

Agile Development And Cmmi Software Engineering Institute

""This book will be a great help to a variety of organizations figuring out how best to implement CMMI, including large and small enterprises, even if their starting point is not 'Agile.' All-in-all, this contains 'pearls of wisdom' that will make a much-appreciated contribution to the software engineering community."" Mike Konrad Chief Architect, CMMI, Software Engineering Institute Coauthor, CMMI®: Guidelines for Process Integration and Product Improvement, Second Edition ""This book will challenge many of your (mis)understandings about both agile delivery and CMMI. Paul thoughtfully applie.

Whether to continue using traditional cost and benefit analysis methods such as systems and software engineering standards or to use a relatively new family of software development processes known as Agile methods is one of most prevalent questions within the information technology field today. Since each family of methods has its strengths and weaknesses, the question being raised by a growing number of executives and practitioners is: Which family of methods provides the greater business value and return on investment (ROI)? Whereas traditional methods have been in use for many decades, Agile methods are still a new phenomenon and, until now, very little literature has existed on how to quantify the business value of Agile methods in economic terms, such as ROI and net present value (NPV). Using cost of quality, total cost of ownership, and total life cycle cost parameters, The Business Value of Agile Software Methods offers a comprehensive methodology and introduces the industry's initial top-down parametric models for quantifying the costs and benefits of using Agile methods to create innovative software products. Based on real-world data, it illustrates the first simple-to-use parametric models of Real Options for estimating the business value of Agile methods since the inception of the Nobel prize winning Black-Scholes formulas. Numerous examples on how to estimate the costs, benefits, ROI, NPV, and real options of the major types of Agile methods such as Scrum, Extreme Programming and Crystal Methods are also included. In addition, this reference provides the first comprehensive compilation of cost and benefit data on Agile methods from an analysis of hundreds of research studies. The Business Value of Agile Software Methods shatters key myths and misconceptions surrounding the modern-day phenomenon of Agile methods for creating innovative software products. It provides a complete business value comparison between traditional and Agile methods. The keys to maximizing the business value of any method are low costs and high benefits and the business value of Agile methods, when compared to traditional methods, proves to be very impressive. Agile methods are a new model of project management that can be used to improve the success, business value, and ROI of high-risk and highly complex IT projects in today's dynamic, turbulent, and highly uncertain marketplace. If you are an executive, manager, scholar, student, consultant or practitioner currently on

the fence, you need to read this book!

This textbook is intended for SPI (software process improvement) managers and - searchers, quality managers, and experienced project and research managers. The papers constitute the research proceedings of the 16th EuroSPI (European Software Process Improvement, www.eurospi.net) conference held in Alcala (Madrid region), September 2-4, 2009, Spain. Conferences have been held since 1994 in Dublin, 1995 in Vienna (Austria), 1997 in Budapest (Hungary), 1998 in Gothenburg (Sweden), 1999 in Pori (Finland), 2000 in Copenhagen (Denmark), 2001 in Limerick (Ireland), 2002 in Nuremberg (G- many), 2003 in Graz (Austria), 2004 in Trondheim (Norway), 2005 in Budapest (Hungary), 2006 in Joensuu (Finland), 2007 in Potsdam (Germany), 2008 in Dublin (Ireland), and 2009 in Alcala (Spain). EuroSPI established an experience library (library.eurospi.net) which will be continuously extended over the next few years and will be made available to all attendees. EuroSPI also created an umbrella initiative for establishing a European Qualification Network in which different SPINs and national initiatives join mutually beneficial collaborations (ECQA - European Certification and Qualification Association, www.ecqa.org). With a general assembly during October 15-16, 2007 through Euro-SPI partners and networks, in collaboration with the European Union (supported by the EU Leonardo da Vinci Programme) a European certification association has been created (www.eu-certificates.org, www.ecqa.org) for the IT and services sector to offer SPI knowledge and certificates to industry, establishing close knowledge transfer links between research and industry.

This book offers a selection of papers from the 2016 International Conference on Software Process Improvement (CIMPS'16), held between the 12th and 14th of October 2016 in Aguascalientes, Aguascalientes, México. The CIMPS'16 is a global forum for researchers and practitioners to present and discuss the most recent innovations, trends, results, experiences and concerns in the different aspects of software engineering with a focus on, but not limited to, software processes, security in information and communication technology, and big data. The main topics covered include: organizational models, standards and methodologies, knowledge management, software systems, applications and tools, information and communication technologies and processes in non-software domains (mining, automotive, aerospace, business, health care, manufacturing, etc.) with a clear focus on software process challenges.

