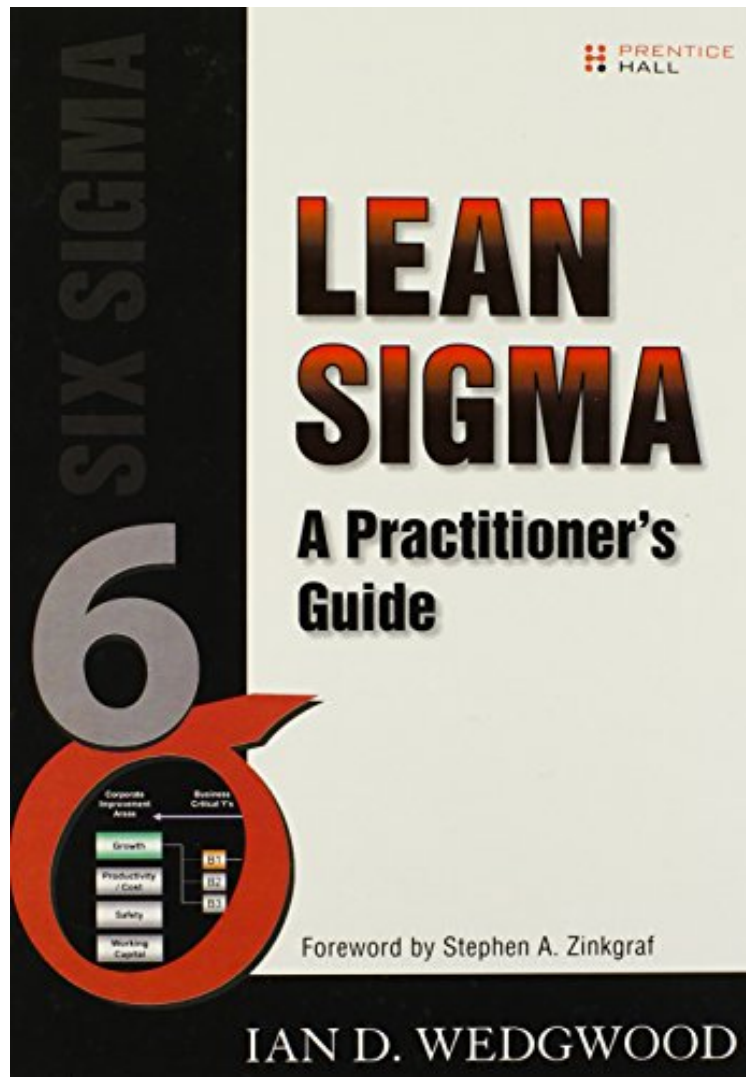


# Lean Sigma: A Practitioner's Guide

*Ian Wedgwood PhD*

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**Ian Wedgwood PhD : Lean Sigma: A Practitioner's Guide** before purchasing it in order to gage whether or not it would be worth my time, and all praised Lean Sigma: A Practitioner's Guide:

5 of 5 people found the following review helpful. Complete and easy to readBy Theodore R. SpicklerI agree with the other reviews and will not repeat their praises here. Keep in mind that, as Wedgwood says in his book, you need a statistical reference to understand the details of statistical tests; he does offer a high level view of the statistics to help a mathematically challenged person better understand what the test is all about and why it's being used. To execute a particular statistical test will require more than is found here but that is not a problem. I find his explanations of tool use to be generally more understandable than in other references. Wedgwood has an uncanny sense of exactly what it

