Managing Software Process Watts Humphrey

"Every senior executive needs to read this book." --Robert Musson Vice President, Business Strategy Cenus Technologies "An informative book for any business person (not just technologists) who has ever been associated or involved with a software development effort and thought 'there must be a better way!' Watts has provided that better way-- the PSP/TSP, and a great book." --Roy Kinkaid, Head of Continuous Improvement and Software Quality Assurance, EBS Dealing Resources Watts Humphrey is the well-known author of methods and models widely used by organizations, teams, and individuals to improve the efficiency and effectiveness of software development. In Winning with Software, he shows corporate executives and senior managers why software is both a business problem and a business opportunity. "This book is extremely well written and targets the right audience. I plan to buy a copy for each of my executives." --Kevin J. Berk, Director, Process Improvement, Total Quality Systems Humphrey, drawing on his own extensive executive and management experience, first demonstrates the critical importance of software to nearly every business, large and small. He then outlines seven steps needed to gain control of a software operation and transform it into a professional, businesslike engineering function. Failure to recognize the importance of software, and to take charge of its development process, runs the risk of damaging the entire business. By contrast, Humphrey relates the substantial benefits real organizations have obtained from such awareness and control, and he concludes with an analysis of the impressive financial returns the recommended transformations typically yield. "This is a great book that will play a valuable role. It has excellent anecdotes that illustrate the points being made, as well as good examples depicting the problems faced by teams and managers. I look forward to sharing it with my colleagues." --Steven Sliwa, President & CEO, Insitu Group Inc. and former President of Embry-Riddle University "The logical approach, the high level explanations, and the application of real-life experiences make the book not only credible but easily understood. If a large number of CEOs don't at least try out the book's concepts, I will be greatly surprised." --David Webb Software Engineering Project Manager, Hill Air Force Base Watts Humphrey, inventor of CMM, PSP, and TSP provides team leaders with a whole new way of leading an effective development team.

The one resource needed to create reliable software This text offers a comprehensive and integrated approach tosoftware quality engineering. By following the author's clearguidance, readers learn how to master the techniques to producehigh-quality, reliable software, regardless of the softwaresystem's level of complexity. The first part of the publication introduces major topics insoftware quality engineering and presents quality planning as anintegral part of the process. Providing readers with a solidfoundation in key concepts and practices, the book moves on tooffer in-depth coverage of software testing as a primary means toensure software quality; alternatives for quality assurance,including defect prevention, process improvement, inspection,formal verification, fault tolerance, safety assurance, and damagecontrol; and measurement and analysis to close the feedback loopfor quality assessment and quantifiable improvement. The text's approach and style evolved from the author's hands-onexperience in the classroom. All the pedagogical tools needed tofacilitate quick learning are provided: * Figures and tables that clarify concepts and provide quick topicsummaries * Examples that illustrate how theory is applied in real-worldsituations * Comprehensive bibliography that leads to in-depth discussion ofspecialized topics * Problem sets at the end of each chapter that test readers'knowledge This is a superior textbook for software engineering, computerscience, information systems, and electrical engineering students,and a dependable reference for software and computer professionalsand engineers.

Principal Contributors and Editors: Mark C. Paulk, Charles V. Weber, Bill Curtis, Mary Beth Chrissis "In every sense, the CMM represents the best thinking in the field today... this book is targeted at anyone involved in improving the software process, including members of assessment or evaluation teams, members of software engineering process groups, software managers, and software practitioners..." From the Foreword by Watts Humphrey The Capability Maturity Model for Software (CMM) is a framework that demonstrates the key elements of an effective software process. The CMM describes an evolutionary improvement path for software development from an ad hoc, immature process to a mature, disciplined process, in a path laid out in five levels. When using the CMM, software professionals in government and industry can develop and improve their ability to identify, adopt, and use sound management and technical practices for delivering quality software on schedule and at a reasonable cost. This book provides a description and technical overview of the CMM, along with guidelines for improving software process management overall. It is a sequel to Watts Humphrey's important work, Managing the Software Process, in that it structures the maturity framework presented in that book more formally. Features: Compares the CMM with ISO 9001 Provides an overview of ISO's SPICE project, which is developing international standards for software process improvement and capability determination Presents a case study of IBM Houston's Space Shuttle project, which is frequently referred to as being at Level 5 0201546647B04062001

"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.