Balancing Agility and Discipline

Modern Software Engineering Concepts and Practices: Advanced Approaches

Case Studies and Proven Techniques for Faster Performance Improvement

Large-Scale Scrum

A Guide for the Perplexed

Lean Software Development

A Guide to Selecting Software Measures and Metrics

The highly dynamic world of information technology service management stresses the benefits of the quick and correct implementation of IT services. A disciplined approach relies on a separate set of assumptions and principles as an agile approach, both of which have complicated implementation processes as well as copious benefits. Combining these two approaches to enhance the effectiveness of each, while difficult, can yield exceptional dividends. *Balancing Agile and Disciplined Engineering and Management Approaches for IT Services and Software Products* is an essential publication that focuses on clarifying theoretical foundations of balanced design methods with conceptual frameworks and empirical cases. Highlighting a broad range of topics including business trends, IT service, and software development, this book is ideally designed for software engineers, software developers, programmers, information technology professionals, researchers, academicians, and students.

This book constitutes the refereed proceedings of the 17th International Conference on Software Process Improvement and Capability Determination, SPICE 2017, held in Palma de Mallorca, Spain, in October 2017. The 34 full papers presented together with 4 short papers were carefully reviewed and selected from 65 submissions. The papers are organized in the following topical sections: SPI in agile approaches; SPI in small settings; SPI and assessment; SPI and models; SPI and functional safety; SPI in various settings; SPI and gamification; SPI case studies; strategic and knowledge issues in SPI; education issues in SPI.

In *Large-Scale Scrum*, Craig Larman and Bas Vodde offer the most direct, concise, actionable guide to reaping the full benefits of agile in distributed, global enterprises. Larman and Vodde have distilled their immense experience helping geographically distributed development organizations move to agile. Going beyond their previous books, they offer today's fastest, most focused guidance: "brass tacks" advice and field-proven best practices for achieving value fast, and achieving even more value as you move forward. Targeted to enterprise project participants and stakeholders, *Large-Scale Scrum* offers straight-to-the-point insights for scaling Scrum across the entire project lifecycle, from sprint planning to retrospective. Larman and Vodde help you: Implement proven Scrum frameworks for large-scale developments Scale requirements, planning, and product management Scale design and architecture Effectively manage defects and interruptions Integrate Scrum into multisite and offshore projects Choose the right adoption strategies and organizational designs This will be the go-to resource for enterprise stakeholders at all levels: everyone who wants to maximize the value of Scrum in large, complex projects.

This book constitutes the refereed proceedings of the 13th International Conference on Software Process Improvement and Capability Determination, SPICE 2013, held in Bremen, Germany, in June 2013. The 21 revised full papers presented and 7 short papers were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on process quality; medical device software processes; design and use of process models; studies of software development; agile development; IT service management; assessment for diagnosis.

Maximizing ROI with Just-in-time Processes and Documentation

Proceedings of CIMPS 2016

Integrating CMMI and Agile Development

Agile Software Development

Reflections, Challenges and New Directions

Making Globally Distributed Software Development a Success Story

5th International Conference, PROFES 2004, Kansai Science City, Japan, April 5-8, 2004, Proceedings

This volume contains papers presented at the International Conference on Software Process (ICSP 2008) held in Leipzig, Germany, during May 10-11, 2008. ICSP 2008 was the second conference of the ICSP series. The theme of ICSP 2008 was “ Making Globally Distributed Software Development a Success Story. ” Software developers work in a dynamic context of frequently changing technologies and with limited resources. Globally distributed development teams are under ev- increasing pressure to deliver their products more quickly and with higher levels of qu- ity. At the same time, global competition is forcing software development organizations to cut costs by rationalizing processes, outsourcing part of or all development activities, reusing existing software in new or modified applications, and evolving existing systems to meet new needs, while still minimizing the risk of projects failing to deliver. To address these difficulties, new and modified processes are emerging, including agile methods and plan-based product line development. Open Source, COTS, and com- nity-developed software are becoming more and more popular. Outsourcing coupled with 24/7 development demands well-defined processes to support the coordination of organizationally—and geographically—separated teams. The accepted papers present completed research or advanced work-in-progress in all areas of software and systems development process including: agile software pr- esses, CMMI, novel techniques for software process representation and analysis; process tools and metrics; and the simulation and modeling of software processes. Contributions reflecting real-world experience, or derived directly from industrial or open-source software development and evolution, were particularly welcome.

