Agile Software Requirements Lean Practices For Teams Programs And The Enterprise Dean Leffingwell

Agile Software RequirementsLean Requirements Practices for Teams, Programs, and the EnterpriseAddison-Wesley Professional
SAFe®: The World’s Leading Framework for Enterprise Agility “SAFe® 4.0 Distilled is the book we’ve all been waiting for. It breaks down the complexity of the Framework into easily digestible explanations and actionable guidance. A must-have resource for beginners as well as seasoned practitioners.” —Lee Cunningham, Sr. Director, Enterprise Agile Strategy at VersionOne, Inc. To succeed in today’s adapt-or-die marketplace, businesses must be able to rapidly change the way they create and deliver value to their customers. Hundreds of the world’s most successful companies—including Hewlett Packard Enterprise, AstraZeneca, Cisco, and Philips—have turned to the Scaled Agile Framework® (SAFe®) to achieve agility at scale and maintain a competitive edge. SAFe® 4.0 Distilled: Applying the Scaled Agile Framework® for Lean Software and Systems Engineering explains how adopting SAFe can quickly improve time to market and increase productivity, quality, and employee engagement. In this book, you will Understand the business case for SAFe: its benefits, the problems it solves, and how to apply it Get an overview of SAFe across all parts of the business: team, program, value stream, and portfolio Learn why SAFe works: the power of SAFe’s Lean-Agile mindset, values, and principles Discover how systems thinking, Agile development, and Lean product development form the underlying basis for SAFe Learn how to become a Lean-Agile leader and effectively drive an enterprise-wide transformation
"This remarkable book combines practical advice, ready-to-use techniques, anda deep understanding of why this is the right way to develop software. I haveseen software teams transformed by the ideas in this book." --Mike Cohn, author of Agile Estimating and Planning "As a lean practitioner myself, I have loved and used their first book for years.When this second book came out, I was delighted that it was even better. If youare interested in how lean principles can be useful for software developmentorganizations, this is the book you are looking for. The Poppendiecks offer abeautiful blend of history, theory, and practice." --Alan Shalloway, coauthor of Design Patterns Explained "I've enjoyed reading the book very much. I feel it might even be better than thefirst lean book by Tom and Mary, while that one was already exceptionallygood! Mary especially has a lot of knowledge related to lean techniques inproduct development and manufacturing. It's rare that these techniques areactually translated to software. This is something no other book does well(except their first book)." --Bas Vodde "The new book by Mary and Tom Poppendieck provides a well-written andcomprehensive introduction to lean principles and selected practices for softwaremanagers and engineers. It illustrates the application of the values andpractices with well-suited success stories. I enjoyed reading it." --Roman Pichler "In Implementing Lean Software Development, the Poppendiecks explore moredeeply the themes they introduced in Lean Software Development. They beginwith a compelling history of lean thinking, then move to key areas such asvalue, waste, and people. Each chapter includes exercises to help you apply keypoints. If you want a better understanding of how lean ideas can work withsoftware, this book is for you." --Bill Wake, independent consultant In 2003, Mary and Tom Poppendieck's Lean Software Development introduced breakthrough development techniques that leverage Lean principles to deliver unprecedented agility and value. Now their widely anticipated sequel and companion guide shows exactly how to implement Lean software development, hands-on. This new book draws on the Poppendiecks' unparalleled experience helping development organizations optimize the entire software value stream. You'll discover the right

questions to ask, the key issues to focus on, and techniques proven to work. The authors present case studies from leading-edge software organizations, and offer practical exercises for jumpstarting your own Lean initiatives. Managing to extend, nourish, and leverage agile practices Building true development teams, not just groups Driving quality through rapid feedback and detailed discipline Making decisions Just-in-Time, but no later Delivering fast: How PatientKeeper delivers 45 rock-solid releases per year Making tradeoffs that really satisfy customers Implementing Lean Software Development is indispensable to anyone who wants more effective development processes--managers, project leaders, senior developers, and architects in enterprise IT and software companies alike.

Describes ways to incorporate domain modeling into software development.

"We need better approaches to understanding and managing software requirements, and Dean provides them in this book. He draws ideas from three very useful intellectual pools: classical management practices, Agile methods, and lean product development. By combining the strengths of these three approaches, he has produced something that works better than any one in isolation."--The Foreword by Don Reinertsen, President of Reinertsen & Associates; author of Managing the Design Factory; and leading expert on rapid product development Effective requirements discovery and analysis is a crit.

Lean Software Development: An Agile Toolkit Adapting agile practices to your development organization Uncovering and eradicating waste throughout the software development lifecycle Practical techniques for every development manager, project manager, and technical leader Lean software development: applying agile principles to your organization 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 towards 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 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.