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Team Software Process (TSP), created by Watts S. Humphrey, is a set of engineering practices and team concepts that produce effective teams, thereby helping developers deliver high-quality products on time and within budget. TSP bridges Humphrey's seminal work on the Capability Maturity Model (CMM), an improvement framework for the entire software organization, and his Personal Software Process (PSP), practices designed to improve the work of individual developers. Typical first-time TSP teams increase productivity by more than 50 percent while greatly increasing the quality of their delivered products. However, TSP teams only continue to improve under the guidance of a capable coach. One industrial-strength team, for example, increased its productivity by an additional 94 percent and reduced test defects by 85 percent through three consecutive TSP quarterly product release cycles. Without competent coaching, teams often do not progress much beyond the initial one-time improvement seen after the introduction of the TSP. Humphrey distinguishes between TSP coaching and TSP leadership, explaining why the skillful performance of both functions is critical. In this practical guide, he shares coaching methods that have repeatedly inspired TSP teams and steered them toward success. With the help of a coach, TSP teams undergo a brief but intense project launch in which they define their own processes, make their own plans, and negotiate their commitments with management, resulting in dramatically enhanced performance. Whether you are considering the TSP or are actively implementing it, TSPSM–Coaching Development Teams provides the invaluable examples, guidelines, and suggestions you need to get started and keep developing as a team coach. It's meant to complement Humphrey's other books, TSPSM–Leading a Development Team and PSPSM: A Self-Improvement Process for Software Engineers. Together, the three works offer a rich resource for improving your software development capabilities.

This informative book is designed to help professionals involved with development of software or systems manage process improvement initiatives within their company by explaining the history, method and psychology behind AFA.

This book focuses on the design, development, management, governance and application of evolving software processes that are aligned with changing business objectives, such as expansion to new domains or shifting to global production. In the context of an evolving business world, it examines the complete software process lifecycle, from the initial definition of a product to its systematic improvement. In doing so, it addresses difficult problems, such as how to implement processes in highly regulated domains or where to find a suitable notation system for documenting processes, and provides essential insights and tips to help readers manage process evolutions. And last but not least, it provides a wealth of examples and cases on how to deal with software evolution in practice. Reflecting these topics, the book is divided into three parts. Part 1 focuses on software business transformation and addresses the questions of which process(es) to use and adapt, and how to organize process improvement programs. Subsequently, Part 2 mainly addresses process modeling. Lastly, Part 3 collects concrete approaches, experiences, and recommendations that can help to improve software processes, with a particular focus on specific lifecycle phases. This book is aimed at anyone interested in understanding and optimizing software development tasks at their organization. While the experiences and ideas presented will be useful for both those readers who are unfamiliar with software process improvement and want to get an overview of the different aspects of the topic, and for those who are experts with many years of experience, it particularly targets the needs of researchers and Ph.D. students in the area of software and systems engineering or information systems who study advanced topics concerning the organization and management of (software development) projects and process improvements projects.

This book brings together experts to discuss relevant results in software process modeling, and expresses their personal view of this field. It is designed for a professional audience of researchers and practitioners in industry, and graduate-level students.

The IEEE's Software Engineering standards are the internationally accepted guidelines for developing software in the commercial, government, and private sectors. This text presents a Software Life-Cycle Model to complement the standards and aid development.

This newest book from Watts Humphrey is a hands-on introduction to basic disciplines of software engineering. Designed as a workbook companion to any introductory programming or software-engineering text, Humphrey provides here the practical means to integrate his highly regarded Personal Software Process (PSP) into college and university curricula. The book may also be adapted for use in industrial training or for self-improvement by practicing software engineers. Applying the book's exercises to their course assignments, students learn both to manage their time effectively and to monitor the quality of their work, good practices they will need to be successful in their future careers. The book is supported by its own electronic supplement, which includes spreadsheets for data entry and analysis. A complete instructor's package is also available. By mastering PSP techniques early in their studies, students can avoid--or overcome--the popular "hacker" ethic that leads to so many bad habits. Employers will appreciate new hires prepared to do competent professional work without, as now is common, expensive retraining and years of experience.