is you need to know and understand about a tool and it's use to be effective in using it. We adopted this as our text for the Six Sigma Black Belt training because the students most often needed help when deciding which tool to use and when to use it. Wedgwood is unique in creating 25 categories of problems into which most projects can be sorted. During the "define" phase he urges the practitioner to decide where in these 25 categories the particular problem best fits. Such a task forces a special attention to the nature of the problem and once it is properly categorized there is a set of sensible suggestions offered to point the way to generating a solution. As a result of the categorization this book is not designed to be read through from beginning to end. It is a useful reference and self directs attention to where the problem solver needs to go. No other book is like this hence it needs to be on your shelf!0 of 0 people found the following review helpful. A perfectly written practical book for all who implement Lean Six Sigma By Jiri Gothl can say that it is one of the best written book about application of Lean Six Sigma I have ever read with examples for application in different areas, with examples of statistical methods incl. explanations and interpretations of the results. In this book you can find many practical tables, tools, methods, etc. you can use in your job. The book is written in way which is easy to understand.0 of 0 people found the following review helpful. Decent reference book. Not a coffee table book. By R. Merrill This is a text book. It's very much modeled after the Lean Six course offered in San Marcos, TX. This is not a coffee table book. Think of it as a "For Dummies" reference in terms of how you'd use it. It conveniently holds a number of scenarios that you'd be likely to find in the average production facility. It then succinctly outlines how to apply Lean Six principles to them in step-by-step order. I liked that feature.

The Practical, Easy-to-Use Guide to Lean Sigma Problem-Solving Lean Sigma delivers results—;if you use the right tools and techniques. In Lean Sigma: A Practitioner's Guide, Dr. Ian Wedgwood captures best-practice Lean Sigma experience from multiple projects and industries, helping any professional identify the solution that will work best—and implement it. Wedgwood's exclusive "project roadmaps" present the fastest, most effective route to solving a wide range of problems—and explain why those solutions make sense. His "discovery roadmaps" help you identify potential Lean Sigma projects, even in processes where there are no obvious targets. The heart of Lean Sigma is Wedgwood's 48 individual "tools roadmaps": step-by-step instructions revealing exactly how and when to use all these Lean Sigma tools...

- 5 Whys
- 5S
- Affinity
- ANOVA
- Boxplots
- Capability tools
- Cause effect matrices
- Chi-Square
- Control charts
- Critical path analyses
- Customer tools
- Demand tools
- DOE tools
- Fishbone diagrams
- Handoff maps
- KPOVs
- Load charts
- MSA tools
- Multi-Cycle analyses
- Multi-Vari studies
- Murphyr's analyses
- Normality tests
- OEE
- Pareto charts
- Poka Yoke
- Process FMEA
- Process variables (I/O) maps
- Project charter
- Pull systems Kanban
- Rapid changeover
- Regression
- SIPOC
- Spaghetti maps
- SPC
- Swimlane maps
- Time tools

Whether you're a Green Belt, Black Belt, Master, Project Champion, Sponsor, Deployment Leader, or consultant, this book will help you use Lean Sigma to solve far more problems, far more rapidly, and far more effectively. Dr. Ian Wedgwood, Executive Director of Sigma Breakthrough Technologies, has more than ten years of experience using, deploying, training, and consulting on Six Sigma and Lean Sigma. He has led and facilitated deployments in industries ranging from electronics and medical devices to chemicals and health care, and has trained and mentored numerous executives, champions, and belts. He holds a Ph.D. and First-Class Honors degree in Applied Mathematics from Scotland's St. Andrew's University.

Chapter 1 Introduction 1 PART PROJECT ROADMAPS TO SOLVE BUSINESS PROBLEMS Chapter 2 Definendash;Tools Roadmap Applied to the Beginning of All Projects 13 Chapter 3 Global Process Problems 23

- A: On-Time Delivery Issues 23
- B: Capacity of Process Is Too Low 27
- C: RTY, Defects, Accuracy, Quality, Scrap, and Rework Issues 29
- D: % Uptime Is Too Low 33
- E: Pace of Process Too Slow 36
- F: Process Has Enough Capacity, But Fails Intermittently 38
- G: Process Has Enough Capacity, But Process Lead Time Is Too Long 41
- H: Individual Steps Meet Takt, Global Process Does Not 44
- I: Demand from the Customer Is Too Variable 47
- J: Too Many Entity Types (Products) 51
- K: High Schedule Variation 54
- L: Measurement System Broken 60
- M: Performance Characteristic Not Good Enough 63
- N: Planned Maintenance Takes Too

