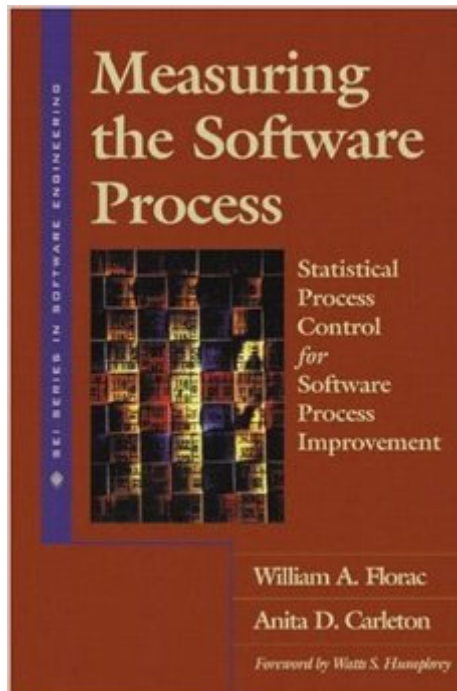# Measuring The Software Process: Statistical Process Control For Software Process Improvement

Synopsis

"While it is usually helpful to launch improvement programs, many such programs soon get bogged down in detail. They either address the wrong problems, or they keep beating on the same solutions, wondering why things don't improve. This is when you need an objective way to look at the problems. This is the time to get some data." Watts S. Humphrey, from the Foreword This book, drawing on work done at the Software Engineering Institute and other organizations, shows how to use measurements to manage and improve software processes. The authors explain specifically how quality characteristics of software products and processes can be quantified, plotted, and analyzed so the performance of software development activities can be predicted, controlled, and guided to achieve both business and technical goals. The measurement methods presented, based on the principles of statistical quality control, are illuminated by application examples taken from industry. Although many of the methods discussed are applicable to individual projects, the book's primary focus is on the steps software development organizations can take toward broad-reaching, long-term success. The book particularly addresses the needs of software managers and practitioners who have already set up some kind of basic measurement process and are ready to take the next step by collecting and analyzing software data as a basis for making process decisions and predicting process performance. Highlights of the book include: Insight into developing a clear framework for measuring process behavior Discussions of process performance, stability, compliance, capability, and improvement Explanations of what you want to measure (and why) and instructions on how to collect your data Step-by-step guidance on how to get started using statistical process control   If you have responsibilities for product quality or process performance and you are ready to use measurements to manage, control, and predict your software processes, this book will be an invaluable resource.

Book Information

Hardcover: 272 pages

Publisher: Addison-Wesley Professional; 1 edition (July 25, 1999)

Language: English

ISBN-10: 0201604442

ISBN-13: 978-0201604443

Product Dimensions: 6.6 x 0.8 x 9.5 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

Average Customer Review: 4.1 out of 5 stars See all reviews (8 customer reviews)

Customer Reviews

This book is a self-contained statistical process control (SPC) foundation in the context of software process improvement. Authors Florac and Carleton apply early industrial wisdom and some previous work at the SEI to a modern software development environment. The emphasis of the book is primarily on the use of analytical studies (predicting future outcomes) using the control chart as the primary instrument. There is only brief treatment of the use of enumerative studies (evaluating current situations) in this problem domain. Time-honored tools such as the Pareto chart, cause and effect diagram, and histogram, however, are given much less attention. The first half of the book directs attention to critical topics such as planning, managing and measuring. The authors adequately cover the material as it applies to software development, but the reader is cautioned that many statistical fundamentals are omitted from this work. In order to put these ideas into practice one should seek further instruction or consult a statistician for best results. A few annoying typographical and redundancy errors are present as well. Most bothersome about the book is that the authors do not seem to be 100% convinced that SPC for software process improvement actually works! This is somewhat alarming, given the long successful history of SPC in other industries. All in all, however, this book desperately needs to be read by anyone wishing to improve a software development process.

