Managing Software Process Watts Humphrey

Managing Software Process Watts Humphrey Managing software process Watts Humphrey is a critical aspect of ensuring the success and quality of software development projects. Watts Humphrey, renowned for his pioneering work in software engineering and process improvement, emphasized the importance of disciplined process management to achieve predictable, high-quality outcomes. His methodologies and frameworks have profoundly influenced how organizations approach the management of their software processes, fostering a culture of continuous improvement and operational excellence. In this article, we will delve into the core principles of managing software process as advocated by Watts Humphrey, explore practical strategies for implementation, and discuss the benefits organizations can realize by adopting these practices. Understanding the Foundations of Watts Humphrey's Approach to Software Process Management The Philosophy Behind Process Maturity Watts Humphrey championed the idea that software process maturity directly correlates with the quality and efficiency of software development. His approach advocates for moving organizations through a series of maturity levels, each characterized by increasingly refined and disciplined practices. The key philosophy is that: Standardized processes lead to predictable outcomes. Measured and managed processes facilitate continuous improvement. Training and skill development are essential for process adherence. By focusing on these principles, organizations can systematically reduce defects, improve productivity, and deliver value more consistently. The Capability Maturity Model Integration (CMMI) Although originally developed by the Software Engineering Institute (SEI), Humphrey's work laid the groundwork for models like CMMI, which provide a structured framework for process improvement. CMMI delineates five maturity levels: Initial - Processes are ad hoc and chaotic.1. Managed - Basic project management practices are in place.2. Defined - Processes are documented, standardized, and integrated.3. Quantitatively Managed - Processes are measured and controlled.4. Optimizing - Focus on continuous process improvement.5. 2 Managing software processes effectively involves guiding organizations through these levels to establish a robust, mature process environment. Core Principles of Managing Software Process Watts Humphrey Advocates Process Definition and Documentation A fundamental aspect of Humphrey's approach is the clear definition and documentation of software processes. This ensures that everyone understands their roles, responsibilities, and the steps involved in each phase of development. Effective process documentation includes: Standard Operating Procedures (SOPs) Workflows and process models Checklists and templates Guidelines for quality assurance Having well-documented processes facilitates training, consistency, and easier onboarding of new team members. Measurement and Metrics Humphrey emphasized the

importance of measurement to manage and improve software processes. By establishing relevant metrics, organizations can: Track process adherence and performance Identify areas for improvement Make informed decisions based on data Common metrics include defect density, effort variance, schedule adherence, and code quality indicators. Training and Skill Development A disciplined process is only effective if the team members are skilled and knowledgeable. Humphrey's methodology advocates for ongoing training programs to: Ensure understanding of defined processes Enhance technical and soft skills Foster a culture of quality and continuous learning This investment in human capital is crucial for sustaining process maturity. 3 Process Control and Management Managing software processes involves continuous oversight to ensure compliance and effectiveness. This includes: Regular audits and reviews Process audits and assessments Corrective actions for deviations Use of tools for tracking and reporting Effective process control ensures that projects stay aligned with organizational standards and quality goals. Implementing Watts Humphrey's Software Process Management Methodology Step 1: Assess the Current Process Maturity The first step involves evaluating where your organization stands in terms of process maturity. This can be achieved through: Conducting process audits Reviewing documentation and practices Collecting metrics and performance data Understanding the baseline helps in planning targeted improvements. Step 2: Define and Document Processes Based on the assessment, organizations should formalize their processes by: Standardizing development workflows Creating comprehensive documentation Establishing quality assurance procedures Clear documentation ensures everyone is aligned and reduces ambiguity. Step 3: Train and Empower Teams Effective process management requires that teams are well-trained. Strategies include: Workshops and training sessions Mentoring and coaching Providing resources and reference materials Empowered teams are more likely to adhere to processes and contribute to continuous 4 improvement. Step 4: Measure and Monitor Performance Implementing metrics and tracking tools allows organizations to: Monitor process compliance Identify bottlenecks and issues Make data-driven decisions for process adjustments Regular monitoring sustains process discipline and maturity. Step 5: Continual Process Improvement Humphrey's model emphasizes that process management is an ongoing activity. Organizations should: Conduct periodic reviews Gather feedback from team members Implement incremental improvements Leverage lessons learned from projects This cycle fosters a culture of relentless pursuit of excellence. Challenges in Managing Software Processes and How to Overcome Them Resistance to Change Many teams resist adopting formal processes due to perceived rigidity. Overcoming this involves: Communicating the benefits clearly Involving team members in process development Providing adequate training and support Maintaining Process Flexibility While discipline is essential, processes should be adaptable to project needs. Strategies include: Defining customizable process frameworks Encouraging feedback and suggestions Regularly reviewing and updating processes 5 Ensuring Consistency Across Teams Large organizations may face

