



From Dates to Dollars

Advanced Cost Modeling in MS Project

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What You'll Learn Today

What will this plan cost – and can I trust the number in MS Project?

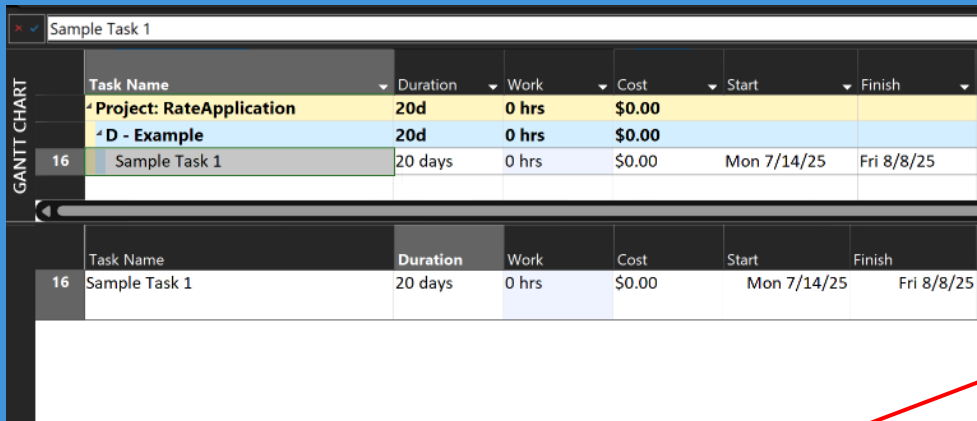
- Why default cost modeling in Project Fails
- Basics of indirect costs – fringe, overhead, G&A, and fee
- The rounding and reconciliation problem
- Using rate tables A-E for cost perspectives
- Loading precision rates with Excel and VBA
- Modeling labor and non-labor costs
- Live cost switching



How MS Project Handles Work and Cost

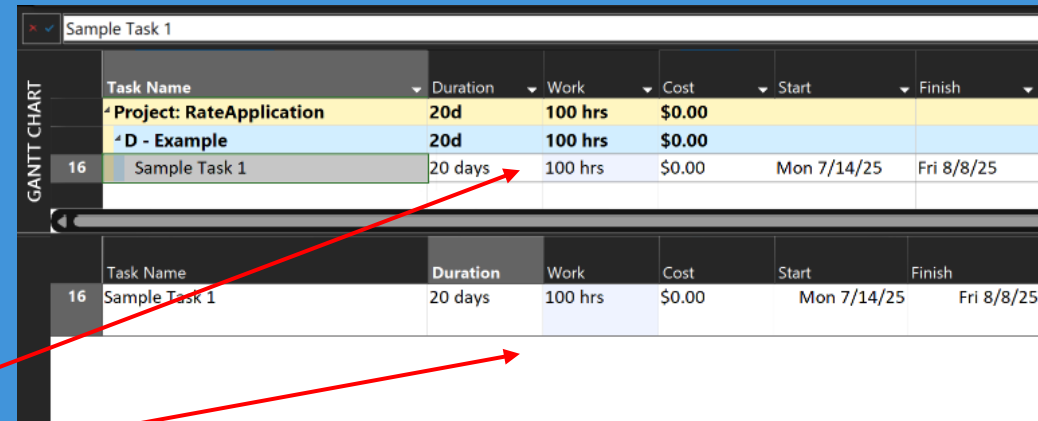
Both Work and Cost may be manually entered in task fields

Work – If there are no assignments, the task Work field will accept the value and store it in the task work field WITHOUT any related assignment.



Sample Task 1

| Task Name | Duration | Work | Cost | Start | Finish |
|--------------------------|----------|-------|--------|-------------|------------|
| Project: RateApplication | 20d | 0 hrs | \$0.00 | | |
| D - Example | 20d | 0 hrs | \$0.00 | | |
| 16 Sample Task 1 | 20 days | 0 hrs | \$0.00 | Mon 7/14/25 | Fri 8/8/25 |



Sample Task 1

| Task Name | Duration | Work | Cost | Start | Finish |
|--------------------------|----------|---------|--------|-------------|------------|
| Project: RateApplication | 20d | 100 hrs | \$0.00 | | |
| D - Example | 20d | 100 hrs | \$0.00 | | |
| 16 Sample Task 1 | 20 days | 100 hrs | \$0.00 | Mon 7/14/25 | Fri 8/8/25 |