Many organizations that have improved process maturity through Capability Maturity Model Integration (CMMI®) now also want greater agility. Conversely, many organizations that are succeeding with Agile methods now want the benefits of more mature processes. The solution is to integrate CMMI and Agile. Integrating CMMI® and Agile Development offers broad guidance for melding these process improvement methodologies. It presents six detailed case studies, along with essential real-world lessons, big-picture insights, and mistakes to avoid. Drawing on decades of process improvement experience, author Paul McMahon explains how combining an Agile approach with the CMMI process improvement framework is the fastest, most effective way to achieve your business objectives. He offers practical, proven techniques for CMMI and Agile integration, including new ways to extend Agile into system engineering and project management and to optimize performance by focusing on your organization ’ s unique, culture-related weaknesses.

This edition is especially appropriate for executives and managers who need to understand why process improvement is valuable, why

CMMI is a tool of choice, and how to maximize the return on their efforts and investments.

Agile development methods and CMMI (Capability Maturity Model (registered trademark) Integration) best practices are often perceived to be at odds with each other. This report clarifies why the discord need not exist and proposes that CMMI and Agile champions work toward deriving benefit from using both and exploit synergies that have the potential to dramatically improve business performance.

A Quantitative Guide

16th European Conference, EuroSPI 2009, Alcala (Madrid), Spain, September 2-4, 2009, Proceedings

Software Project Survival Guide

The Cooperative Game

CMMI Or Agile

Product Focused Software Process Improvement

This book constitutes the refereed proceedings of the 5th International Conference on Product Focused Software Process Improvement, PROFES 2004, held in Kansai Science City, Japan in April 2004. The 41 revised full papers presented were carefully reviewed and selected and constitute a balanced mix of academic and industrial aspects. The papers are organized in topical sections on software process improvement, software quality, measurement, methods and tools, experimental software engineering, industrial experiences, agile methods, software process assessment, requirements engineering, and software reuse and COTS.

An accessible, innovative perspective on using the flexibility of agile practices to increase software quality and profitability When agile approaches in your organization don't work as expected or you feel caught in the choice between agility and discipline, it is time to stop and think about software development rhythms! Agile software development is a popular development process that continues to reshape philosophies on the connections between disciplined processes and agile practices. In Software Development Rhythms, authors Lui and Chan explain how adopting one practice and combining it with another builds upon the flexibility of agile practices to create a type of "synergy" defined as software development rhythms. The authors demonstrate how these rhythms can be harmonized to achieve synergies, making them stronger together than they would be apart. Software Development Rhythms provides programmers with a powerful metaphor for resolving some classic software management controversies and dealing with some common difficulties in agile software management. Software Development Rhythms is divided into two parts and covers: Essentials — provides an introduction to software development rhythms; explores the programmer's unconscious mind at work on software methodology; discusses the

characteristics of the iterative cycle and open source software development; and introduces the topic of agile values and agile practices Rhythms — compares plagiarism programming with cut-paste programming; provides an in-depth discussion of different ways to approach collaborative programming; demonstrates how to combine and harmonize these practices so they can be applied to common software management problems such as motivating programmers, discovering solution patterns, managing software teams, and rescuing troubled IT projects; and takes a comprehensive look at Scrum, CMMI, Just-In-Time, Lean Software Development, and Test-Driven Development from a software development rhythm perspective Abundantly illustrated with informative graphics and amusing cartoons, Software Development Rhythms is a comprehensive and thought-provoking introduction to some of the most advanced concepts in current software management. Written in a refreshingly easy-to-read style and filled with interesting anecdotes, simulation exercises, and case studies, Software Development Rhythms is suitable for the practitioner and graduate student alike. It offers readers practical guidance on how to take the themes and concepts presented in this book back to their own projects to harmonize their software practices and release the synergies of their own teams.

