



Data-Driven Techniques for Enhanced Manufacturing Efficiency and Accurate Forecasting

Learn to Improve Your
Business Processes Using
Regression Analysis

(865) 927-0491 • www.qualproinc.com

About Us

For over thirty years, QualPro has been a leader in statistical process improvement. Our twelve-step MVT Process sets us apart from other consulting companies, rendering breakthrough results that are faster, more impactful, and more cost-efficient than those of other methods. No matter your business—whether your industry is manufacturing- or service-based—our methods have been tested and proven effective in companies just like yours.

Founded in the time-honored methods of Dr. W. Edwards Deming and combined with cutting-edge analytical tools, the MVT Process is the best method for improving business performance. QualPro has partnered with hundreds of companies on tens of thousands of successful experiments—our clients keep coming back because they know QualPro’s methodology delivers results. Don’t just take our word for it. Here’s what some of our clients have to say:

“QualPro’s MVT Process to design, execute, analyze, and implement results uses a cross-functional team approach. Before we started using MVT, implementing team concepts with different management structures was difficult. QualPro’s MVT approach quickly brought together cross-functional team members, and it worked seamlessly. QualPro recommended we get shop floor, technical, mechanical, and supervision involved in the same MVT. This really boosted our efforts to use cross-functional teams. I would recommend their process for cross-functional teams in any organizational structure.”

-DuPont, Jerry Russell, Six Sigma Champion and Lean Master Black Belt

“We’ve developed different communications strategies for the different segments, and we gained credibility within Visa, as well as with our bank partner, due to the disciplined approach, the quantitative results, and the robust learnings.”

-Visa, Laurie Dornberger, Senior Director of Marketing Consulting

“We did all of this in less than six months. . .Average change over time was reduced 44%. [We had] savings up to \$15 million in downtime. . .we freed up 33,000 line hours of production time across three plants. We didn’t have to make that \$2 million in capital investment. We reduced inventory by \$800,000. We produced no off-quality material due to the MVT during the process.”

-Valspar, Adam Johnstone

“We want you to know how very pleased and satisfied we are with QualPro [and] the QualPro Process. . .[QualPro has] brought to us a rational, logical, reasoned approach that builds on our commitment, demonstrates success, and provides the framework through which our own personnel can be trained in the appropriate methods to successfully work on process improvement.”

-Saint Luke’s Health System, Charles C. Lindström, CEO

To request more information about the seminar, please contact QualPro by phone at (865) 927-0491 or by email at seminars@qualproinc.com.



Seminar Information

Over the course of four days, QualPro's expert consultants teach attendees both basic and advanced regression analysis, in addition to other data analysis techniques. QualPro's consultants have extensive experience in both manufacturing and service industries. Using industry-specific examples and class exercises derived from real-world business data, QualPro's consultants tailor course content to the specific needs of seminar participants. With QualPro's assistance, attendees learn how to turn their data into profits.

Attendees are strongly encouraged to bring relevant data from their businesses, which they will analyze under the guidance of QualPro's consultants. Upon completion of the seminar, attendees return to their businesses with:

- Insights derived from expert-guided analysis of their data.
- A strong understanding of regression analysis and other data analysis methods.
- The statistical knowledge and software training necessary to independently conduct data analysis projects within their organization.
- An action plan to take back to their company that will enable them to leverage their data going forward

Course Outline

Introduction

- Why Regression?
- Appropriate Application
- Regression in QualPro's Twelve-Step Procedure for Improving a Process
- Regression Overview
- Basic Techniques That Apply to Regression
- Correlation Versus Causation

Data Visualization

- Scatter Plots
- Line Plots
- Bar Charts
- Run Charts
- Box-and-Whisker Plots
- Pareto Charts
- Histograms

Data Exploration

- Summary Statistics
- Tabulating Variables
- Correlation
- Fitting a Line by Least Squares
- Identifying Instances of Uncontrolled Variation
- Identifying the Cause of Uncontrolled Variation
- Evaluating the Slope of the Least Squares Line
- "Control Limits" for the Slope and Intercept
- Prediction in Simple Linear Regression

Multiple Linear Regression

- Overview of Multiple Linear Regression
- Variable Selection
- Choosing the Best Model
- Collinearity and Multicollinearity
- Heteroskedasticity
- Autocorrelation
- Verifying Assumptions
- Validation of the Model

Additional Multiple Regression Techniques

- Qualitative Variables in Regression
- Curvature
- Interactions
- Generalized Least Squares Techniques
- Nonlinear Regression
- Probability Models

Experimental Design Applications

- Analyzing Multiple Key Measures
- Analyzing Incomplete Screening Designs
- Determining Optimal Factor Settings for Additional Runs
- Estimating the Effect of Covariates
- Standardizing Response Measures After an Experiment

"We brought QualPro in and in less than six months, zero capital dollars, zero cost dollars expended, \$23M in terms of additional capacity and increased sales in a sold out business."

-Global Director, E.I. DuPont

Contact

To learn more about QualPro's Regression for Process Improvement Seminar, please visit us online or call us at the number below.

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www.qualproinc.com



QUALPRO[®]

3117 Pellissippi Parkway
Knoxville, Tennessee 37931