Reducing Process Variation: Using the DOTSTAR Problem-Solving Strategy.

By Davis R. Bothe

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Reducing Process Variation: Using the DOTSTAR Problem-Solving Strategy. By Davis R. Bothe

Whether you're just beginning a career in quality or have been in this field for 30 years, this book is a must read for all those who desire to be successful at eliminating chronic process variation. Because the author stresses getting the most information from the least amount of data, you will learn how to gather the right amount of the right data at just the right time. Making decisions based on properly collected data helps you dramatically reduce process variation and its associated waste, thereby increasing process capability, customer satisfaction, and company profitability.

The seven steps of the powerful DOT*STAR problem-solving strategy that are explained in this two-volume set (8.5 by 11 inches, 1136 pages) are briefly outlined below:

1. Define the Problem -- identify and prioritize areas that need improvement and also offer the highest return on your investment of resources.

2. Observe the Process -- monitor and control key product characteristics and process variables to separate assignable-cause from common-cause variation. Obtain clues about major causes of process variation with efficient data-collection plans and effective recording techniques.

3. Think of Potential Causes -- generate many possible causes of variation based on the clues gathered in step 2. Organize these in a graphical manner to reveal interrelationships between ideas.

4. Select the Most Likely Cause -- determine the most probable cause of process variation by comparing how well the potential causes from step 3 explain the known clues generated in step 2.

5. Test to Verify -- confirm the choice made in step 4 is really a major contributor. If it isn't, the second most likely cause must be chosen and tested. This iterative procedure continues until a cause is verified as a major source of process variation.

6. Act to Implement a Solution -- produce a number of ideas for potential solutions and then select the one with the best chance of successfully resolving the problem. After confirming its effectiveness with a pilot study, develop a timetable for the solution’s implementation.

7. Review and Revise the Solution -- the organization must maintain the improvement by ensuring that the solution remains effective over time and the problem stays solved forever.

Through the large number of real-life case studies provided, you will learn how numerous companies in a wide variety of industries have unleashed the problem-solving creativity of their shop-floor personnel by teaching them the DOT*STAR strategy.

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Editorial Review

Review
"I am a dedicated DOTSTAR problem solver. This book will help me teach others this very important strategy." -- *Chris Taylor, Caterpillar, Inc.*

Bothe's strategy is so powerful, yet so easy to apply! -- *Steve Wise, Partner, InfintyQS Software*

This is one of the best books on problem solving that I have seen in my career. -- *Chris Taylor, Quality, Caterpillar, Inc.*

From the Publisher
Many companies have adopted the "six-sigma" philosophy for improving their operations. With this approach, a company selects its brightest people, sends them to several weeks of intensive training, and then assigns them to work on process improvement projects.

But what about the company’s remaining personnel? This book is the first we have seen that illustrates how this untapped resource can also be transformed into effective problem solvers. Relying only on the use of simple, graphical statistical tools (there are over 1,000 illustrations), Dave Bothe’s DOT*STAR strategy provides a straight forward, step-by-step, logical methodology for solving chronic quality problems in manufacturing and assembly operations.

Because the DOT*STAR strategy is much less complicated, almost everyone on the shop floor can quickly learn this proven approach with just a few days, not weeks, of training. With more people working on process improvement, more problems will be solved in less time, thus giving your company a valuable, and powerful, competitive advantage.

In addition to the above reasons, we are excited about this book because it offers the most extensive information we have seen on multi-vari charts, comparison testing, component swapping, and the analysis of means (a full chapter is dedicated to each of these topics). Also covered are randomizing, quantifying attribute data, creating solution FMEAs, and a simplified, yet comprehensive, method for conducting hypothesis tests. Finally, Bothe’s book introduces several new graphical analysis techniques, such as isograms and multi-grams.

We believe that no book on the market offers as much problem-solving power per page as Reducing Process Variation.

From the Author
As a consultant, I am frequently hired by manufacturing companies to help them solve chronic quality problems. After working on many such projects, I realized we went through a fairly similar sequence of steps to zero in on the major cause of process variation. I began writing down these steps, refining them over the years until they evolved into the DOT*STAR problem-solving strategy that is featured in my latest book.

Although there are many strategies available for resolving a wide variety of problems, the DOT*STAR strategy is specifically designed for solving chronic quality problems in manufacturing, primarily for processes involving machining, fabrication, and assembly. I believe this focus on a certain area is one of the reasons why this approach is so very effective, yet easy to apply, even for small to medium sized companies.

You will discover this strategy is not just a collection of statistical tools, but a structured set of operating instructions detailing how to systematically apply these tools in the correct sequence, and at the proper time, to help you uncover a major source of process variation.

Because this book was written for those who must resolve quality problems on the shop floor, I limited the statistical techniques presented in the book to those that are easy to understand. Thus, an extensive knowledge of statistics is not required to successfully apply them. Readers with a good understanding of basic control charting methodology will have no difficulty comprehending any of the techniques.

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Violet Iverson:

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