Millions of dollars are spent annually on process improvement initiatives that too frequently fall short of their goals. Due at least in part to this situation, today many are turned off and have tuned out when it comes to the multitude of process and performance improvement approaches along with their related hype and buzzwords. Agile, CMMI, Kanban, Lean, Six Sigma, Lean Six Sigma, PSP, and TSP to name just a few. Drawing on decades of process improvement experience, author Paul E. McMahon explains why we are facing these problems and how you can get yourself and your organization back on track focused on the things that matter most to both your own personal performance and your organization's performance. This book is equally about personal and organizational performance. This book discusses many popular improvement approaches including the CMMI, Lean Six Sigma, and Agile Retrospectives; it highlights fifteen (15) fundamentals common to all successful improvement efforts where sustainable high value performance improvements are achieved; and it shares a vision (and an actual example that holds promise) of a simple "thinking framework" that can help counter the patterns that may be holding you and your organization back from the sustainable high performance you seek. Paul also shares real examples from his consulting experiences, a personal performance improvement experience, and stories from high performing athletes and musicians to help you think about performance improvement outside-the-box.

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.

Integrating CMMI? and Agile Development

Agile Estimation Techniques and Innovative Approaches to Software Process Improvement

15 Fundamentals for Higher Performance in Software Development

Agile Processes in Software Engineering and Extreme Programming

A Practical Introduction to Integrated Process Improvement

Global and Industry Perspectives

CMMI for Development

This book constitutes the refereed proceedings of the Second International Conference on Software Process, held in Leipzig, Germany, in May 2008 - colocated with ICSE 2008, the 30th International Conference on Software Engineering. The 33 revised full papers presented together with 2 invited papers were carefully reviewed and selected from 106 submissions. The papers are organized in topical sections on process content, process tools and metrics, process management, process representation, analysis and modeling, experience report, and simulation modeling.

The CMMI provides a framework for process improvement spanning the life cycle of a product or service, from conception through delivery and maintenance. Widely and beneficially adopted around the world, the size and apparent complexity of the framework

have nonetheless been daunting to some organizations. That need not be so. With a proper guide to help navigate around unknown dangers, potential pitfalls, and false paths, you too, can realize substantial business value from a successful CMMI implementation. This book is such a guide, full of the real-life examples to ease your way, and written in a lighter style to ease your reading. The CMMI® Survival Guide is an effective resource for multiple readerships. If you are just now considering a process improvement program, with the CMMI among your options, the authors' discussion of relevant issues will enhance your business case right from the start. If you have already decided to implement the CMMI, the authors' practical knowledge will help you make the most of your efforts. Even if you are well into a CMMI implementation, but are lost, stuck, or going around in circles, the authors' valuable advice will help you regain your direction. If you work in a smaller or resource-strapped organization, you will particularly benefit from the authors' description of alternative paths to process improvement—approaches that are more incremental or agile, and less intensive, than you might imagine for a CMMI implementation. The authors draw on their extensive experience working with diverse organizations, and on the CMMI tools, techniques, and templates developed for those organizations. Whatever your background or need, the CMMI® Survival Guide will help you survey the CMMI territory, consult possible road maps, learn from other CMMI explorers, weigh the benefits of hiring a living guide, and even consider whether the trip is right for you.

Software Engineering with Microsoft Visual Studio Team System is written for any software team that is considering running a software project using Visual Studio Team System (VSTS), or evaluating modern software development practices for its use. It is about the value-up paradigm of software development, which forms the basis of VSTS: its guiding ideas, why they are presented in certain ways, and how they fit into the process of managing the software lifecycle. This book is the next best thing to having an onsite coach who can lead the team through a consistent set of processes. Sam Guckenheimer has been the chief customer advocate for VSTS, responsible for its end-to-end external design. He has written this book as a framework for thinking about software projects in a way that can be directly tooled by VSTS. It presents essential theory and practical examples to describe a realistic process for IT projects. Readers will learn what they need to know to get started with VSTS, including The role of the value-up paradigm (versus work-down) in the software development lifecycle, and the meanings and importance of “flow” The use of MSF for Agile Software Development and MSF for CMMI Process Improvement Work items for planning and managing backlog in VSTS Multidimensional, daily metrics to maintain project flow and enable estimation Creating requirements using personas and scenarios Project management with iterations, trustworthy transparency, and friction-free metrics Architectural design using a value-up view, service-oriented architecture, constraints, and qualities of service Development with unit tests, code coverage, profiling, and build automation Testing for customer value with scenarios, qualities of service, configurations, data, exploration, and metrics Effective bug reporting and bug assessment Troubleshooting a project: recognizing and correcting common pitfalls and antipatterns This is a book that any team using or considering VSTS should read.