inconsistencies. Solutions involve: Standardized documentation Centralized process management tools Leadership enforcement and monitoring Benefits of Effective Software Process Management Implementing Humphrey's principles results in numerous organizational benefits, including: Improved product quality and reliability Reduced defect rates and rework costs Enhanced project predictability and planning Increased customer satisfaction Greater team productivity and morale Facilitation of compliance with industry standards These advantages collectively contribute to a competitive edge in the software industry. Conclusion Managing software process Watts Humphrey style is a strategic endeavor that requires commitment, discipline, and continuous effort. By adhering to the core principles of process definition, measurement, training, control, and improvement, organizations can elevate their software development maturity, leading to higher quality products and more predictable project outcomes. Embracing Humphrey's methodology not only streamlines development activities but also fosters a culture of quality and innovation, essential for thriving in the dynamic landscape of software engineering. Whether starting from scratch or refining existing processes, organizations that prioritize disciplined process management position themselves for long-term success and excellence in software delivery. QuestionAnswer What are the key principles of managing software processes according to Watts Humphrey? Watts Humphrey emphasizes the importance of establishing a disciplined process, measuring process performance, and continuously improving process maturity through quantitative management and disciplined practices. How does Watts Humphrey suggest implementing process improvement in software development? Humphrey advocates for using the Capability Maturity Model (CMM) to assess current processes, identify areas for improvement, and systematically implement changes to advance process maturity levels. 6 What role does process measurement play in Watts Humphrey's approach to managing software processes? Process measurement is central; it helps organizations understand their current performance, identify bottlenecks, and track progress over time, enabling data-driven decisions for process improvement. How can organizations apply Watts Humphrey's principles to improve software quality? Organizations should adopt disciplined processes, establish clear standards, measure process performance, and pursue continuous improvement to enhance software quality and reduce defects. What is the significance of the Personal Software Process (PSP) in Watts Humphrey's methodology? The PSP emphasizes individual discipline, self- measurement, and personal responsibility for quality, serving as a foundation for improving overall process maturity within teams. How does Watts Humphrey's approach address the challenges of software process management? Humphrey's approach tackles challenges by promoting a structured, measurable, and incremental process improvement framework, fostering organizational discipline, and aligning processes with business goals. What are the benefits of adopting Watts Humphrey's process management strategies? Benefits include higher software quality, increased productivity, better predictability, reduced costs, and a culture of continuous improvement within

development teams. Can Watts Humphrey's methodologies be integrated with Agile practices? Yes, Humphrey's disciplined approach can complement Agile by providing a structured framework for measurement and process maturity while supporting iterative development and flexibility. How does Watts Humphrey recommend measuring software process maturity? He recommends utilizing models like the Capability Maturity Model (CMM) to evaluate process maturity levels, which range from initial (ad hoc) to optimizing, based on specific process area assessments. What is the long-term impact of applying Watts Humphrey's process management principles in an organization? Long-term impacts include sustained process improvements, higher software quality, better project predictability, and a culture that values disciplined, measurable, and continuous process enhancement. Managing Software Process Watts Humphrey is a comprehensive approach that has significantly influenced the way software development teams structure, implement, and refine their processes. Developed by Watts Humphrey, a pioneer in the field of software engineering, this methodology emphasizes the importance of disciplined process management to improve quality, productivity, and predictability in software projects. As software systems become increasingly complex, the principles and practices articulated by Humphrey provide invaluable guidance for organizations striving to achieve maturity in their software development lifecycle. In this article, we will explore the core concepts of managing software processes as advocated by Watts Humphrey, analyze its key components, benefits, and limitations, and provide insights into how organizations can Managing Software Process Watts Humphrey 7 effectively adopt and implement these practices to enhance their software engineering efforts. --- Understanding the Foundations of Watts Humphrey's Approach Watts Humphrey's methodology centers around the idea that software development is a well-defined, repeatable process that can be measured, controlled, and improved over time. His philosophy underscores that quality and productivity are directly linked to process maturity, and that managing the process meticulously leads to better outcomes. The foundation of his approach is the Capability Maturity Model (CMM), which classifies organizations based on their process maturity levels, from initial, ad hoc practices to optimized, continuously improving processes. While the CMM provides a macro-level framework, Humphrey's detailed process management techniques focus on the micro- level practices that enable organizations to ascend these maturity levels. Key principles include: - Process Definition: Establishing clear, standardized procedures for every phase of software development. - Process Measurement: Collecting data to understand process performance. - Process Control: Using metrics and analysis to manage and improve processes. - Continuous Improvement: Regularly refining processes based on feedback and measurement. --- Core Components of Managing Software Processes Humphrey's process management involves several interrelated components that collectively promote disciplined, predictable, and high-quality software development. 1. Process Planning Effective process planning involves defining the scope, objectives, and methods for each project. It includes: - Developing detailed