Hours typed in Work field of task – no assignment created



How MS Project Handles Work and Cost

If I then make an assignment to this task, the prior work value is replaced by the assigned hours.

| | | | | | | | |
|---------------|--------------------------|----------|---------|------------|-------------|------------|----------------|
| Sample Task 1 | | | | | | | |
| GANTT CHART | Task Name | Duration | Work | Cost | Start | Finish | Resource Names |
| | Project: RateApplication | 20d | 160 hrs | \$6,153.85 | | | |
| | D - Example | 20d | 160 hrs | \$6,153.85 | | | |
| | 16 Sample Task 1 | 20 days | 160 hrs | \$6,153.85 | Mon 7/14/25 | Fri 8/8/25 | Bob |
| | | | | | | | |
| 16 | Task Name | Duration | Work | Cost | Start | Finish | Add New Column |
| | Sample Task 1 | 20 days | 160 hrs | \$6,153.85 | Mon 7/14/25 | Fri 8/8/25 | |
| | Bob | | 160 hrs | \$6,153.85 | Mon 7/14/25 | Fri 8/8/25 | |

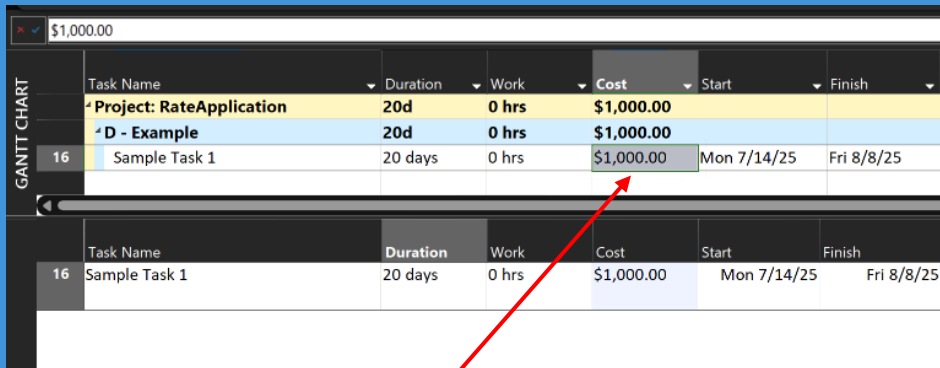
Bob was assigned at 100% for 20 days, MS Project calculated 160 hours. The old “phantom” work value of 100 hours is overwritten by the assignment.



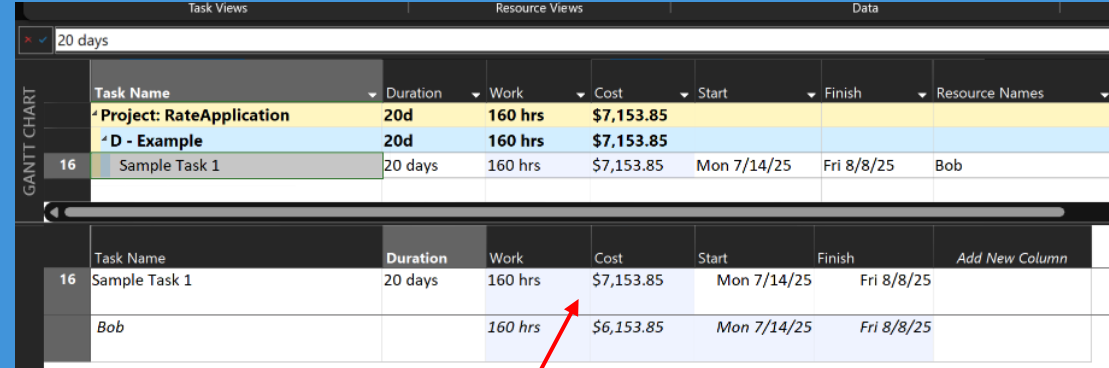
How MS Project Handles Work and Cost

Cost Behaves Differently.

If I enter a value into the cost field, MS Project will store this value and it will persist if I then add a resource assignment



| Task Name | Duration | Work | Cost | Start | Finish |
|--------------------------|----------|-------|------------|-------------|------------|
| Project: RateApplication | 20d | 0 hrs | \$1,000.00 | | |
| D - Example | 20d | 0 hrs | \$1,000.00 | | |
| 16 Sample Task 1 | 20 days | 0 hrs | \$1,000.00 | Mon 7/14/25 | Fri 8/8/25 |



| Task Name | Duration | Work | Cost | Start | Finish | Resource Names |
|--------------------------|----------|---------|------------|-------------|------------|----------------|
| Project: RateApplication | 20d | 160 hrs | \$7,153.85 | | | |
| D - Example | 20d | 160 hrs | \$7,153.85 | | | |
| 16 Sample Task 1 | 20 days | 160 hrs | \$7,153.85 | Mon 7/14/25 | Fri 8/8/25 | Bob |

Type \$1,000 into cost field on task.