Integrating CMMI and Agile Development Case Studies and Proven Techniques for Faster Performance Improvement Pearson

Education

12th International Conference, PROFES 2011, Torre Canne, Italy, June 20-22, 2011. Proceedings

Guidelines for Improving the Acquisition of Products and Services

13th European Conference, EuroSpi 2006, Joensuu, Finland, October 11-13, 2006, Proceedings

More with LeSS

19th International Conference, XP 2018, Porto, Portugal, May 21–25, 2018, Proceedings

Software Process Improvement

Quantifying Software

The 7th IEEE/ACIS Conference and the 2nd IEEE/ACIS Workshop on e-Activity (IWEA 2008) featured researchers from around the world. The conference organizers selected 23 outstanding papers for this volume of Springer's Studies in Computational Intelligence.

Published Papers from tuengr.com

This book constitutes the refereed proceedings of the 12 International Conference on Product-Focused Software Process Improvement, PROFES 2011, held in Torre Canne, Italy, in June 2011. The 24 revised full papers presented together with the abstracts of 2 keynote addresses were carefully reviewed and selected from 54 submissions. The papers are organized in topical sections on agile and lean practices, cross-model quality improvement, global and competitive software development, managing diversity, product and process measurements, product-focused software process improvement, requirement process improvement, and software process improvement.

This book constitutes the refereed proceeding of the 13th European Software Process Improvement Conference, EuroSPI 2006, held in Joensuu, Finland in October 2006. The 18 revised full papers presented were carefully reviewed and selected from 62 submissions.

CMMI Survival Guide

An Agile Toolkit

International Conference on Software Process, ICSP 2008 Leipzig, Germany, May 10-11, 2008, Proceedings

Advanced Approaches

The Business Value of Agile Software Methods

Includes Discussion on CMMI, Lean Six Sigma, Agile and SEMAT's Essence Framework

Harmonizing Agile Practices for Synergy

Looks at a successful software project and provides details for software development for clients using object-oriented design and programming.

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.

“Agile Software Development is a highly stimulating and rich book. The author has a deep background and gives us a tour de force of the emerging agile methods.” —Tom Gilb The agile model of software development has taken the world by storm. Now, in Agile Software Development, Second Edition, one of agile's leading pioneers updates his Jolt Productivity award-winning book to reflect all that's been learned about agile development since its original introduction. Alistair Cockburn begins by updating his powerful model of software development as a “cooperative game of invention and communication.” Among the new ideas he introduces: harnessing competition without damaging collaboration; learning lessons from lean manufacturing; and balancing strategies for communication. Cockburn also explains how the cooperative game is played in business and on engineering projects, not just software development. Next, he systematically illuminates the agile model, shows how it has evolved, and answers the questions developers and project managers ask most often, including · Where does agile development fit in our organization? · How do we blend agile ideas with other ideas? · How do we extend agile ideas more broadly? Cockburn takes on crucial misconceptions that cause agile projects to fail. For example, you'll learn why encoding project management strategies into fixed processes can lead to ineffective strategy decisions and costly mistakes. You'll also find a thoughtful discussion of the controversial relationship between agile methods and user experience design. Cockburn turns to the

practical challenges of constructing agile methodologies for your own teams. You'll learn how to tune and continuously reinvent your methodologies, and how to manage incomplete communication. This edition contains important new contributions on these and other topics: · Agile and CMMI · Introducing agile from the top down · Revisiting "custom contracts" · Creating change with "stickers" In addition, Cockburn updates his discussion of the Crystal methodologies, which utilize his "cooperative game" as their central metaphor. If you're new to agile development, this book will help you succeed the first time out. If you've used agile methods before, Cockburn's techniques will make you even more effective.

This comprehensive reference uses a formal and standard evaluation technique to show the strengths and weakness of more than 60 software development methodologies such as agile, DevOps, RUP, Waterfall, TSP, XP and many more. Each methodology is applied to an application of 1000 function points using the Java language. Each methodology produces a characteristic set of results for development schedules, productivity, costs, and quality. The intent of the book is to show readers the optimum kinds of methodologies for the projects they are concerned with and to warn them about counter indications and possible harm from unsuitable methodologies.

Software Process Improvement and Capability Determination

Software Engineering with Microsoft Visual Studio Team System

CMMI Distilled

Guidelines for Process Integration and Product Improvement

10th International Conference, XP 2009, Pula, Sardinia, Italy, May 25-29, 2009, Proceedings

CMMI (registered Trademark) Or Agile: Why Not Embrace Both!.

