

## Getting Trainees Up to Speed with Stats: Cummins Trusts Quality Trainer

Cummins Inc. designs, manufactures, sells, and services diesel engines and related technology around the world. Cummins serves its customers through a network of 500 distributors and more than 5,200 dealer locations in over 190 countries and territories.



Cummins incorporates quality in everything they do, by using Six Sigma to continuously improve their products and services. And because Cummins sees no barriers to where and how Six Sigma can be applied, they have a large and extremely diverse list of improvements. The company has completed over 12,000 projects, saved over \$2 billion, and trained more than 2,700 employees in Six Sigma techniques, including statistical analysis.

But using Six Sigma throughout the entire organization posed a challenge to the company's Six Sigma training program. Because Cummins employs people with a wide array of skills and backgrounds, participants entered training sessions with a diverse range of statistical knowledge and experience. That made instruction difficult.

"Not everyone who becomes a Master Black Belt is a mathematician," observes K. Megan Henry, director of Six Sigma at Cummins.

That's where Quality Trainer by Minitab comes in. Quality Trainer is an e-learning course that teaches Green Belts, Black Belts and other quality professionals the statistics they need to apply when improving quality and processes. It covers all the main methods used when implementing a Six Sigma project and includes instruction on how to apply them using Minitab Statistical Software.

When Henry evaluated Quality Trainer, she realized she had found a solution to some of the company's challenges. "Quality Trainer completely aligned with our training needs," she says. "It teaches the basic statistics and Minitab techniques we need, without duplicating what we covered in our own training."

Quality Trainer helps people learn complex statistical methods quickly, with animated lessons that bring them to life. Users then practice the concepts they learn by working through real-world scenarios. At the end of each lesson, learners can test their knowledge with quizzes, understand why their answers are correct or incorrect, and, if necessary, learn which sections to review to fully master the material.

Best of all, when combined with Cummins' license for Minitab Statistical Software, Quality Trainer was extremely affordable. Cummins soon secured an enterprise-wide license for Quality Trainer. "It's almost unbelievably economical," Henry says. "We consider our enterprise license a real bargain."

Cummins has integrated Quality Trainer into the company's Six Sigma training. "Now trainees are required to do the relevant modules before they come to class," Henry explains. "This gives the entire class a consistent starting point. Even participants



Quality Trainer's animated lessons bring complex statistical methods to life, and let people practice what they learn by working through real-world scenarios.

*Learn how Minitab software can help you improve quality at [www.minitab.com](http://www.minitab.com).*

with backgrounds as diverse as human resources and mechanical engineering are talking the same language!”

Henry says trainees have responded very positively. “Quality Trainer is easy to use, and the explanations are very clear and easy to understand,” Henry says.

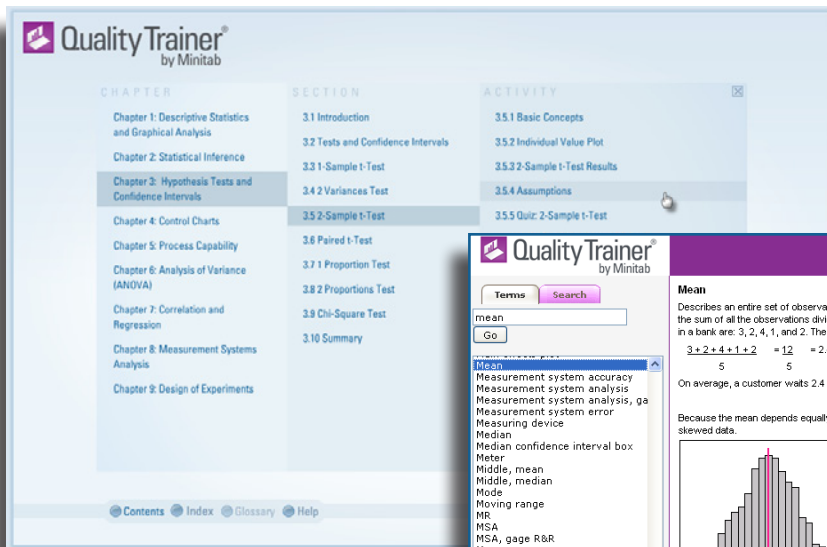
And because it’s available online any time, learning opportunities can be worked into even the busiest schedules. “At Cummins we believe in learning done on the job, and Trainer is so flexible it lets people learn at a schedule and pace that meets their own,” Henry says. “It’s easy to use Trainer for a bit, take care of other responsibilities, then come back and pick up where you left off.”

Employees who already have statistical experience can use Quality Trainer as an online reference, thanks to its searchable index, dynamic table of contents, and extensive glossary of statistical terms with complete, illustrated definitions. “Even people who have done Six Sigma projects for 10 years need a little refresher now and then, and Quality Trainer meets that need perfectly,” Henry notes.

“We are very pleased with the impact Quality Trainer has had on our Six Sigma program.”



By explaining key statistical concepts, then illustrating how to apply them in Minitab Statistical Software, Quality Trainer ensures participants in Cummins’ Six Sigma training share a common base of knowledge when they reach the classroom.



Quality Trainer’s simple organization, searchable index, and extensively illustrated statistical glossary make it easy for even experienced quality professionals to quickly refresh their knowledge and brush up on techniques they haven’t used recently.

**Quality Trainer Statistical Glossary**

**Mean**

Describes an entire set of observations with a single value representing the center of the data. The mean (arithmetic average) is the sum of all the observations divided by the number of observations. For example, the waiting time (in minutes) of five customers in a bank are: 3, 2, 4, 1, and 2. The mean waiting time is:

$$\frac{3 + 2 + 4 + 1 + 2}{5} = \frac{12}{5} = 2.4 \text{ min}$$

On average, a customer waits 2.4 minutes for service at the bank.

Because the mean depends equally on all of the data including extreme values, it may not be representative of the center for skewed data.

**Symmetric data:** the mean (pink line) lies near the center of the distribution, making it a good representation of the center.

**Skewed data:** the mean (pink line) is pulled in the direction of the heavier tail, making it misleading as a representation of the center.

Many statistical analyses use the mean as a standard reference point.

$\mu$  represents the population mean,  $\bar{x}$  (or  $\bar{m}$  hat) represents the sample mean.