Now assign a resource that has cost associated with it – the task cost data is stored as an offset



How MS Project Handles Work and Cost

If the task holds a cost offset value, it is visible in the field “fixed cost”

| Task Name | Duration | Work | Fixed Cost | Cost | Start | Finish |
|--------------------------|----------|---------|------------|------------|-------------|------------|
| Project: RateApplication | 20d | 160 hrs | \$1,000.00 | \$7,153.85 | | |
| D - Example | 20d | 160 hrs | \$1,000.00 | \$7,153.85 | | |
| 16 Sample Task 1 | 20 days | 160 hrs | \$1,000.00 | \$7,153.85 | Mon 7/14/25 | Fri 8/8/25 |

| Task Name | Duration | Work | Fixed Cost | Cost | Start | Finish |
|------------------|----------|---------|------------|------------|-------------|------------|
| 16 Sample Task 1 | 20 days | 160 hrs | \$1,000.00 | \$7,153.85 | Mon 7/14/25 | Fri 8/8/25 |
| Bob | | 160 hrs | | \$6,153.85 | Mon 7/14/25 | Fri 8/8/25 |

Fixed Cost Retained at Task Level

Moral of the Story – NEVER type cost values into task cost fields for cost modeling!



Primer on Direct and Indirect Costs

| Direct Costs | Indirect Costs |
|------------------|-----------------------|
| Labor, materials | Fringe, overhead, G&A |
| Task-specific | Business-wide support |

Example Rate Buildup for Labor

Salary = \$97,850/yr

Hourly = $\$97,850 / 2080 = \47.0337

| Component | Calculation | Result |
|---------------------------------|--------------------------|------------------------|
| Fringe (30%) | $\$47.0337 \times 0.30$ | \$14.1101 |
| Base + Fringe | $\$47.0337 + \14.1101 | \$61.1438 |
| Overhead (60%) | $\$61.1438 \times 0.60$ | \$36.6863 |
| Base + Fringe + Overhead | $\$61.1438 + \36.6863 | \$97.8301 |
| G&A (10%) | $\$97.8301 \times 0.10$ | \$9.7830 |
| Subtotal (Burdened) | $\$97.8301 + \9.7830 | \$107.6131 |
| Fee (5%) | $\$107.6131 \times 0.05$ | \$5.3807 |
| Total Rate | $\$107.6131 + \5.3807 | \$112.9938/hour |



Adding Cost Information to MS Project

From the Resource Sheet, you can add a standard rate to a resource and the tool will apply that rate.

What it's really doing behind the scenes is updating the default entry in row 1 of Cost Rate Table A

Row 1 has no effective date, which translates to 1/1/1984 in MS Project

The screenshot shows the Microsoft Project Resource Sheet and the Resource Information dialog box. The Resource Sheet has columns: ID, Resource Name, Code, Type, Max., Std. Rate, Ovt. Rate, Cost/Use, Accrue, Base, Code, and Add New Column. The first row shows resource 'Example Labor' with a standard rate of \$50.00/hr. The Resource Information dialog box is open, showing the 'Costs' tab. The 'Resource Name' is 'Example Labor'. The 'Cost rate tables' section shows a table with columns: Effective Date, Standard Rate, Overtime Rate, and Per Use Cost. The first row of the table has an effective date of 1/1/1984, a standard rate of \$50.00/hr, an overtime rate of \$0.00/hr, and a per use cost of \$0.00. A red arrow points from the 'Std. Rate' column in the Resource Sheet to the 'Standard Rate' column in the 'Cost rate tables' section of the dialog box.

| Effective Date | Standard Rate | Overtime Rate | Per Use Cost |
|----------------|---------------|---------------|--------------|
| 1/1/1984 | \$50.00/hr | \$0.00/hr | \$0.00 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |



What if I want to change this labor value over time?
I can add new rows to apply a new effective rate at date boundaries.