CMMI: Guidelines for Process Integration and Product Improvement, Second Edition

Going where no book on software measurement and metrics has previously gone, this critique thoroughly examines a number of bad measurement practices, hazardous metrics, and huge gaps and omissions in the software literature that neglect important topics in measurement. The book covers the major gaps and omissions that need to be filled if data about software development is to be useful for comparisons or estimating future projects. Among the more serious gaps are leaks in reporting about software development efforts that, if not corrected, can distort data and make benchmarks almost useless and possibly even harmful. One of the most common leaks is that of unpaid overtime. Software is a very labor-intensive occupation, and many practitioners work very long hours. However, few companies actually record unpaid overtime. This means that software effort is underreported by around 15%, which is too large a value to ignore. Other sources of leaks include the work of part-time specialists who come and go as needed. There are dozens of these specialists, and their combined effort can top 45% of total software effort on large projects. The book helps software project managers and developers uncover errors in measurements so they can develop meaningful

benchmarks to estimate software development efforts. It examines variations in a number of areas that include: Programming languages Development methodology Software reuse Functional and nonfunctional requirements Industry type Team size and experience Filled with tables and charts, this book is a starting point for making measurements that reflect current software development practices and realities to arrive at meaningful benchmarks to guide successful software projects.

In Lean Software Development, Mary and Tom Poppendieck identify seven fundamental "lean" principles, adapt them for the world of software development, and show how they can serve as the foundation for agile development approaches that work. Along the way, they introduce 22 "thinking tools" that can help you customize the right agile practices for any environment. Better, cheaper, faster software development. You can have all three - if you adopt the same lean principles that have already revolutionized manufacturing, logistics, and product development: Iterating toward excellence: software development as an exercise in discovery; managing uncertainty: "decide as late as possible" by building change into the system; compressing the value stream: rapid development, feedback, and improvement; empowering teams and individuals without compromising coordination; software with integrity, promoting coherence, usability, fitness, maintainability, and adaptability; and how to "see the whole" - even when your developers are scattered across multiple locations and contractors. Simply put, Lean Software Development helps you refocus development on value, flow, and people - so you can achieve breakthrough quality, savings, speed, and business alignment.

CMMI® for Acquisition (CMMI-ACQ) describes best practices for the successful acquisition of products and services. Providing a practical framework for improving acquisition processes, CMMI-ACQ addresses the growing trend in business and government for organizations to purchase or outsource required products and services as an alternative to in-house development or resource allocation. Changes in CMMI-ACQ Version 1.3 include improvements to high maturity process areas, improvements to the model architecture to simplify use of multiple models, and added guidance about using preferred suppliers. CMMI® for Acquisition, Second Edition, is the definitive reference for CMMI-ACQ Version 1.3. In addition to the entire revised CMMI-ACQ model, the book includes updated tips, hints, cross-references, and other author notes to help you understand, apply, and quickly find information about the content of the acquisition process areas. The book now includes more than a dozen contributed essays to help guide the adoption and use of CMMI-ACQ in industry and government. Whether you are new to CMMI models or are already familiar with one or more of them, you will find this book an essential resource for managing your acquisition processes and improving your overall performance. The book is divided into three parts. Part One introduces CMMI-ACQ in the broad context of CMMI models, including essential concepts and useful background. It then describes and shows the relationships among all the components of the CMMI-ACQ process areas, and explains paths to the adoption and use of the model for process improvement and benchmarking. Several original essays share insights and real experiences with CMMI-ACQ in both industry and government environments. Part Two first describes

generic goals and generic practices, and then details the twenty-two CMMI-ACQ process areas, including specific goals, specific practices, and examples. These process areas are organized alphabetically and are tabbed by process area acronym to facilitate quick reference. Part Three provides several useful resources, including sources of further information about CMMI and CMMI-ACQ, acronym definitions, a glossary of terms, and an index.

The field of software engineering is characterized by speed and turbulence in many regards. While new ideas are proposed almost on a yearly basis, very few of them live for a decade or a longer. Lightweight software development methods were a new idea in the latter part of the 1990s. Now, ten years later, they are better known as agile software development methods, and an active community driven by practitioners has formed around the new way of thinking. Agile software development is currently being embraced by the research community as well. As a sign of increased research activity, most research-oriented conferences have an agile software development track included in the conference program. The XP conference series established in 2000 was the first conference dedicated to agile processes in software engineering. The idea of the conference is to offer a unique setting for advancing the state of the art in research and practice of agile processes. This year's conference was the tenth consecutive edition of this international event. Due to the diverse nature of different activities during the conference, XP is claimed to be more of an experience rather than a regular conference. It offers several different ways to interact and strives to create a truly collaborative environment where new ideas and exciting findings can be presented and shared. This is clearly visible from this year's program as well.

