# Contents

1. **Introduction to Minitab Workspace**
   - Objectives
   - Learn about Workspace
   - Learn about this guide
   - Open a project
   - Open a tool
   - What’s next
   - Page 3

2. **Use a brainstorming tool**
   - Objectives
   - Learn about brainstorming tools
   - Add a brainstorming tool
   - Generate a brainstorm list
   - Make X and Y variables from shapes
   - What’s next
   - Page 5

3. **Map your process**
   - Objectives
   - Learn about maps
   - Add a process map
   - Add shapes and connectors
   - Add variables to a shape
   - Show data on a map
   - What’s next
   - Page 8

4. **Work with variables in forms**
   - Objectives
   - Learn about forms
   - Add a C&E Matrix
   - Add a Control Plan
   - What’s next
   - Page 13

5. **Add a Monte Carlo simulation**
   - Objectives
   - Learn about Monte Carlo simulation
   - Learn about parameter optimization
   - Learn about sensitivity analysis
   - What’s next
   - Page 15
1. Introduction to Minitab Workspace®

Objectives

- Learn about Workspace on page 3
- Learn about this guide on page 3
- Open a project on page 3
- Open a tool on page 4

Learn about Workspace

Workspace is a comprehensive set of visual tools, forms, and templates. You can open a single tool, add as many tools as you need, and save them all in a single project. You can also open a project with a built-in roadmap based on quality improvement methodologies, such as DMAIC, QFD, Just Do It, and Kaizen.

With all your tools in one place, data can be shared across tools and projects making it easier to work more efficiently, identify opportunities, understand complex initiatives, and ultimately solve problems.

Learn about this guide

This guide introduces you to some of the most commonly-used tools in Workspace. Use this guide to learn how to complete the following tasks.

- Open a tool or a project.
- Insert a fishbone, generate a brainstorm list, and create variables from the list.
- Map your process using a process maps, cross-functional maps, and value stream maps.
- Open forms and enter and share data.
- Add a Monte Carlo simulation and become familiar with its concepts.

Open a project

You can open a project that has a roadmap. A roadmap defines the phases of the project, as well as the tools and forms to use in each phase. You can follow the methodology of a predefined roadmap, or you can create a custom project based on a roadmap that you define.

1. To open Workspace, double-click the shortcut icon.
2. Select New, then choose a project.
   Find the project templates under Projects.

Projects that have a roadmap

The following image shows an example of a project that has a roadmap in the navigator pane and a process map in the workspace.
Projects can have the following components.

1: Navigator pane
   The area where you access the management tools and roadmap tools in your project.

2: Management Section
   The set of forms in a project template that contain project data, such as Business Unit, Department, or Location, which are common to all projects. These forms ensure that project data is collected consistently across all projects.

3: Roadmap
   The area where you add tools and forms and organize your project into phases.

4: Workspace
   The area where you view and edit tools.

5: Task pane
   The area where you interact with items in the workspace, for example, add data to shapes, apply formatting, and more.

Open a tool
You can open a single tool for a quick analysis, then add more tools as you need them. Because the tools are stored together in a single project, they can share data.

1. To open Workspace, double-click the shortcut icon.
2. Select New, then choose a tool from the list of common tools. To see a list of all the tools, select Show full list of tools.
   You can find this link below the tool gallery.

What's next
Let's get started!
2. Use a brainstorming tool

Objectives
- Learn about brainstorming tools on page 5
- Add a brainstorming tool on page 6
- Generate a brainstorm list on page 6
- Make X and Y variables from shapes on page 6

Learn about brainstorming tools
Workspace offers several types of brainstorming tools.

Use a fishbone to brainstorm the possible causes of a specific effect.

![Fishbone Diagram]

Use a CT tree to identify ways to meet customers’ needs. CT trees allow you to brainstorm inputs about a critical-to-quality statement.

![CT Tree Diagram]

Use an idea map for general purpose brainstorming. Idea maps allow you to brainstorm ideas about a central question.

![Idea Map Diagram]
Use a mind map to organize related ideas and concepts. Mind maps allow you to brainstorm ideas about a central topic.

![Mind Map Diagram]

**Add a brainstorming tool**

Add a brainstorming tool to quickly generate and visually organize thoughts.

1. From the navigator pane, select **Add Tool**, then select a brainstorming tool template.
   Either browse through the list of tools or start typing the tool name in the **Search** box.

2. Select **Create** to add the tool to your project.

**Generate a brainstorm list**

In a brainstorming tool, you can quickly generate a brainstorm list by typing items in the task pane or by importing variables from other tools in your project.