Satisfy Stakeholders by Solving the Right Problems, in the Right Ways In Beyond Requirements , Kent J. McDonald shows how applying analysis techniques with an agile mindset can radically transform analysis from merely “gathering and documenting requirements” to an important activity teams use to build shared understanding. First, McDonald discusses the unique agile mindset, reviews the key principles underlying it, and shows how these principles link to effective analysis. Next, he puts these principles to work in four wide-ranging and thought-provoking case studies. Finally, he drills down on a full set of techniques for effective agile analysis, using examples to show how, why, and when they work. McDonald’s strategies will teach you how to understand stakeholders’ needs, identify the best solution for satisfying those needs, and build a shared understanding of your solution that persists throughout the product lifecycle. He also demonstrates how to iterate your analysis, taking advantage of what you learn throughout development, testing, and deployment so that you can continuously adapt, refine, and improve. Whether you’re an analysis practitioner or you perform analysis tasks as a developer, manager, or tester, McDonald’s techniques will help your team consistently find and deliver better solutions. Coverage includes Core concepts for

analysis: needs/ solutions, outcome/output, discovery/delivery Adapting Lean Startup ideas for IT projects: customer delivery, build–measure–learn, and metrics Structuring decisions, recognizing differences between options and commitments, and overcoming cognitive biases Focusing on value: feature injection, minimum viable products, and minimum marketable features Understanding how analysis flows alongside your project's lifecycle Analyzing users: mapping stakeholders, gauging commitment, and creating personas Understanding context: performing strategy (enterprise) analysis Clarifying needs: applying decision filters, assessing project opportunities, stating problems Investigating solutions: impact and story mapping, collaborative modeling, and acceptance criteria definition Kent J. McDonald uncovers better ways of delivering value. His experience includes work in business analysis, strategic planning, project management, and product development in the financial services, health insurance, performance marketing, human services, nonprofit, and automotive industries. He has a BS in industrial engineering from Iowa State University and an MBA from Kent State University. He is coauthor of Stand Back and Deliver: Accelerating Business Agility (Addison-Wesley, 2009).

The highly competitive and globalized software market is creating pressure on software companies. Given the current boundary conditions, it is critical to continuously increase time-to-market and reduce development costs. In parallel, driven by private life experiences with mobile computing devices, the World Wide Web and software-based services, peoples' general expectations with regards to software are growing. They expect software that is simple and joyful to use. In the light of the changes that have taken place in recent years, software companies need to fundamentally reconsider the way they develop and deliver software to their customers. This book introduces fundamentals, trends and best practices in the software industry from a threefold perspective which equally takes into account design, management, and development of software. It demonstrates how cross-functional integration can be leveraged by software companies to successfully build software for people. Professionals from business and academia give an overview on state-of-the-art knowledge and report on key insights from their real-life experience. They provide guidance and hands-on recommendation on how to create winning products. This combined perspective fosters the transfer of knowledge between research and practice and offers a high practical value for both sides. The book targets both, practitioners and academics looking for successfully building software in the future. It is directed at Managing Directors of software companies, Software Project Managers, Product Managers and Designers, Software Developers as well as academics and students in the area of Software and Information Systems Engineering, Human Computer Interaction (HCI), and Innovation Management.?

With the award-winning book Agile Software Development: Principles, Patterns, and Practices, Robert C. Martin helped bring Agile principles to tens of thousands of Java and C++ programmers. Now .NET programmers have a definitive guide to agile methods with this completely updated volume from Robert C. Martin and Micah Martin, Agile Principles, Patterns, and Practices in C#. This book presents a series of case studies illustrating the fundamentals of Agile development and Agile design, and moves quickly from UML models to real C# code. The introductory chapters lay out the basics of the agile movement, while the later chapters show proven techniques in action. The book includes many source code examples that are also available for download from the authors' Web site. Readers will come away from this book understanding Agile principles, and the fourteen practices of Extreme Programming Spiking, splitting, velocity, and planning iterations and releases Test-driven development, test-first design, and acceptance testing Refactoring with

unit testing Pair programming Agile design and design smells The five types of UML diagrams and how to use them effectively Object-oriented package design and design patterns How to put all of it together for a real-world project Whether you are a C# programmer or a Visual Basic or Java programmer learning C#, a software development manager, or a business analyst, Agile Principles, Patterns, and Practices in C# is the first book you should read to understand agile software and how it applies to programming in the .NET Framework.

Traditional software development methods struggle to keep pace with the accelerated pace and rapid change of Internet-era development. Several "agile methodologies" have been developed in response -- and these approaches to software development are showing exceptional promise. In this book, Jim Highsmith covers them all -- showing what they have in common, where they differ, and how to choose and customize the best agile approach for your needs.KEY TOPICS:Highsmith begins by introducing the values and principles shared by virtually all agile software development methods. He presents detailed case studies from organizations that have used them, as well as interviews with each method's principal authors or leading practitioners. Next, he takes a closer look at the key features and techniques associated with each major Agile approach: Extreme Programming (XP), Crystal Methods, Scrum, Dynamic Systems Development Method (DSDM), Lean Development, Adaptive Software Development (ASD), and Feature-Driven Development (FDD). In Part III, Highsmith offers practical advice on customizing the optimal agile discipline for your own organization.MARKET:For all software developers, project managers, and other IT professionals seeking more flexible, effective approaches to developing software.