Software Development Rhythms

Towards a framework for improving software development process mediated with CMMI goals and agile practices

Computer and Information Science

13th International Conference, SPICE 2013, Bremen, Germany, June 4-6, 2013. Proceedings

Product-Focused Software Process Improvement

CMMI for Services

Why Not Embrace Both!

Abstract: "Agile development methods and CMMI (Capability Maturity Model Integration) best practices are often perceived to be at odds with each other. This report clarifies why the discord need not exist and proposes that CMMI and Agile champions work toward deriving benefit from using both and exploit synergies that have the potential to dramatically improve business performance."

"Being a certified bibliophile and a professional geek, I have more shelf space devoted to books on software methods than any reasonable human should possess. Balancing Agility and Discipline has a prominent place in that section of my library, because

it has helped me sort through the noise and smoke of the current method wars." --From the Foreword by Grady Booch "This is an outstanding book on an emotionally complicated topic. I applaud the authors for the care with which they have handled the subject." --From the Foreword by Alistair Cockburn "The authors have done a commendable job of identifying five critical factors--personnel, criticality, size, culture, and dynamism--for creating the right balance of flexibility and structure. Their thoughtful analysis will help developers who must sort through the agile-disciplined debate, giving them guidance to create the right mix for their projects." --From the Foreword by Arthur Pyster Agility and discipline: These apparently opposite attributes are, in fact, complementary values in software development. Plan-driven developers must also be agile; nimble developers must also be disciplined. The key to success is finding the right balance between the two, which will vary from project to project according to the circumstances and risks involved. Developers, pulled toward opposite ends by impassioned arguments, ultimately must learn how to give each value its due in their particular situations. Balancing Agility and Discipline sweeps aside the rhetoric, drills down to the operational core concepts, and presents a constructive approach to defining a balanced software development strategy. The authors expose the bureaucracy and stagnation that mark discipline without agility, and liken agility without discipline to unbridled and fruitless enthusiasm. Using a day in the life of two development teams and ground-breaking case studies, they illustrate the differences and similarities between agile and plan-driven methods, and show that the best development strategies have ways to combine both attributes. Their analysis is both objective and grounded, leading finally to clear and practical guidance for all software professionals--showing how to locate the sweet spot on the agility-discipline continuum for any given project. 0321186125B10212003

Information Systems Development: Reflections, Challenges and New Directions, is the collected proceedings of the 20th International Conference on Information Systems Development held in Edinburgh, Scotland, August 24 - 26, 2011. It follows in the tradition of previous conferences in the series in exploring the connections between industry, research and education. These proceedings represent ongoing reflections within the academic community on established information systems topics and emerging concepts, approaches and ideas. It is hoped that the papers herein contribute towards disseminating research and improving practice

Software engineering has advanced rapidly in recent years in parallel with the complexity and scale of software systems. New requirements in software systems yield innovative approaches that are developed either through introducing new paradigms or extending the capabilities of well-established approaches. Modern Software Engineering Concepts and Practices: Advanced Approaches provides emerging theoretical approaches and their practices. This book includes case studies and real-world practices and presents a range of advanced approaches to reflect various perspectives in the discipline.

Information Systems Development

Software Methodologies

Trends and Applications in Software Engineering

Just Enough Process Improvement

Balancing Agile and Disciplined Engineering and Management Approaches for IT Services and Software Products

17th International Conference, SPICE 2017, Palma de Mallorca, Spain, October 4–5, 2017, Proceedings