Long; 64; O: Setup/Changeover Takes Too Long; 65; P: Too Much Unplanned Maintenance; 68; Q: Process Can't Make Product at All; 72; R: Resource Usage Is Too High (Headcount Reduction); 75; S: Inventory Is Too High; 78; T: Waste/Process Loss Too High; 82; U: High Forecast Variation; 85; V: Not Enough Sales; 89; W: Backlog of Orders Is Too High; 91; X: Payments Made to Suppliers Not Optimized; 93; Y: Accounts Receivable Are Too High; 95 Chapter 4; Individual Step Process Problems; 99 Chapter 5; Control Tools Used at the End of All Projects; 107 PART II; ROADMAPS TO FIND PROJECTS WHERE NO OBVIOUS CANDIDATES EXIST Chapter 6; Discovery Tools Applied to Identify Projects 115 PART III; ROADMAPS TO GUIDE IN THE PRACTICAL APPLICATION OF EACH LEAN SIGMA TOOL Chapter 7; Tools; 119; 01: 5 Whys; 119; 02: 5S; 122; 03: Affinity; 130; 04: ANOVA; 133; 05: Box Plot 141; 06: Capability; Attribute; 143; 07: Capability; Continuous; 146; 08: Cause Effect (CE) Matrix; 153; 09: Chi-Square; 157; 10: Control Charts 163; 11: Critical Path Analysis; 171; 12: Customer Interviewing; 174; 13: Customer Requirements Tree; 183; 14: Customer Surveys; 186; 15: Demand Profiling; 193; 16: Demand Segmentation; 196; 17: DOE; Introduction; 202; 18: DOE; Screening; 213; 19: DOE; Characterizing; 222; 20: DOE; Optimizing; 237; 21: Fishbone Diagram; 249; 22: Handoff Map; 253; 23: KPOVs and Data; 257; 24: Load Chart; 268; 25: MSA; Validity; 272; 26: MSA; Attribute; 276; 27: MSA; Continuous; 284; 28: Multi-Cycle Analysis; 294; 29: Multi-Vari Studies; 300; 30: Murphree's Analysis; 306; 31: Normality Test 308; 32: Overall Equipment Effectiveness (OEE); 311; 33: Pareto Chart; 318; 34: Poka Yoke (Mistake Proofing); 321; 35: Process FMEA; 325; 36: Process Variables (Input/Output) Map; 330; 37: Project Charter; 333; 38: Pull Systems and Kanban; 342; 39: Rapid Changeover (SMED); 354; 40: Regression; 362; 41: SIPOC; 372; 42: Spaghetti (Physical Process) Map; 376; 43: Statistical Process Control (SPC); 380; 44: Swimlane Map 384; 45: Test of Equal Variance; 389; 46: Time; Global Process Cycle Time; 392; 47: Time; Individual Step Cycle Time; 395; 48: Time; Process Lead Time; 398; 49: Time; Replenishment Time; 401; 50: Time; Takt Time; 404; 51: Total Productive Maintenance; 408; 52: t-Test; 1-Sample; 411; 53: t-Test; 2-Sample; 416; 54: t-Test; Paired 422; 55: Value Stream Map; 423

From the Back Cover The Practical, Easy-to-Use Guide to Lean Sigma Problem-Solving Lean Sigma delivers results- "if" you use the right tools and techniques. In "Lean Sigma: A Practitioner's Guide, " Dr. Ian Wedgwood captures best-

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About the Author Dr. Ian Wedgwood, Principal and Co-Founder of Haelan Group, has more than eighteen years of experience using, deploying, training, and consulting on Six Sigma and Lean Sigma. He has led and facilitated deployments in industries ranging from electronics and medical devices to chemicals and health care, and has trained and mentored numerous executives, champions, and belts. He holds a Ph.D. and First-Class Honors degree in Applied Mathematics from Scotland's St. Andrew's University. Excerpt. copy; Reprinted by permission. All rights reserved.