project plans aligned with organizational standards. - Estimating effort, schedule, and resource requirements. - Identifying risks and mitigation strategies. Benefits: - Provides clear direction and expectations. - Facilitates resource allocation and risk management. Challenges: - Requires thorough understanding of project specifics. - Can be time-consuming initially. 2. Process Definition and Standardization This component focuses on establishing standard procedures that teams follow, ensuring consistency and repeatability. Features: - Documented processes for requirements, design, coding, testing, and deployment. - Use of templates, checklists, and guidelines. Pros: - Reduces variability and errors. - Eases onboarding of new team members. Cons: - May be perceived as rigid or bureaucratic if not balanced with flexibility. Managing Software Process Watts Humphrey 8 3. Process Measurement and Data Collection Humphrey advocates for systematic collection of data related to process performance, such as defect rates, productivity metrics, and schedule variance. Advantages: - Enables objective assessment of process effectiveness. - Identifies areas needing improvement. Limitations: - Data collection can be resource-intensive. - Overemphasis on metrics may lead to gaming or superficial compliance. 4. Process Control and Monitoring This involves analyzing collected data to detect deviations from plans and taking corrective actions early. Features: - Use of control charts and dashboards. - Regular review meetings. Pros: - Enhances predictability. - Prevents issues from escalating. Cons: - Requires disciplined discipline and cultural buy-in. - Can be overwhelming without proper tools. 5. Process Improvement Continuous refinement based on lessons learned and measurement results. Methods: - Root cause analysis. - Process audits. - Adoption of best practices and innovations. Benefits: - Incremental gains in quality and efficiency. - Fosters a culture of learning. Challenges: - Resistance to change. - Maintaining momentum over time. --- Implementing Watts Humphrey's Process Management in Organizations Adopting Humphrey's approach involves several strategic steps that can help organizations evolve their software processes effectively. Step 1: Assess Current Maturity Level Understanding where the organization stands in terms of process maturity is essential. This can be done through surveys, interviews, and process audits. Step 2: Define Target Processes and Goals Set clear objectives for process improvement aligned with organizational goals. Establish process definitions, standards, and metrics. Step 3: Develop and Document Processes Create detailed process descriptions, templates, and guidelines. Ensure they are accessible to all team members. Managing Software Process Watts Humphrey 9 Step 4: Train and Engage Teams Conduct training sessions to familiarize teams with the processes. Foster a culture that values process discipline. Step 5: Measure and Control Implement measurement systems, collect data, and monitor process performance regularly. Step 6: Review and Improve Use data and feedback to identify bottlenecks, defects, or inefficiencies, then refine processes accordingly. --- Pros and Cons of Managing Software Processes According to Watts Humphrey Every methodology has its strengths and limitations. Here's a balanced view of Humphrey's process management approach. Pros: - Enhanced Quality: Standardized processes

