

Working Smarter with Decision Trees

What you'll learn:

1. *The benefits of decision tree diagrams*

2. *How to create a decision tree diagram*

In this article, we'll cover how to use a decision tree diagram (or tree) to describe a decision's rationale or process. Using a decision tree diagram makes it much easier for everyone—analyst, presenter and audience—to see how a decision was made or should be made.

1. *The Benefits of Decision Tree Diagrams*

Decision trees are usually used in the context of identifying a strategy most likely to reach a goal, by modeling decisions and probable outcomes. In presentations, decision trees can be used to display the rationale behind a decision in a way that let's the audience better see where the factors come to play. For presentation purposes, decision trees are easy to understand and interpret. Even without data, decision trees can help describe decision situations and their probabilities or desired outcomes.

2. *How to Create a Decision Tree Diagram*

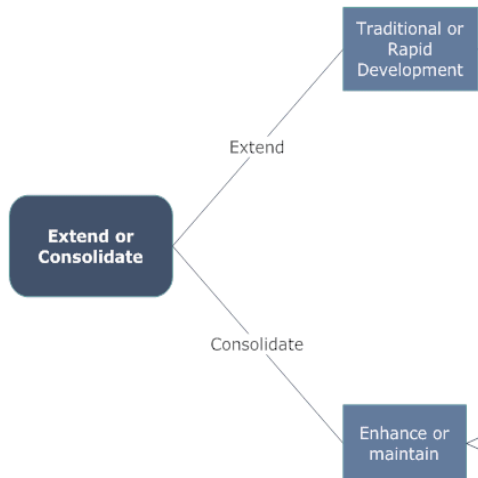
Start by structuring the problem—consider the alternatives and consider the outcomes for each alternative. To create the tree, follow some rules: outcomes flow from left-to-right or from top-to-bottom. There are three types of nodes: leaf or terminal node, chance node and decision nodes. It helps to use different shapes for each type of node, but it is not required.

Start with a box at the top or left of the diagram. Enter the trigger event ('Patient presents with sore throat') or decision statement ('Extend or consolidate product line'). Let's look at the product line decision as an example. The following is the text version of the decision:

- Extend or Consolidate
 - Extend
 - Traditional or rapid development
 - Traditional
 - Cost is \$150,000
 - Revenue \$500,000
 - **Profit = \$350,000**
 - Rapid
 - Cost \$80,000
 - Revenue \$100,000
 - **Profit = \$20,000**
 - Consolidate
 - Enhance or maintain
 - Make Enhancements
 - Cost \$30,000
 - Revenue \$60,000
 - **Profit = \$30,000**
 - Maintain products
 - Cost \$0
 - Revenue \$10,000
 - **Profit = \$10,000**

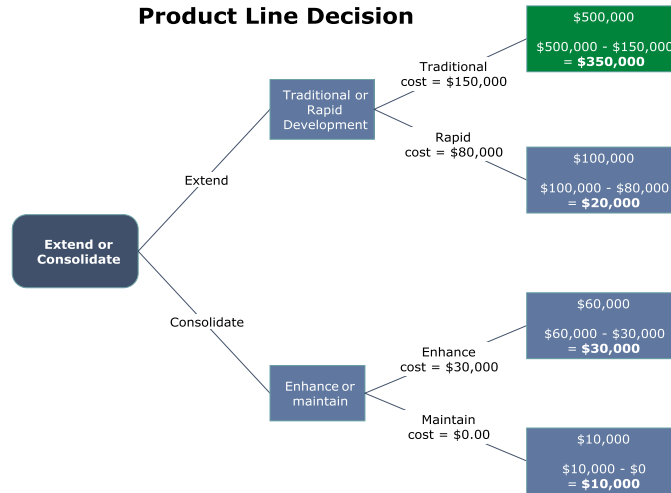
This is surely not easy to follow or interpret and it's not easy to see where decision points are made. Let's turn this into a visual with a decision tree graphic.

Start with a box labeled 'Extend or consolidate.' From here there are two paths, so draw two lines fanning out. One arm is the 'Extend' product line arm; the other is the 'Consolidate' arm.

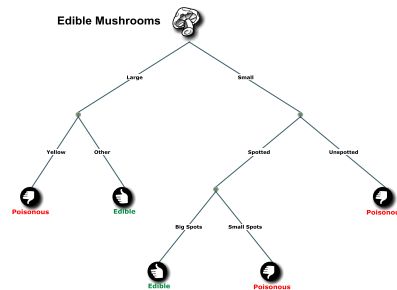
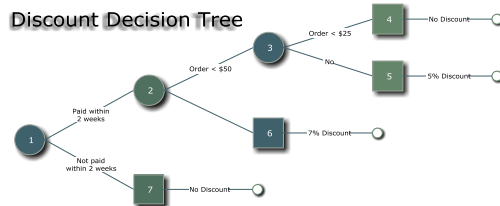


Now each of these paths hits a decision point. Again, draw lines to fan out all the choices on each. In this case, there are two choices for each subsequent decision. In the leaf or terminating nodes, we can put the results (in this case, what the profit is for each complete path). That's it.

With a decision tree, it's much easier to visualize and communicate the decision process than it is with text and bullets.



For presentations, you can vary the look and style of the decision tree to best support your message, and to make the tree easy to read.



If you are using software to create your decision tree visuals, look for an application that lets you control the look of the tree with colors, styles, annotations, themes and effects. At the same time, look for easy-to-use software that lets you rapidly add and edit the tree automatically, without having to draw lines and shapes yourself.

To watch a video on how to make a decision tree diagram with SmartDraw [click here](#).

This document is part of the *Working Smarter Series*—a collection of publications describing proven tactics for improving business operations, provided free by SmartDraw.com. To download a free trial of SmartDraw, visit www.smartdraw.com