Building a Foundation of Trust: Mercer Quality Consulting
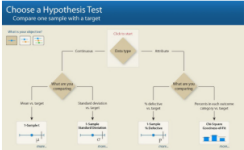
Before Michael Mercer established his consulting company, he accumulated more than 30 years of quality improvement experience at 3M. That experience led Mercer to develop a deep trust in the power of Minitab Statistical Software. He began using one of the earliest mainframe computer versions to solve quality challenges in 1973, and he continued to rely on Minitab to improve processes throughout his distinguished career at 3M. Along the way he watched Minitab evolve to include more features designed to meet the needs of quality practitioners with each new release. With Minitab 16, analyzing data quickly and confidently has never been easier.
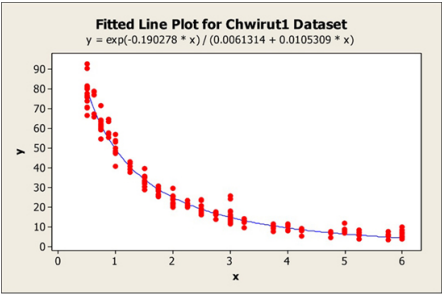
How Minitab Helped

When asked why he's used Minitab for more than 30 years, Mercer's answer is immediate: ease of use. "Like most people in quality improvement, I'm not a statistician," Mercer says. "I'm a chemical engineer who appreciates and needs to use statistics. I've tried other statistical software packages, but they aren't helpful for a typical Six Sigma researcher or process engineer who needs a simple way to get an answer. Other programs give you dialog boxes crammed with options and choices, and it's tough to know what to do—especially if you don't already have an extensive statistical background. Minitab's dialog boxes are straightforward, but they contain all the options you need for a good data analysis."

With Minitab 16's Assistant interface, even a novice can analyze data effectively.

"That's why Minitab is so popular among colleges and in industry—it's streamlined and easy to use, but it's also very powerful."

The Assistant feature in Minitab 16 has made it even easier to analyze data. Its interactive decision trees help users choose the right tool and walks them through their analysis step-by-step. It includes guidelines to ensure the analysis is successful, and even provides interpretation of output and comprehensive reports that can be used to present results. "The Assistant is a godsend to Six Sigma practitioners," Mercer says. "Green Belts may get very brief training on 40 or more possible approaches to analyzing data. When they're working on their first project weeks or months later, they can get lost very easily. The Assistant changes that. It lets anyone access the power of analyzing data without needing to remember all of the details for these statistical methods."
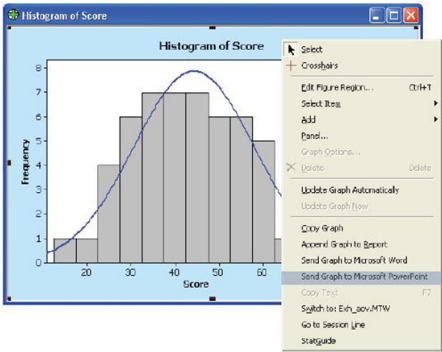

Mercer's tests found that the values delivered by Minitab 16's nonlinear regression function matched NIST-certified values, or in some cases were off by just one digit in the last decimal place.

Minitab 16's new nonlinear regression function also has made a big impression on Mercer. "I had developed a macro to perform nonlinear regression in a previous version of Minitab, so I'm thrilled to see Minitab 16's implementation," he says. "With Minitab 16, nonlinear regression is no longer a major undertaking."

Mercer decided to put Minitab 16's new capability to the same test he used for his own macro: he took three NIST data sets and ran analyses in Minitab to see how well they matched the certified results. "My macro was good—it matched the NIST data up to three or four decimal places," he notes. "But Minitab 16's implementation of nonlinear regression goes a step beyond. The values Minitab delivers are for the most part the same as the rounded NIST-certified values, or in some cases are off by just one digit in the last decimal place."

Mercer also appreciates the addition of split-plot design of experiments to Minitab's arsenal of statistical tools. "Industrial-scale experiments often need to be done in a restricted manner because they can be so expensive," Mercer says. "We learned at 3M that incorrectly analyzing experiments that include hard-to-change factors can give misleading results. We also had many experiments whose results just couldn't be repeated. The new split-plot tool in Minitab helps you properly design experiments and deliver more accurate results."

Minitab's ability to effortlessly export directly to Word and PowerPoint makes it easy to share the results of any analysis.

Results

In his 30-plus years of using Minitab for data analysis, Mercer has frequently seen the software incorporate tools that he suggested. "For example, many years ago 3M faced challenges when trying to apply data from their processes in standard control charts based on the needs of the automotive industry," he recalls. "The limits were too narrow, giving the impression that processes were totally out of control when that wasn't true. Minitab listened to me and others, and included our recommended improvements in the next release, and I've seen them do that again and again." Sometimes even small details make a big difference, and Mercer has frequently found those in Minitab, too. "I recently used Minitab 16 to perform data analysis for a client looking for relationships among 60 columns of data," he says. "It was extremely easy to generate a report for this customer's complicated data with Minitab's output and the new 'Export to Word' and 'Export to PowerPoint' tools. It's the kind of detail that many software developers might overlook, but that goes a long way toward making the product easy to use. That level of attention to the user's experience really makes me love using Minitab to analyze my data."