Over the past decade, there has been an increase in attention and focus on the discipline of software engineering. Software engineering tools and techniques have been developed to gain more predictable quality improvement results. Process standards such as Capability Maturity Model Integration (CMMI), ISO 9000, Software Process Improvement and Capability dEtermination (SPICE), Agile Methodologies, and others have been proposed to assist organizations to achieve more predictable results by incorporating these proven standards and procedures into their software process. Software Process Improvement and Management: Approaches and Tools for Practical Development offers the latest research and case studies on software engineering and development. The production of new process standards assist organizations and software engineers in adding a measure of predictability to the software process. Companies can gain a decisive competitive advantage by applying these new and theoretical methodologies in real-world scenarios. Researchers, scholars, practitioners, students, and anyone interested in the field of software development and design should access this book as a major compendium of the latest research in the field.

Most software-development groups have embarrassing records: By some accounts, more than half of all software projects are significantly late and over budget, and nearly a quarter of them are cancelled without ever being completed. Although developers recognize that unrealistic schedules, inadequate resources, and unstable requirements are often to blame for such failures, few know how to solve these problems. Fortunately, the Personal Software Process (PSP) provides a clear and proven solution. Comprising precise methods developed over many years by Watts S. Humphrey and the Software Engineering Institute (SEI), the PSP has successfully transformed work practices in a wide range of organizations and has already produced some striking results. This book describes the PSP and is the definitive guide and reference for its latest iteration. PSP training focuses on the skills required by individual software engineers to improve their personal performance. Once learned and effectively applied, PSP-

trained engineers are qualified to participate on a team using the Team Software Process (TSP), the methods for which are described in the final chapter of the book. The goal for both PSP and TSP is to give developers exactly what they need to deliver quality products on predictable schedules. PSPSM: A Self-Improvement Process for Software Engineers presents a disciplined process for software engineers and anyone else involved in software development. This process includes defect management, comprehensive planning, and precise project tracking and reporting. The book first scales down industrial software practices to fit the needs of the module-sized program development, then walks readers through a progressive sequence of practices that provide a sound foundation for large-scale software development. By doing the exercises in the book, and using the PSP methods described here to plan, evaluate, manage, and control the quality of your own work, you will be well prepared to apply those methods on ever larger and more critical projects. Drawing on the author’s extensive experience helping organizations to achieve their development goals, and with the PSP benefits well illustrated, the book presents the process in carefully crafted steps. The first chapter describes overall principles and strategies. The next two explain how to follow a defined process, as well as how to gather and use the data required to manage a programming job. Several chapters then cover estimating and planning, followed by quality management and design. The last two chapters show how to put the PSP to work, and how to use it on a team project. A variety of support materials for the book, as described in the Preface, are available on the Web. If you or your organization are looking for a way to improve your project success rate, the PSP could well be your answer.

Project initiation; Project planning; Project execution and termination.

A Lifetime of Invaluable Management Insights from Legendary Software Quality Guru Watts S. Humphrey In 1986, Watts S. Humphrey made an outrageous commitment: a promise to transform software development. As the pioneering innovator behind SEI's Capability Maturity Model (CMM), Personal Software Process (PSP), and Team Software Process (TSP), Humphrey has more than met that promise. But his contributions go beyond methodology: For decades, his deeply personal writings on project management have been admired by software engineers worldwide. Reflections on Management brings together Humphrey's best and most influential essays and articles--sharing insights that will be indispensable for anyone who must achieve superior results in software or any other endeavor. Collected here for the first time, these works offer compelling insights into everything from planning day-to-day work to improving quality, encouraging teamwork to becoming a truly great leader. All of these writings share a powerful vision, grounded by a life in software that has extended across nearly six decades. The vision is this: To succeed, professionals must effectively manage for more than plans, schedules, and code--they must manage teams, bosses, and above all, themselves.