1. In a brainstorming tool, choose **View > Task Pane**.

2. In the task pane, type an item and press **Enter**.

3. Select one or more items in the list and drag them to a shape on the diagram.
   You can also drag items from the diagram back to the list.

   **Tip:** To import variables from other tools into the brainstorm list, select **Import X Variable** or **Import Y Variable** in the task pane, then, in the **Data Selection** dialog box, select the variables to import.

**Make X and Y variables from shapes**

After you drag items from the brainstorm list to shapes on the diagram, you can make X and Y variables from the shapes. When you make a variable from a shape, you can later add it to shape on a process map or to a table in a form for further analysis. In this example, you want to make an X variable from a shape that contains an item that you generated in the brainstorm list.
1. In a brainstorming tool, select a shape that contains an item from the brainstorm list, then right-click and select Make X Variable.

2. When the Make Variable dialog box appears, select OK. Workspace makes a variable from the list item you dragged to the shape.

This new variable is unmapped until you add it to shape on a process map, which you will do in the next chapter.

What's next

Now that you have generated ideas and made X variables from shapes on a brainstorming tool, use a process map to map your process.
3. Map your process

Objectives

- Learn about maps on page 8
- Add a process map on page 10
- Add shapes and connectors on page 10
- Add variables to a shape on page 11
- Show data on a map on page 11

Learn about maps

Workspace offers several types of maps.

**Process map**

Use a process map to illustrate the sequential flow and the relationship of steps in a process or procedure.
Cross-functional process map

Use a cross-functional process map to illustrate the sequential steps of a process or a procedure as they cross departments and phases. Departments (also called swim lanes) divide the steps horizontally. Phases divide the steps vertically.

Value stream map

Use a value stream map to show how materials and information flow through the value stream. A current state value stream map helps you to identify waste and to envision an improved future state.
Journey map

Use a journey map to illustrate the process a person goes through as they accomplish a task.

Add a process map

Add a process map tool to describe the flow of your process.

1. From the navigator pane, select **Add Tool**, then select **Process Map** to see the available process map templates. You can also browse through the list of tools or start typing the tool name in the **Search** box.

2. Select **Create** to add the tool to your project.

Add shapes and connectors

From the **Shapes** gallery, you can complete the following steps.

1. Add shapes.
   a. Select the start shape 🔄 and select the workspace. While the shape is selected, enter text to identify the start shape.
   b. Select the decision shape ✩ and select the workspace. While the shape is selected, enter text to identify the decision shape.

2. Connect the shapes.
   a. Select the right-angle connector ↙️, then hold the pointer on the start shape.
   b. When the anchor points appear on the start shape, select one and drag it to an anchor point on the decision shape. Anchor points keep the shapes connected when you move them around on the map.
3. Continue to map your process.

**Tip:** To add the same shape multiple times, select the Multi-Insert button, select the shape in the gallery, then select the map where you want the shape to appear. Continue to select the map until you have added as many shapes as you need. Select Multi-Insert again to turn it off. You can also use Multi-Insert with connectors.

### Add variables to a shape

You can add, copy, and move X variables, Y variables, lean data, and process data to shapes on a process map to give you a better understanding of which variables affect the outcome of each step.

In the previous chapter, you made an X variable from a shape on a brainstorming tool. Now, you can move that X variable to a shape on your process map.

1. Select a shape on the process map.
2. In the task pane, open the Variables tab. Under **X - Input Variables**, select **Move**.
3. In the **Data Selection** dialog box, select the variable, then select **OK**.
   
   The variable name appears in the task pane.

### Show data on a map

After you add data to a shape, you can show it on the map to see where to focus your attention.

1. Right-click a shape, then choose Shape Data > Select and Arrange Shape Data.
2. In the Select and Arrange Shape Data dialog box, choose variable data fields to position relative to the selected shape.
   
   For example, under **X Variables**, drag **Name** to the shape, position it, then select **OK**.
   
   In this example, the variable name appears above the shape.
What's next

Now that you have mapped your process, you can use forms to evaluate the variables that affect your process and develop plans to address the issues.
4. Work with variables in forms

Objectives

- Learn about forms on page 13
- Add a C&E Matrix on page 13
- Add a Control Plan on page 14

Learn about forms

Workspace offers several types of forms so you can collect data about project. Usually, users enter data in forms, but sometimes, data is shared from other tools or across projects.

To learn more about all the forms in Workspace, go to Available forms.