reduce defects and improve product reliability. - Predictability: Metrics and control mechanisms enable better project estimation and delivery. - Continuous Improvement: Emphasizes learning and refining processes, leading to long-term gains. - Maturity Growth: Helps organizations climb the maturity ladder, resulting in more disciplined practices. - Customer Satisfaction: Consistent quality and delivery improve customer trust and satisfaction. Cons: - Implementation Overhead: Establishing and maintaining detailed processes require resources and effort. - Resistance to Change: Teams accustomed to informal practices may resist disciplined process enforcement. - Rigidity Risks: Excessive standardization can stifle creativity and adaptability. - Measurement Challenges: Collecting accurate data and interpreting it effectively can be difficult. - Initial Slowdown: Early stages of process implementation may slow down development due to overhead and adjustments. --- Real-World Applications and Case Studies Numerous organizations have successfully adopted Watts Humphrey's process management principles, leading to measurable improvements. Case Study 1: Large Software Vendor A multinational software firm implemented Humphrey's disciplined process definitions across multiple teams. Over two years, they observed: - A 30% reduction in defect rates. - Improved project delivery predictability within 10% of estimates. - Higher team morale due to clear guidance and reduced chaos. Case Study 2: Government Agency A government agency adopted process measurement and control techniques to standardize their software projects, resulting in: - Enhanced compliance Managing Software Process Watts Humphrey 10 with regulatory standards. - Better stakeholder communication. - Cost savings due to fewer rework and defects. These examples underscore the value of structured process management, especially when coupled with organizational commitment. --- Conclusion: Is Watts Humphrey's Managing Software Process Approach Right for Your Organization? Managing software processes as per Watts Humphrey's methodology offers a systematic pathway to achieving higher maturity, quality, and predictability. Its emphasis on process definition, measurement, control, and continuous improvement aligns well with organizations aiming for disciplined engineering practices. However, successful adoption demands cultural change, resource investment, and ongoing commitment. Organizations should evaluate their current maturity levels, organizational culture, and project needs to determine the appropriate scope and depth of process management implementation. In summary, Watts Humphrey's approach provides a robust framework for elevating software engineering practices. When tailored appropriately, it can lead to significant benefits, including improved product quality, reduced costs, and enhanced customer satisfaction. Embracing process discipline as a strategic asset is, therefore, a worthwhile endeavor for organizations committed to excellence in software development. software process improvement, Capability Maturity Model, process management, software engineering, process improvement, software quality, process modeling, software metrics, software development lifecycle, process assessment

Introduction to the Team Software Process(sm)Managing the Software ProcessIntroduction to the

Personal Software ProcessManaging Technical PeopleIntroduction to the Personal Software Process(SM)Introduction to the Team Software Process(SM).CMM in PracticeAction Focused Assessment for Software Process ImprovementTSP(SM) Leading a Development Team, Portable DocumentsSoftware Process ModelingSoftware Process QualityThe Technical and Social History of Software EngineeringSoftware Security EngineeringEncyclopedia of Software Engineering Three-Volume Set (Print)A Discipline for Software EngineeringIntroduction to the Personal Software ProcessMeasuring the Software ProcessUnifying the Software Process SpectrumSoftware Process ImprovementProduct Focused Software Process Improvement Watts S. Humphrey Humphrey Watts S. Humphrey Watts S. Humphrey Watts S. Humphrey Watts S. Humphrey Pankaj Jalote Tim Kasse Watts S. Humphrey Silvia T. Acuna Ron S. Kenett Capers Jones Nancy R. Mead Phillip A. Laplante Watts S. Humphrey Humphrey William A. Florac Barry Boehm T. Dingsøyr Frank Bomarius Introduction to the Team Software Process(sm) Managing the Software Process Introduction to the Personal Software Process Managing Technical People Introduction to the Personal Software Process(SM) Introduction to the Team Software Process(SM). CMM in Practice Action Focused Assessment for Software Process Improvement TSP(SM) Leading a Development Team, Portable Documents Software Process Modeling Software Process Quality The Technical and Social History of Software Engineering Software Security Engineering Encyclopedia of Software Engineering Three-Volume Set (Print) A Discipline for Software Engineering Introduction to the Personal Software Process Measuring the Software Process Unifying the Software Process Spectrum Software Process Improvement Product Focused Software Process Improvement *Watts S. Humphrey Humphrey Watts S. Humphrey Watts S. Humphrey Watts S. Humphrey Watts S. Humphrey Pankaj Jalote Tim Kasse Watts S. Humphrey Silvia T. Acuna Ron S. Kenett Capers Jones Nancy R. Mead Phillip A. Laplante Watts S. Humphrey Humphrey William A. Florac Barry Boehm T. Dingsøyr Frank Bomarius*

watts humphrey is the visionary behind the capability maturity model cmm r and the personal software process psp sm the cmm contains a framework for software process improvement at the organizational level the psp builds the self discipline needed for individual programmers to work efficiently and effectively the author s new team software process tsp sm details methods to guide the formation of software development teams to motivate their work and to enhance their productivity this book describes an introductory version of tsp ideal for smaller projects but also useful for learning basic techniques and procedures that apply to other development projects methods presented include how to establish roles how to conceive design and plan a project how to track and report on progress the book walks readers through a complete development cycle illustrating how best to use the talents at hand how to formulate well defined goals how to coordinate activities for maximum progress how to promote effective communication how to alleviate many of the conflicts that undermine teamwork team members should

not have to expend valuable time and energy reinventing ways to organize and run their team by following a proven process the team will more quickly be able to focus on the successful completion of the project itself to help a team course apply these methods the book provides two project exercises with prescribed development goals and team roles