Well-known author and long-time manager Watts Humphrey offers keen insight into the special challenge of identifying, motivating, and organizing creative technical people, and the opportunities involved in managing these people.

This book tells of one company's need for a measurable, controllable software process and of the very professional effort in the company mounted to meet that need.

This new work from Watts Humphrey, author of the influential book, Managing the Software Process, broadens his orderly view of software process management, and lays the foundation for a disciplined approach to software engineering. In his earlier book, the author developed concrete methods for managing software development and maintenance. These methods, now commonly practiced in industry, provide programmers and managers with specific steps they can take to evaluate and improve their software capabilities. In this new book, Humphrey scales those methods down to a personal level, helping software engineers develop the skills and habits needed to plan, track, and analyze large, complex projects. Humphrey and others have used material from this book to train professionals and students around the world in a projects-oriented software engineering course. First establishing the need for discipline in software engineering, and the benefits to practitioners of learning how to manage their personal software process, Humphrey then develops a model that they can use to monitor, test, and improve their work. Examples drawn from industry enhance the practical focus of the book, while project exercises give readers the opportunity to practice software process management as they learn it. Features: presents concepts and methods for a disciplined software engineering process; scales down industrial practices for planning, tracking, analysis, and defect management to fit the needs of small-scale program development; and shows how small project disciplines provide a solid base for larger projects.

Publisher Fact Sheet A concise, hands-on approach to managing & improving the critical requirements process in software development. bull; The must-have reference for every technical writer, editor, and documentation manager bull; Provides all the information you need to document hardware, software, or other computer products bull; Written by award-winning documentation experts at Sun Technical Publications, Read Me First! is the most comprehensive guide to creating documentation that is clear, consistent, and easy to understand

"Every business is a software business, and every business can profit from improved software processes" " " "Leadership, Teamwork, and Trust " discusses the critical importance of knowledge work to the success of modern organizations. It explains concrete and necessary steps for reshaping the way in which software development, specifically, is conducted. A sequel to Humphrey's influential "Winning with Software, "this book presents new and copious data to reinforce his widely adopted methods for transforming knowledge work into a significant and sustainable competitive advantage, thereby realizing remarkable returns. Humphrey addresses here the broader business community--executives and senior managers who must recognize that today, every business is a software business.

Get the most out of this foundational reference and improve the productivity of your software teams. This open access book collects the wisdom of the 2017 "Dagstuhl" seminar on productivity in software engineering, a meeting of community leaders, who came together with the goal of rethinking traditional definitions and measures of productivity. The results of their work, Rethinking Productivity in Software Engineering, includes chapters covering definitions and core concepts related to productivity, guidelines for measuring productivity in specific contexts, best practices and pitfalls, and theories and open questions on productivity. You'll benefit from the many short chapters, each offering a focused discussion on one aspect of productivity in software engineering. Readers in many fields and industries will benefit from their collected work. Developers wanting to improve their personal productivity, will learn effective strategies for overcoming common issues that interfere with progress. Organizations thinking about building internal programs for measuring productivity of programmers and teams will learn best practices from industry and researchers in measuring productivity. And researchers can leverage the conceptual frameworks and rich body of literature in the book to effectively pursue new research directions. What You'll LearnReview the definitions and dimensions of software productivity See how time management is having the opposite of the intended effect Develop valuable dashboards Understand the impact of sensors on productivity Avoid software development waste Work with human-centered methods to measure productivity Look at the intersection of neuroscience and productivity Manage interruptions and context-switching Who Book Is For Industry developers and those responsible for seminar-style courses that include a segment on software developer productivity. Chapters are written for a generalist audience, without excessive use of