Preface Preface There is absolutely no doubt that Lean and Six Sigma as process improvement methodologies deliver results, as proven consistently countless times over literally thousands of projects across hundreds of businesses. What is inconsistent, however, is the efficiency by which the Project Leaders (Belts) and Teams reach the delivered solution and sometimes the effectiveness of the solution itself. Typically, this is considered to be the territory of the Consultant or Master Black Belt (MBB), whose role it is to guide the steps of the Black Belt or Green Belt through the available tools depending on the problem. Therefore, the best guide requires A deep enough experience of how to tackle a specific problem to conclusion with an efficient approach (as a Belt, I want to know exactly what path to follow in my project). A broad enough experience to do this across multiple different types of

problems that might be addressed in a business (as a Program Leader I need my MBB to know what path to follow for all projects and guide my Belts accordingly). Technical skills to be able to guide the Belts in specific tool use (as a Belt, I want to know the practical steps involved in applying each tool). Interestingly, this expands the common perception of the role of a Master Black Belt as a technical resource and measures that individual in addition by the efficiency and effectiveness of projects that they oversee (i.e., the rate of generation of business value from those projects). Surprisingly (and fortunately) when asked the route to solution for a particular type of problem, the experienced guides are remarkably consistent in answerdash;it seems that if you have a specific problem type, then you should follow a specific route to solution. The intent of this book, therefore, is to capture those experiences and for multiple given project types lay down the appropriate routes to solution. Audiences that find this book valuable are Process Improvement Project Leaders (Green Belts and Black Belts), across all industriesdash;Leading projects to improve processes using tools and methodologies that come under the Lean or Six Sigma banners. Project Champions or Sponsorsdash;Wondering what questions to ask of their Project Leaders and what they should see in terms of activity, as well as seeking to improve their project selection and scoping skills. Technical Mentors (Master Black Belts)dash;Looking to improve their project and tools mentoring skills and to better select and scope projects. Deployment Leadersdash;Seeking to better select and scope projects to improve the Return on Investment of the Program. Consultantsdash;Brushing up on skills as both a Technical Mentor and Deployment Lead. The book is a little unusual in that it is designed to be a practical tool, used day-to-day by the readers to guide them through how to solve as many different types of business problems as possible using the Lean Sigma methodologies and tools. It is not meant to be a technical reference to take the place of the statistical tomes that are readily available. By analogy, this is how to drive the car, not how the car works. The book is also unusual in that it is not designed to be read linearly from cover to cover, mainly due to a few simple issues: There are a multitude of different problem types Each problem type has a different route to solution The same tools are used in the solution of multiple problem types The application of each tool can vary subtly depending on the problem The structure is in a form that best helps the reader start with their problem in hand and quickly progress to the solution. To that end, the book has three main parts: Part I (Chapters 2dash;5) Project Roadmaps that describe the route to solution for a wide range of problems. The text lists which tools to use, in which order, and why. To understand application of a particular tool in more detail, the reader should refer to Part III. Part II (Chapter 6) A Discovery Roadmap used to identify potential projects in a process where there are no obvious targets. This is often useful to businesses that are new to Lean Sigma and are not sure how to identify good projects to work on. To understand application of a particular tool in more detail, the reader should refer to Part III. Part III (Chapter 7) Individual tools roadmaps explaining in detail how to use each tool. Throughout this book, I explain which tool to use and why it is used, so that Belts move from blind tool use to truly thinking about what they do and focus on the end goal of improving the process. Processes and their respective problems are real-world phenomena, requiring practical actions and change. The best Belts I've found were the most practical thinkers, not the theorists, because any tool, even based on the cleverest theory, is only as good as the practical business solution it provides. copy; Copyright Pearson Education. All rights reserved.