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

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

project initiation project planning project execution and termination

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

leaders of software development projects face many challenges first you must produce a quality product on schedule and on budget second you must foster and encourage a cohesive motivated and smoothly operating team and third you must maintain a clear and consistent focus on short and long term goals while exemplifying quality standards and showing confidence and enthusiasm for your team and its efforts most importantly as a leader you need to feel and act responsible for your team and everything that it does accomplishing all these goals in a way that is rewarding for the leader and the team while producing the results that management wants is the motivation behind the team software process tsp developed by renowned quality expert watts s humphrey tsp is a set of new practices and team concepts that helps developers take the cmm and cmmi capability maturity models to the next level not only does tsp help make software more secure it results in an average production gain of 68 percent per project because of

their quality timeliness and security tsp produced products can be ten to hundreds of times better than other hardware or software in this essential guide to tsp humphrey uses his vast industry experience to show leaders precisely how to lead teams of software engineers trained in the personal software process psp he explores all aspects of effective leadership and teamwork including building the right team for the job the tsp launch process following the process to produce a quality product project reviews and capitalizing on both the leader s and team s capabilities humphrey also illuminates the differences between an ineffective leader and a superb one with the objective of helping you understand anticipate and correct the most common leadership failings before they undermine the team an extensive set of appendices provides additional detail on tsp team roles and shows you how to use an organization s communication and command networks to achieve team objectives whether you are a new or an experienced team leader tspsm leading a development team provides invaluable examples guidelines and suggestions on how to handle the many issues you and your team face together

software process modeling brings together experts to discuss relevant results in software process modeling and expresses their personal view of this field this book focuses on new aspects of software process modeling specifically it deals with socio technological aspects process modeling for new development types open source software dependability applications etc and organization change management the computer audience is placing growing demands on the software industry today consumers are looking for more complex products that are at the same time easier to use software developer organizations are expected to produce higher quality products and deliver them to the public faster in so doing however globally distributed development teams have to cope with understaffing and changing technologies the challenges for the software industry are apparently mounting over the years a variety of software process models have been designed to structure describe and prescribe the software systems construction process most recently software process modeling is increasingly dealing with new challenges raised by the tests that the software industry has to stand software process modeling is designed for a professional audience of researchers and practitioners in industry the book is also suitable for graduate level students in computer science

using actual examples of software process improvement from the private sector and government this work demonstrates how quality systems measurement techniques and performance evaluations work it presents a methodology for analyzing an ongoing software development process and establishing a rational plan for process improvement

capers jones has accumulated the most comprehensive data on every aspect of software engineering and has performed the most scientific analysis on this data now capers performs yet another invaluable service

to our industry by documenting for the first time its long and fascinating history capers new book is a must read for every software engineering student and information technology professional from the foreword by tony salvaggio ceo and president computer aid inc software engineering is one of the world s most exciting and important fields now pioneering practitioner capers jones has written the definitive history of this world changing industry drawing on several decades as a leading researcher and innovator he illuminates the field s broad sweep of progress and its many eras of invention he assesses the immense impact of software engineering on society and previews its even more remarkable future decade by decade jones examines trends companies winners losers new technologies productivity quality issues methods tools languages risks and more he reviews key inventions estimates industry growth and addresses mysteries such as why programming languages gain and lose popularity inspired by paul starr s pulitzer prize winning the social transformation of american medicine jones new book is a tour de force and compelling reading for everyone who wants to understand how software became what it is today coverage includes the human need to compute from ancient times to the modern era foundations of computing alan turing konrad zuse and world war ii big business big defense big systems ibm mainframes and cobol a concise history of minicomputers and microcomputers the birth of apple and microsoft the pc era dos windows and the rise of commercial software innovations in writing and managing code structured development objects agile and more the birth and explosion of the internet and the world wide the growing challenges of legacy system maintenance and support emerging innovations from wearables to intelligent agents to quantum computing cybercrime cyberwarfare and large scale software failure