technical terminology.
CMMI® for Development (CMMI-DEV) describes best practices for the development and maintenance of products and services across their lifecycle. By integrating essential bodies of knowledge, CMMI-DEV provides a single, comprehensive framework for organizations to assess their development and maintenance processes and improve performance. Already widely adopted throughout the world for disciplined, high-quality engineering, CMMI-DEV Version 1.3 now accommodates other modern approaches as well, including the use of Agile methods, Lean Six Sigma, and architecture-centric development. CMMI® for Development, Third Edition, is the definitive reference for CMMI-DEV Version 1.3. The authors have revised their tips, hints, and cross-references, which appear in the margins of the book, to help you better understand, apply, and find information about the content of each process area. The book includes new and updated perspectives on CMMI-DEV in which people influential in the model's creation, development, and transition share brief but valuable insights. It also features four new case studies and five contributed essays with practical advice for adopting and using CMMI-DEV. This book is an essential resource–whether you are new to CMMI-DEV or are familiar with an earlier version–if you need to know about, evaluate, or put the latest version of the model into practice. The book is divided into three parts. Part One offers the broad view of CMMI-DEV, beginning with basic concepts of process improvement. It introduces the process areas, their components, and their relationships to each other. It describes effective paths to the adoption and use of CMMI-DEV for process improvement and benchmarking, all illuminated with fresh case studies and helpful essays. Part Two, the bulk of the book, details the generic goals and practices and the twenty-two process areas now comprising CMMI-DEV. The process areas are organized alphabetically by acronym for easy reference. Each process area includes goals, best practices, and examples. Part Three contains several useful resources, including CMMI-DEV-related references, acronym definitions, a glossary of terms, and an index.
This book will help you to manage and control the quality of your organization's software products. Continually dealing with the problems caused by software defects can be both time-consuming and demanding but Sami Zahran's pragmatic approach will take you from reactive fire-fighting to a preventative culture of disciplined and continuous process improvement. This book will help you: establish a process-focused software development organizatio design and implement procedures for developing quality software in time and within budge benchmark your organization against the industry standards for the software process, including the Capability Maturity Model (CMM), ISO 9001, the new standard ISO/IEC 15504 (originally known as SPICE) and Bootstrap.
This newest book from Watts Humphrey is a hands-on introduction to basic disciplines of software engineering. Designed as a workbook companion to any introductory programming or software-engineering text, Humphrey provides here the practical means to integrate his highly regarded Personal Software Process (PSP) into the undergraduate curriculum. Applying the book's exercises to course assignments, students learn both to manage their time effectively and to monitor the quality of their work, good practices they will need to be successful in their future careers. The book is supported by its own electronic supplement, which includes spreadsheets for data entry and analysis. A complete instructor's package is also available. By mastering PSP techniques early in their studies, students can avoid-or overcome-the popular "hacker" ethic that leads to so many bad habits. Employers will appreciate new hires prepared to do competent professional work without, as now is common, expensive retraining and years of experience.
Software Project Management explains the latest management strategies and techniques in software developments. It covers such issues as keeping the team motivated, cost-justifying strategies, deaflines and budgets.
Managing the Software ProcessAddison-Wesley Professional
I highly recommend this book for anyone who's ever tried to implement RUP on a small project. Pollice and company have demystified and effectively scaled the process while ensuring that its essence hasn't been compromised. A must-have for any RUPster's library! Chris Soskin, Process Engineering Consultant, Toyota Motor SalesDo you want to improve the process on your next project? Perhaps you'd like to combine the best practices from the Rational Unified Process (RUP) and from agile methodologies (such as Extreme Programming). If so, buy this book! Software Development for Small Teams describes an entire software development project, from the initial customer contact through delivery of the software. Through a case study, it describes how one small, distributed team designed and applied a successful process. But this is not a perfect case study. The story includes what worked and what didn't, and describes how the team might change its process for the next project. The authors encourage you to assess their results and to use the lessons learned on your next project. Key topics covered include: Achieving a balance between people, process, and tools; recognizing that software develo
The author, drawing on years of experience at IBM and the SEI, provides here practical guidance for improving the software development and maintenance process. He focuses on understanding and managing the software process because this is where he feels organizations now encounter the most serious problems, and where he feels there is the best opportunity for significant improvement. Both program managers and practicing programmers, whether working on small programs or large-scale projects, will learn how good their own software process is, how they can make their process better, and where they need to begin. "This book will help you move beyond the turning point, or crisis, of feeling over-whelmed by the task of managing the software process to understanding what is essential in software management and what you can do about it." Peter Freeman, from the Foreword 0201180952B04062001
Most modern software development projects require teams, and good teamwork largely determines a project's success. The Team Software Process (TSP), created by Watts S. Humphrey, is a set of engineering practices and team concepts that produce effective teams, thereby helping developers deliver high-quality products on time and within budget. TSP bridges Humphrey's seminal work on the Capability Maturity Model (CMM), an improvement framework for the entire software organization, and his Personal Software Process (PSP), practices designed to improve the work of individual