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Problems in software development mainly spring from the difficulty of establishing and stabilizing the requirements, the changeability of the software and interactive dependency of the software, hardware and human beings. A software development process consists of a set of empirical and 'best' practices in software development, together with organization and management that are needed for the software product implementation. Different process models, such as CMMI (Capability Maturity Model Integration), ISO 9001 and ISO 15504, have been developed in the last decade to support the assessment of software development processes. The main process model, examined in this thesis, is CMMI. This model was chosen as the focus of this research because it is a widely-used, beneficial approach for identifying the key weaknesses of a software development process which need immediate attention and improvement. Two of the key challenges of CMMI assessments are 1) overly heavy and time-consuming assessments and 2) the risk that the achievement of CMMI levels forces the developers to use more time writing documents than implementing the software product. The level of interest in the use of agile practices (focusing on practices such as eXtreme Programming and Scrum) has radically increased in software organizations. Practitioners argue that the adoption of agile software development methods can solve the organizational need for a more rapid and flexible software development process, and enable improved communication in changing market situations. A brief analysis of the empirical body of knowledge reveals, however, that there are also several challenges in interactive dependency management and communication between the actors of software development in an agile context. The objective of this study is to increase the understanding of how improvements can be made in the software development process, mediated with CMMI 'specific' goals and agile practices from communication perspective. This study is based on a series of case studies and data from 4 companies and 8 software development teams. To prove the importance of the improvement

approach, this study starts with an evaluation of the agile practices in current use, using well established 'innovation of adoption' theories. The evaluation indicates that agile practices can achieve the subsequent assimilation stages differentially. The results also support the use of an adoption strategy, in which the needs of the teams are first defined before mapping the agile practice-based improvement solutions to the project level challenges. Although the iteration retrospectives provide a practical way for improving a software development process at team level, companies need mechanisms to constantly implement improvement initiatives and share knowledge of the process status also at organizational level. To meet this gap in the current empirical body of knowledge and research, a novel framework is presented in this study. The framework can be used 1) to identify the agile practices for a plan-driven software development process and 2) to assess the software development process in a lightweight manner against the CMMI goals and agile practices. To indicate the value of the created framework, it is important to collect empirical evidence on how agile practices actually affect communication in the software development process. This study applies coordination theory to confirm that the adoption of agile practices, such as sprint planning, an open office space, daily meetings and product backlogs improve the communication and management of requirements, features and project task dependencies in agile software development teams. Additionally, increased informal communication can in some cases decrease the need for upfront documentation in software development teams and, therefore, facilitate more productive software development than in previous plan driven situations.

Applying methodologies of Software Process Improvement (SPI) is an effective way for businesses to remain competitive in the software industry. However, many organizations find implementing software process initiatives challenging. Agile Estimation Techniques and Innovative Approaches to Software Process Improvement reviews current SPI techniques and applications through discussions on current and future trends as well as the presentation of case studies on SPI implementation. Ideal for use by academics, students, and policy-makers, as well as industry professionals and managers, this publication provides a complete overview of current tools and methodologies regarding Software

Process Improvement.

Software is one of the most important products in human history and is widely used by all industries and all countries. It is also one of the most expensive and labor-intensive products in human history. Software also has very poor quality that has caused many major disasters and wasted many millions of dollars. Software is also the target of frequent and increasingly serious cyber-attacks. Among the reasons for these software problems is a chronic lack of reliable quantified data. This reference provides quantified data from many countries and many industries based on about 26,000 projects developed using a variety of methodologies and team experience levels. The data has been gathered between 1970 and 2017, so interesting historical trends are available. Since current average software productivity and quality results are suboptimal, this book focuses on "best in class" results and shows not only quantified quality and productivity data from best-in-class organizations, but also the technology stacks used to achieve best-in-class results. The overall goal of this book is to encourage the adoption of best-in-class software metrics and best-in-class technology stacks. It does so by providing current data on average software schedules, effort, costs, and quality for several industries and countries. Because productivity and quality vary by technology and size, the book presents quantitative results for applications between 100 function points and 100,000 function points. It shows quality results using defect potential and DRE metrics because the number one cost driver for software is finding and fixing bugs. The book presents data on cost of quality for software projects and discusses technical debt, but that metric is not standardized. Finally, the book includes some data on three years of software maintenance and enhancements as well as some data on total cost of ownership. This open access book constitutes the proceedings of the 19th International Conference on Agile Software Development, XP 2018, held in Porto, Portugal, in May 2018. XP is the premier agile software development conference combining research and practice, and XP 2018 provided a playful and informal environment to learn and trigger discussions around its main theme – make, inspect, adapt. The 21 papers presented in this volume were carefully reviewed and selected from 62 submissions. They were organized in topical

sections named: agile requirements; agile testing; agile transformation; scaling agile; human-centric agile; and continuous experimentation.

Guidelines for Superior Service

CMMI for Acquisition