software security engineering draws extensively on the systematic approach developed for the build security in bsi site sponsored by the department of homeland security software assurance program the bsi site offers a host of tools guidelines rules principles and other resources to help project managers address security issues in every phase of the software development life cycle sdlc the book s expert authors themselves frequent contributors to the bsi site represent two well known resources in the security world the cert program at the software engineering institute sei and cigital inc a consulting firm specializing in software security this book will help you understand why software security is about more than just eliminating vulnerabilities and conducting penetration tests network security mechanisms and it infrastructure security services do not sufficiently protect application software from security risks software security initiatives should follow a risk management approach to identify priorities and to define what is good enough understanding that software security risks will change throughout the sdlc project managers and software engineers need to learn to think like an attacker in order to address the range of functions that software should not do and how software can better resist tolerate and recover when under attack

software engineering requires specialized knowledge of a broad spectrum of topics including the construction of software and the platforms applications and environments in which the software operates as well as an understanding of the people who build and use the software offering an authoritative perspective the two volumes of the encyclopedia of software engineering cover the entire multidisciplinary scope of this important field more than 200 expert contributors and reviewers from industry and academia across 21 countries provide easy to read entries that cover software requirements design construction testing maintenance configuration management quality control and software engineering management tools and methods editor phillip a laplante uses the most universally recognized definition of the areas of relevance to software engineering the software engineering body of knowledge swebok as a template for organizing the material also available in an electronic format this encyclopedia supplies software engineering students it professionals researchers managers and scholars with unrivaled coverage of the topics that encompass this ever changing field also available online this taylor francis encyclopedia is also available through online subscription offering a variety of extra benefits for researchers students and librarians including citation tracking and alerts active reference linking saved searches and marked lists html and pdf format options contact taylor and francis for more information or to inquire about subscription options and print online combination packages us tel 1 888 318 2367 e mail e reference taylorandfrancis com international tel 44 0 20 7017 6062 e mail online sales tandf co uk

this is the ebook version of the printed book if the print book includes a cd rom this content is not included within the ebook version 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 en

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

this book constitutes the thoroughly refereed post proceedings of the international software process workshop spw 2005 help in beijing china in may 2005 the 30 papers presented here together with 11 keynote addresses are organized in topical sections on process content process tools and metrics process management process representation and analysis as well as experience reports

this was the first year that the european software process improvement conference eurospi had a separate research track with its own proceedings the eurospi conference is in its eleventh year and has become the main meeting place in europe for the software industry and academia to discuss software process improvement the conference deals with software process improvement in a broad sense investigating organizational issues as well as methods and tools for software process improvement euro spi is an initiative financed by a consortium of nordic research centers and user networks sintef delta and sttf asqf a german quality assurance association and iscn in ireland the coordinating network partner the research papers describe innovative and significant work in software process improvement which is relevant to the software industry the papers are readable for a scientific and industrial audience and support claims with appropriately described evidence or references to relevant literature thirty one papers were submitted in this year s research track and each paper was sent to three or four members of the program committee or additional reviewers papers were evaluated according to originality significance of the contribution quality of the written and graphical presentation research method applied and appropriateness of comparison to relevant research and literature almost 100 reviews were received and 18 papers were selected for presentation in the research track giving a rejection rate of 42 many high quality submissions had to be rejected because of limited space in the conference program the selected papers cover a wide area in software process improvement from proving agile development methods techniques for software process improvement and knowledge management in software companies to effort estimation and global software development

the third international conference on product focused software process improvement profes 2001 continued the success of the profes 99 and profes 2000 conferences profes 2001 was organized in kaiserslautern germany september 10 13 2001 the profes conference has its roots in the profes esprit project ele vtt fi profes but it quickly evolved into a full fledged general purpose conference in 1999 and since then it has gained wide spread international popularity as in previous years the main theme of profes 2001 was professional software process improvement spi motivated by product and service quality needs spi is facilitated by software process assessment software measurement process modeling and technology transfer and has become a practical tool for quality software engineering and management the conference addresses both the solutions found in practice as well as relevant research results from academia the purpose of the conference is to bring to light the most recent findings and results in the area and to stimulate discussion between the researchers experienced professionals and technology providers for spi

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