developers. Typical first-time TSP teams increase productivity by more than 50 percent while greatly increasing the quality of their delivered products. However, TSP teams only continue to improve under the guidance of a capable coach. One industrial-strength team, for example, increased its productivity by an additional 94 percent and reduced test defects by 85 percent through three consecutive TSP quarterly product release cycles. Without competent coaching, teams often do not progress much beyond the initial one-time improvement seen after the introduction of the TSP. Humphrey distinguishes between TSP coaching and TSP leadership, explaining why the skillful performance of both functions is critical. In this practical guide, he shares coaching methods that have repeatedly inspired TSP teams and steered them toward success. With the help of a coach, TSP teams undergo a brief but intense project launch in which they define their own processes, make their own plans, and negotiate their commitments with management, resulting in dramatically enhanced performance. Whether you are considering the TSP or are actively implementing it, TSPSM—Coaching Development Teams provides the invaluable examples, guidelines, and suggestions you need to get started and keep developing as a team coach. It’s meant to complement Humphrey’s other books, TSPSM—Leading a Development Team and PSPSM: A Self-Improvement Process for Software Engineers. Together, the three works offer a rich resource for improving your software development capabilities.

TSPi overview; The logic of the team software process; The TSPi process; The team roles; Using the TSPi; Teamwork.

CMMI® for Services (CMMI-SVC) is a comprehensive set of guidelines to help organizations establish and improve processes for delivering services. By adapting and extending proven standards and best practices to reflect the unique challenges faced in service industries, CMMI-SVC offers providers a practical and focused framework for achieving higher levels of service quality, controlling costs, improving schedules, and ensuring user satisfaction. A member of the newest CMMI model, CMMI-SVC Version 1.3, reflects changes to the model made for all constellations, including clarifications of high-maturity practices, alignment of the sixteen core process areas, and improvements in the SCAMPI appraisal method. The indispensable CMMI® for Services, Second Edition, is both an introduction to the CMMI-SVC model and an authoritative reference for it. The contents include the complete model itself, formatted for quick reference. In addition, the book’s authors have refined the model’s introductory chapters; provided marginal notes to clarify the nature of particular process areas and to show why their practices are valuable; and inserted longer sidebars to explain important concepts. Brief essays by people with experience in different application areas further illustrate how the model works in practice and what benefits it offers. The book is divided into three parts. Part One begins by thoroughly explaining CMMI-SVC, its concepts, and its use. The authors provide robust information about service concepts, including a discussion of lifecycles in service environments; outline how to start using CMMI-SVC; explore how to achieve process improvements that last; and offer insights into the relationships among process areas. Part Two describes generic goals and practices, and then details the complete set of twenty-four CMMI-SVC process areas, including specific goals, specific practices, and examples. The process areas are organized alphabetically by acronym and are tabbed for easy reference. Part Three contains several useful resources, including CMMI-SVC-related references, acronym definitions, a glossary of terms, and an index. Whether you are new to CMMI models or are already familiar with one or more of them, this book is an essential resource for service providers interested in learning about or implementing process improvement.

The SEI's Capability Maturity Model (CMM) has been widely adopted by companies seeking enhanced quality and heightened productivity in software development. This guide provides detailed instruction on how to put this model into practice and thereby raise an organization to the next level. Templates, sample documents and presentation materials are included on the CD-ROM.