Add a C&E Matrix

After you identify variables in a brainstorming tool and map your process, you can add a C&E matrix to evaluate and prioritize the potential variables.

1. From the navigator pane, select Add Tool, then select C&E Matrix (X-Y Matrix).

2. To add an existing X variable, hold the pointer on the row, select the add/delete button, then select Select Existing X Variables.
   Either browse through the list of tools or start typing the tool name in the Search box.

3. In the Data Selection dialog box, select the X variable that you identified in the brainstorming tool and added to the process map.

4. To add a new Y variable, hold the pointer on the column, select the add/delete button, then select Create New Y Variables.
   You can add multiple column and specify whether to add to the right or left of the insertion point.

5. Complete the matrix.
   To move between fields and table cells, press the Tab key.
   As you add data to the C&E Matrix (X-Y Matrix), Workspace creates a Pareto Chart.

6. Review the Pareto Chart to determine which X variables are likely to have the most impact on your process.
   The weighted value is on the left y-axis, and the percentage is on the right y-axis.
Add a Control Plan

After you identify the problem areas to address, you can use a control plan to create a list of vital inputs to control and outputs to monitor. You can also create a list of tools that you can use to control and monitor these variables.

1. Form the navigator pane, select Add Tool, then select Control Plan.

2. Enter any X variables that may affect your process. To add an X variable, hold the pointer on the row, select the add/delete button, then select Create New X Variables.

3. You can also select variables that you already created in other tools, such as process maps and brainstorming tools. To add an existing X variable to the control plan, hold the pointer on the row, select the add/delete button, then choose the X variable.

4. Complete the form.

What's next

Learn how the Monte Carlo simulation tool lets you use random data samples to evaluate the behavior of a complex system or process.
5. Add a Monte Carlo simulation

Objectives

- Learn about Monte Carlo simulation on page 15
- Learn about parameter optimization on page 15
- Learn about sensitivity analysis on page 15

Learn about Monte Carlo simulation

If you want to improve your product or service by using simulated data, you can insert and run a Monte Carlo simulation. Monte Carlo simulation uses repeated random sampling to simulate data for a given mathematical model and evaluate and optimize the outcome.

1. From the navigator pane, select Add Tool, then select Monte Carlo Simulation.
2. Define the model and run the simulation. Enter the variables and the response equation manually, or select Import Models from Minitab and import any number of models from a Minitab project.
3. Review the results.
4. Perform a parameter optimization.
5. Perform a sensitivity analysis.

After you run a Monte Carlo simulation, Workspace displays the results, how your results compare to generally accepted values, and guidance for next steps.

For more information, go to Monte Carlo Simulation.

Learn about parameter optimization

Parameter optimization identifies optimal settings for the inputs that you can control. Workspace searches a range of values for each input to find settings that meet the defined objective and lead to better performance of the system.

For more information, go to Perform a parameter optimization.

Learn about sensitivity analysis

Sensitivity analysis identifies inputs that have little effect on the variation of the output, or inputs that reduce the variation of the output. Workspace displays a graph that shows the effect of changing the input standard deviation on the percent of output that is out-of-specification.

After you analyze the results, you can change inputs or outputs, then rerun the analysis to evaluate a number of hypothetical scenarios.

For more information, go to Perform a sensitivity analysis.

What's next

For videos, how-to's, and glossary terms, go to Minitab Workspace Support.
Our mission is to help people discover valuable insights in their data.

Minitab helps companies and institutions to spot trends, solve problems and discover valuable insights in data by delivering a comprehensive and best-in-class suite of data analysis and process improvement tools. Combined with unparalleled ease-of-use, Minitab makes it simpler than ever to get deep insights from data. Plus, a team of highly trained data analytic experts ensure that users get the most out of their analysis, enabling them to make better, faster and more accurate decisions.

For nearly 50 years, Minitab has helped organizations drive cost containment, enhance quality, boost customer satisfaction and increase effectiveness. Thousands of businesses and institutions worldwide use Minitab Statistical Software, Minitab Connect, SPM, Quality Trainer, Minitab Engage, and Minitab Workspace to uncover flaws in their processes and improve them. Unlock the value of your data with Minitab.

© 2022 Minitab, LLC. All rights reserved.

Minitab®, Minitab Workspace®, Minitab Connect®, Quality Trainer®, SPM® and the Minitab® logo are all registered trademarks of Minitab, LLC, in the United States and other countries. Additional trademarks of Minitab, LLC can be found at www.minitab.com. All other marks referenced remain the property of their respective owners.