[illegible]

Sample Task 1

Task Name

Duration

Work

Fixed Cost

Cost

Start

Finish

Project: RateApplication

45d

360 hrs

\$0.00

\$26,800.00

D - Example

45d

360 hrs

\$0.00

\$26,800.00

16

Sample Task 1

45 days

360 hrs

\$0.00

\$26,800.00

Mon 12/1/25

Fri 1/30/26

Nov

Dec

Qtr 1, 2026

Jan

Task Name

Duration

Work

Fixed Cost

Cost

Start

Finish

16

Sample Task 1

45 days

360 hrs

\$0.00

\$26,800.00

Mon 12/1/25

Fri 1/30/26

Example Labor

360 hrs

\$26,800.00

Mon 12/1/25

Fri 1/30/26

Details

Nov

Dec

Qtr 1, 2026

Jan

Work

184h

176h

Cost

\$9,200.00

\$17,600.00

Work

184h

176h

Cost

\$9,200.00

\$17,600.00



Additional Rate Application Levers

Per Use Cost – Assigns a value in addition to the calculated work * rate to the cost per assignment

Overtime – Allows for a different rate for hours planned over standard

Cost Accrual – Prorated, Start of Finish

- Start and Finish do not honor effective dates, and will calculate the cost of the entire assignment based on the start or finish date based on accrual method set.



The Penny Problem

The Cost Rate interface restricts all values to 2 decimal point precision.

We cannot model precise rates in the same way pricing, accounting, or EVMS cost engine tools do because we always have rounding errors.

An Example with 250,000 hours of a burdened labor source

| Rate Input Style | Hourly Rate | Total Cost | Delta from True Value |
|--------------------------|--------------|-----------------|-----------------------|
| Full precision | \$110.048077 | \$27,512,019.25 | 0 |
| Manual entry (rounded) | \$110.05 | \$27,512,500.00 | +\$480.75 |
| Manual entry (truncated) | \$110.04 | \$27,510,000.00 | -\$2,019.25 |
| Simplified entry | \$110.00 | \$27,500,000.00 | -\$12,019.25 |



Reconciling to Different Result Units

What if we want to see direct labor costs separately from fully burdened costs? How about total cost including any associated profit or fee?

Which Value to we put in the Standard Rate?

These are the Cost Rate Tables A through E

Loading these rate tables, and subsequently applying them is terribly slow and difficult in the primary user interface. Even if we get them loaded, we still have the Penny Problem.

Resource Information

General Costs Notes Custom Fields

Resource Name: Example Labor

Cost rate tables

For rates, enter a value or a percentage increase or decrease from the previous rate. For instance, if a resource's Per Use Cost is reduced by 20%, type -20%.

| | Effective Date | Standard Rate | Overtime Rate | Per Use Cost |
|-------------|----------------|---------------|---------------|--------------|
| A (Default) | -- | \$50.00/h | \$0.00/h | \$0.00 |
| B | Thu 1/1/26 | \$100.00/h | \$0.00/h | \$0.00 |
| C | Fri 1/1/27 | \$150.00/h | \$0.00/h | \$0.00 |
| D | | | | |
| E | | | | |

Cost accrual: Prorated

Help Details... OK Cancel



Advanced Scenario

Here's a reasonably standard federal government planning integration problem:

I'm supporting a proposal that has labor, material, and travel. Travel cannot carry fee, and the customer is giving 5% fee on material and 10% fee on labor. I have a target cost to stay within and my management is trying to hit a target aggregate fee of $> 7\%$.

How can I use MS Project to model this?



Advanced Scenario – Solution Setup

For labor I create resources of type Work

For material and travel, I create resources of type Material

Why not Cost? Cost type resources do not use the Cost Rate Tables! We can't apply any of these techniques against a cost type resource.

I define my rate tables as follows:

A = Labor Direct Cost

B = Material Direct Cost

C = Total Burdened Cost without Fee

D = Total Price (Cost + Fee)

E = Fee Only



Live Demo

Using the RateApplication.mpp file and the excel load file MS Project Rate File.xlsx, show how we can load this scenario and review results.

Step 1 – Load the schedule file with the plan

Step 2 – Assign Resources

Step 3 – Load the rate import excel file with rate information

Step 4 – Import rates

Step 5 – Demonstrate Rate Views and Macro based switching

Step 6 – Live “What-If” demonstration



Summary

MS Project Cost Rate Tables a very powerful and flexible feature BUT:

- There is no bulk load feature and the UI is clunky
- The UI forces rounding to the nearest penny

With a little VBA knowledge, we showed how you can create a simple but flexible rate management utility in excel, and import the results directly into MS Project.

We can also automate the assignment switching between cost rate tables to apply those rates in real time.

You have the power to assign the cost rate tables to reflect any answer that matters to you.