



Statistical Methods for Improving Maintenance Performance

**Minimize Unscheduled Downtime
Without Additional
Capital Investments**

(865) 927-0491 • www.qualproinc.com •

About Us

Since 1982, QualPro has provided process improvement consulting, training, and services for companies in numerous industries. Throughout that time, we have worked closely with maintenance organizations to support production objectives, improve efficiency, and increase the effectiveness of operations. We teach companies how to use valuable maintenance data to reduce downtime, lower maintenance costs, and improve operations. Through better preventive and predictive maintenance planning, QualPro can help your business improve job planning and execution, inventory stock control, and total cost management.

While attending our seminar, you will have ready access to QualPro's veteran consultants. These experts have decades of experience in making breakthrough improvements in thousands of businesses using our MVT® Process. They will guide you through the finer points of process improvement, returning you to your daily routine informed, inspired, and ready to implement your new knowledge.

Benefits of the MVT® Process

- Increased throughput and yields, and improved quality—without additional capital expenditures
- Reduced unscheduled downtime and maintenance costs
- Improved product performance, customer satisfaction, and employee productivity
- Increased shareholder value

QualPro Client Results

60%

Reduction in pump failures

30%

Increase in uptime with a
47% reduction in maintenance costs

16%

Reduction in energy costs

44%

Reduction in changeover time

30%

Increase in runtime while avoiding a
\$10 million capital expenditure

50%

Reduction in downtime



Statistical Methods for Improving Maintenance Performance

This four-day seminar teaches maintenance personnel to better utilize maintenance and operations data, including data collected with modern Computerized Maintenance Management Systems (CMMS). Methods for assessing key performance measures and measurement systems are presented along with other diagnostic statistical tools. You will learn techniques to determine failure patterns and calculate failure rates, along with procedures to determine planning and timing for preventive and predictive maintenance activities. You will also be introduced to experimental design concepts and their applications in maintenance. This seminar is specifically designed to help maintenance managers, engineers, technicians, and other professionals better utilize data, CMMS, and other technology. Together these tools reduce costs and downtime, improve efficiency, and improve overall maintenance performance.

In This Seminar, You Will Learn:

- How to view maintenance as a system
- How to statistically monitor key performance measures and process characteristics
- How to assess and improve measurement systems, process stability, and process capability
- How to calculate failure rates and mean time to repair
- How to determine failure patterns and utilize that information in preventive maintenance planning
- How to apply experimental design methods to maintenance processes

Course Outline

Introduction

- The Role of Statistics in Maintenance
- Reducing Total Costs

Targeting Business Results

- Maintenance System Design
- Variation and Its Effects on Maintenance

Measuring and Assessing Performance

- Key Performance Measures
- Statistical Tools for Maintenance
- Assessing System Capability
- Validating Measurement Systems

Monitoring and Controlling Maintenance Systems

- Control Charts for Variables Data
- Control Charts for Attribute Data

Continuous Improvement of Results

- Preventive Maintenance Planning
 - ◇ Estimating Failure Rates
 - ◇ Estimating Mean Time Between Failures
 - ◇ Evaluating Failure Patterns
 - ◇ Estimating Time for Replacement
- Reliability
 - ◇ Calculating Reliability and Availability
 - ◇ Calculating Reliability of a System
 - ◇ Use of Redundancy

Achieving Breakthrough Improvement

- Introduction to the MVT[®] Process



QualPro's Expertise

With decades of experience, QualPro is uniquely qualified to help you dramatically improve your maintenance processes through the power of experimental design. Our MVT® Process has been proven effective time and again in industries as diverse as chemical processing, and textile, automotive, and aerospace manufacturing. We have worked with more than a thousand clients over the years, and together they have saved billions.

Still not convinced? Hear from just a few of our manufacturing clients on the positive impact of QualPro's MVT Process in their respective operations.

Client Testimonials



"Our standard mode of operation was 'wait until it breaks before you fix it because we need every pound that we can get.' One out of every six pumps was failing. This amounts to three-quarters of a million dollars a year that we're spending just on this one maintenance item. We said, 'We're going to commit to a 25% reduction in pump failures' . . . Where did we end up? [We had a] 61% reduction at the end of one year."

-Joe Del Tosto, Mechanical Reliability Engineer

"We did all of this in less than six months. . . . Average changeover 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."

-Adam Johnstone, Plant Engineer



"No capital was spent, no additional costs, no additional people were added because of anything we did . . . We had scrap reductions of up to 60%. [The] bottom line was 1.3 million [dollars]."

-Dennis Hughes, Plant Manager

"So the results: process output went from 0.2 tons per hour to one ton per hour . . . The output achieved is covering growth forecasted by the customer for the next two years . . . We feel that now, having a better understanding of our process, we're able to also reduce our cost and improve our production."

-Michel Bastien, General Manager



"The QualPro system really indicated the leadership role that top management had to take if one was going to be successful in continuous improvement. And the most exciting part of the implementation has been watching the employees just light up and see that they are making a difference . . . That really is the power . . . of this whole improvement process. People [get] so excited . . . to be part of the improvement process."

-Robert Roesser, President & CEO

Contact

To learn more about QualPro and
our seminar offerings, please visit us
online or call us at the number below.

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