time. Figure 11-3 shows the Time Tracking entry form.

Figure 11-3: The Time Tracking entry form.

On this form you enter time and billing information related to this customer. However, you can't relate this time to specific tasks on the Activities subtab. What you can do:

- * **Employee:** Select the resource that performed the work from this drop-down list.
- * **Date:** Enter the date the work was performed.
- * **Customer:** Change the customer for whom the work was performed from the drop-down list. It will default to the current customer.

- * **Billable:** Select this option to mark this time as billable to the customer.
- * **Service Item:** Use this drop-down list to select a Service Item, such as Delivery, Installation or Repair.
- * **Department, Class and Location:** Use these three drop-down lists to assign the time to particular areas within the organization for accounting purposes.
- * **Duration:** How long did this task take? Use the two buttons to the right of this field to either start a timer while you work, or to calculate the time based on values you enter.
- * **Price Level and Rate:** Use these fields to establish the amount being charged per unit of time. The values in these fields are driven by the selection in Service Item.
- * **Memo:** Describe the work performed.

Enabling Project Features

You must be logged in as an Administrator to enable features. To enable project features from this role, select Setup @@--> Company @@--> Enable Features.

To enable basic project functionality, select Projects on the Company subtab and click Save. This will add a new subtab to the General subtab on the Customer page called Projects. With this feature enabled, tasks can be created for projects and not just customers, and top-level information about the overall project can be tracked, including budget and accounting details.

To enable advanced project functionality, select both Projects and Advanced Projects. Don't worry, if you forget to enable Projects first the system will warn you. Advanced Projects will turn on the ability to designate employees and vendors as resources and assign them to projects, as well as build project schedules and view them in a graphical format called Gantt charts. It will also add menu items that will allow you to create and edit projects independently from customers so that you can set up re-usable project templates.

Setting Up Projects

Once Projects has been enabled in Product X, you have the ability to create new projects and associate tasks with them. To create a new project:

1. **Select Lists @@--> Relationships @@--> Customers.**

2. **Click Edit next to the customer name you want to assign this project.**
Or create a new customer, if you wish.
3. **Select the Projects subtab on the General subtab.**
4. **Click New Project.**

Figure 11-4 shows the Create New Project page.

Figure 11-4: The Create New Project page.

Use the following fields to begin setting up a basic project:

- * **Project Name**
- * **Status:** Use the drop-down list to choose a status, such as Not Started, In Progress or Completed.
- * **Start Date**
- * **Project Manager:** Select an employee name from the drop-down list to designate a Project Manager.

Click Save. To access this project at any time, select Lists @@--> Relationships @@--> Customers, but notice when you get to the Customer list page, it now says Customers & Projects. The projects you create will be found nested underneath the customers with which they are associated. Without Advanced Projects enabled, you are only allowed to create projects associated with customers.

You add tasks and time entries to projects using the exact same methods as you do for customers, as was outlined earlier in this chapter.

One additional subtab you will see on the Project page is called Subprojects. You can add one more level of project underneath this one and add tasks and time entries to it also. However, you cannot add subprojects to subprojects.

Working With Advanced Projects

Once Advanced Projects has been enabled, you begin using it by designating specific employees and/or vendors as project resources. To designate an employee:

1. **Select Lists @@--> Employees @@--> Employees.**

2. **Click Edit next to the name of the employee you want to designate as a resource.**
3. **Click the Human Resources subtab.**
4. **Select the Project Resource option.**

This option was created when you enabled Advanced Projects.

To designate a vendor as a resource:

1. **Select Lists @@--> Relationships @@--> Vendors.**
2. **Click Edit next to the name of the vendor you want to designate as a resource.**
3. **Click the Financial subtab.**
4. **Select the Project Resource option.**

This option was created when you enabled Advanced Projects.

With Advanced Projects enabled, you can create and copy projects independently from customers. After you have enabled Advanced Projects (see *Enabling Project Features* earlier in this chapter), you will be able to access projects by selecting Lists @@--> Relationships @@--> Projects. Figure 11-5 shows the Project page.

Figure 11-5: Creating a new project.

To create a new project:

1. **Select Lists @@--> Relationships @@--> Projects @@--> New.**
2. **Enter a name into the Project Name field.**
3. **Select a Customer from the drop-down list.**

In Advanced Projects, this field is optional. Leave this field blank if you'd like to use this project as a template for other projects.

4. **Select a Status from the drop-down list.**
5. **Indicate the Start Date for this project.**

The End Date will be calculated automatically based on the task schedule.

6. **Assign Resources to this project.**

On the Resources subtab, select names from the drop-down list, clicking Add after each selection. Notice that you will only see names of employees or vendors whom you've already designated as Project Resources in their respective Employee or Vendor pages. Also, only the

resources you assign to the overall project will be available as resources for its associated tasks.

Select the Schedule subtab on the Project page and add tasks to this project. For each task you'd like to add:

1. Click New Project Task.

2. Type a Name for this Project Task.

3. Assign a Parent Task from the drop-down list, if appropriate.

In the WBS for our Room Painting sample project above, the parent task for subtasks 3a, 3b and 3c is Task 3.

4. Use the Insert Before drop-down list to specify where in the WBS this task will fall.

5. Type the number of hours you expect this task to consume in the Estimated Work field.

6. Choose the Constraint Type from the drop-down list.

The Constraint Type specifies whether this task must begin on a specific date or if it's start date will be determined by the completion of a dependent task before it.

7. Select a Start Date only if the Constraint Type is Fixed Start.

Otherwise the Start Date will be automatically calculated based on this task's dependencies. In other words, the start date will automatically be the day after the last task is scheduled to finish.

8. Add resources on the Assignees subtab.

Use the drop-down list to assign employees or vendors as resources to this task. Click Add after each one.

9. Add dependencies on the Predecessors subtab.

Indicate whether a task is dependent on the completion of another task by selecting the dependent task from the Task drop-down list. You can add more than one dependent task by clicking Add after each selection. For example, using the Room Painting project as an example, you might add both tasks 3a and 3b as dependencies for task 3c - Priming the wall.

10. Select the Dependency Type from the drop-down list on the Predecessors subtab.

Select either Finish-to-Start or Start-to-Start for each dependent task in the list.

11. Click Save to add this task to the project.

If you've added more than one task to this project with dependencies and durations, click the View Gantt button to see a graphical representation of your project. Figure 11-6 shows an example of a Gantt chart.

Figure 11-6: Sample Gantt chart in Product X.

<Tip>

The Gantt chart is named for Henry L. Gantt (1861-1919), an American mechanical engineer who developed it to show planned and actual progress on large-scale construction projects. Gantt charts were used to great success on the Hoover Dam and the Interstate Highway System. Today they're used for just about every type of project imaginable, from launching the space shuttle to painting a bedroom.

To enter time for projects using Advanced Projects in Product X:

1. **Select Lists @@--> Relationships @@--> Projects.**
2. **Click Edit next to a project name.**
3. **Click Edit next to a task name on the Schedule subtab.**
4. **Click Time in the Create New bar.**
5. **Fill out the Time form.**

It's the same time entry form that was used earlier in this chapter.

6. **Click Save.**

Integration with Product Y

Product X account holders using Advanced Projects can integrate with a more powerful and robust project management system called Product Y. Product Y, when coupled with Product X, provides you with enterprise-level project management, billing, and reporting features that allow you to assign, schedule and balance resources, create detailed work breakdown structures, analyze performance metrics, as well as process expense reports, bill clients, and post project-related financial transactions to your general ledger. For more information, visit www.Product Y.com.