This book gives a practical guidance on software process measurement: what should be measured, how to measure, the measurement process/procedure, the data analysis of measurement, and the application of analysed results. It's easy to read and understand. It would be better to include more "case study" information.

This book contains the keys to meeting core CMM level 5 requirements, which defines key processes for optimizing and continuous improvement, and for achieving 6-sigma processes. However, you need not be striving for either (or both) of these goals to use the techniques and approach in this book to full advantage.Implementing and employing statistical process controls are the basis of this book. The authors lead you through the steps and techniques necessary to

implement and use SPC, starting with background information on processes and a process measurement framework, and moving through topics such as planning your measurement strategy, data collection and analysis, and developing and interpreting process behavior charts using common SPC chart types. The most common controls are x-bar (mean) and r (range) charts. Be aware that any SPC approach requires two conditions to be met: (a) defined processes, and (b) the processes are in statistical control (meaning that the data points being measured have settled into a normal distribution that are randomly clustered around a mean and have defined upper and lower control limits). New processes, or processes that are not managed well enough to have these characteristics are not candidates for SPC.This book requires knowledge and skills in basic statistical analysis. If you require a refresher I recommend reading "Visual Statistics" by Jack R. Fraenkel before tackling this book. I also recommend "Applied Statistics for Software Managers" by Katrina Maxwell, which not only teaches the basics, but also approaches measurement from the perspective of multi-variable analysis, regression analysis and other basic measurement techniques, which nicely complements the SPC material in this book and gives a broader picture of metrics.

This book was used in one of my master's classes for software measurement. The text is good and somewhat interesting, but sometimes, I needed to reread the examples several times to understand the measurement calculations. I don't know who would ever want to read this kind of stuff for fun, but if you find this kind of stuff interesting, I'd be willing to sell you my copy! :)

I found this book to be well-organized, with solid information for using statistical approaches within software processes. Complete coverage is provided on various control charts, and how create these and how to interpret these.The reason I don't rank the book higher is (1) the authors should spend more time discussing 'organizing' your data for statistical analysis, and (2) the book is relatively short, and could use more information on a set of best practices for the software industry.Although the book does not assume readers know SPC, it certainly would help. Basic statistical knowledge is beneficial to understand and apply the material to the workplace.

As a Test Engineer that has performed countless tests this book has added to my existing knowledge base, I would recommend it as a good reference book to have.

Very comprehensive for those who want to start a SPC program in software.

Great

Measuring the Software Process: Statistical Process Control for Software Process Improvement Statistical Process Control Demystified Understanding Statistical Process Control Control Self-Assessment: Reengineering Internal Control (Enterprise Governance, Control, Audit, Security, Risk Management and Business Continuity) ISO 9000-3: A Tool for Software Product and Process Improvement Software Engineering Classics: Software Project Survival Guide/ Debugging the Development Process/ Dynamics of Software Development (Programming/General) ISO 3534-2:1993, Statistics - Vocabulary and symbols - Part 2: Statistical quality control Statistical Quality Control Statistical Method from the Viewpoint of Quality Control (Dover Books on Mathematics) Measuring Software Reuse: Principles, Practices, and Economic Models Supply Chain and Logistics Management Made Easy: Methods and Applications for Planning, Operations, Integration, Control and Improvement, and Network Design Statistical Mechanics, Kinetic Theory and Stochastic Process The Goal: A Process of Ongoing Improvement The Goal: A Process of Ongoing Improvement - 30th Anniversary Edition The Goal: A Process of Ongoing Improvement by Eliyahu M. Goldratt and Jeff Cox: Key Takeaways, Analysis & Review An Introduction to Six Sigma and Process Improvement The Process Improvement Handbook: A Blueprint for Managing Change and Increasing Organizational Performance Agile Application Lifecycle Management: Using DevOps to Drive Process Improvement Innovating Lean Six Sigma: A Strategic Guide to Deploying the World's Most Effective Business Improvement Process A Guide to Six Sigma and Process Improvement for Practitioners and Students: Foundations, DMAIC, Tools, Cases, and Certification (2nd Edition)