Requirements engineering is the process by which the requirements for software systems are gathered, analyzed, documented, and managed throughout their complete lifecycle. Traditionally it has been concerned with technical goals for, functions of, and constraints on software systems. Aurum and Wohlin, however, argue that it is no longer appropriate for software systems professionals to focus only on functional and non-functional aspects of the intended system and to somehow assume that organizational context and needs are outside their remit. Instead, they call for a broader perspective in order to gain a better understanding of the interdependencies between enterprise stakeholders, processes, and software systems, which would in turn give rise to more appropriate techniques and higher-quality systems. Following an introductory chapter that provides an exploration of key issues in requirements engineering, the book is organized in three parts. Part 1 presents surveys of state-of-the art requirements engineering process research along with critical assessments of existing models, frameworks and techniques. Part 2 addresses key areas in requirements engineering, such as market-driven requirements engineering, goal modeling, requirements ambiguity, and others. Part 3 concludes the book with articles that present empirical evidence and experiences from practices in

industrial projects. Its broader perspective gives this book its distinct appeal and makes it of interest to both researchers and practitioners, not only in software engineering but also in other disciplines such as business process engineering and management science.

This book constitutes the proceedings of the 5th International Conference on Lean and Agile Software Development, LASD 2021, which was held online on January 23, 2021. The conference received a total of 32 submissions, of which 10 full and 2 short papers are included in this volume. In addition, one keynote paper is also included. To live the agile mindset, the LASD conference focuses on highly relevant research outcomes and fosters their way into practice. Topics discussed in this volume range from teams under COVID-19 through women in Agile, to product road-mapping and non-functional requirements.

A classic treatise that defined the field of applied demand analysis, Consumer Demand in the United States: Prices, Income, and Consumption Behavior is now fully updated and expanded for a new generation. Consumption expenditures by households in the United States account for about 70% of Americaâ__s GDP. The primary focus in this book is on how households adjust these expenditures in response to changes in price and income. Econometric estimates of price and income elasticities are obtained for an exhaustive array of goods and services using data from surveys conducted by the Bureau of Labor Statistics, providing a better understanding of consumer demand. Practical models for forecasting future price and income elasticities are also demonstrated. Fully revised with over a dozen new chapters and appendices, the book revisits the original Taylor-Houthakker models while examining new material as well, such as the use of quantile regression and the stationarity of consumer preference. It also explores the emerging connection between neuroscience and consumer behavior, integrating the economic literature on demand theory with psychology literature. The most comprehensive treatment of the topic to date, this volume will be an essential resource for any researcher, student or professional economist working on consumer behavior or demand theory, as well as investors and policymakers concerned with the impact of economic fluctuations.

Lean and Agile Development for Large-Scale Products: Key Practices for Sustainable Competitive Success Increasingly, large product-development organizations are turning to lean thinking, agile principles and practices, and large-scale Scrum to sustainably and quickly deliver value and innovation. Drawing on their long experience leading and guiding lean and agile adoptions for large, multisite, and offshore product development, internationally recognized consultant and best-selling author Craig Larman and former leader of the agile transformation at Nokia Networks Bas Vodde share the key action tools needed for success. Coverage includes Frameworks for large-scale Scrum for multihundred-person product groups Testing and building quality in Product management and the end of the “contract game” between business and

R&D Envisioning a large release, and planning for multiteam development Low-quality legacy code: why it's created, and how to stop it Continuous integration in a large multisite context Agile architecting Multisite or offshore development Contracts and outsourced development In a competitive environment that demands ever-faster cycle times and greater innovation, the practices inspired by lean thinking and agile principles are ever-more relevant. Practices for Scaling Lean & Agile Development will help people realize a lean enterprise—and deliver on the significant benefits of agility. In addition to the action tools in this text, see the companion book Scaling Lean & Agile Development: Thinking and Organizational Tools for Large-Scale Scrumfor complementary foundation tools.

Here is the first comprehensive approach to managing design-in-process inventory from the bestselling author of "Developing Products in Half the Time". Donald Reinertsen reveals a transparent system for tracking, measuring, and managing invisible "design-in-process" inventory to achieve lower costs, higher profits, and better processes. 20 line drawings.

“Companies have been implementing large agile projects for a number of years, but the ‘stigma’ of ‘agile only works for small projects’ continues to be a frequent barrier for newcomers and a rallying cry for agile critics. What has been missing from the agile literature is a solid, practical book on the specifics of developing large projects in an agile way. Dean Leffingwell’s book Scaling Software Agility fills this gap admirably. It offers a practical guide to large project issues such as architecture, requirements development, multi-level release planning, and team organization. Leffingwell’s book is a necessary guide for large projects and large organizations making the transition to agile development.” —Jim Highsmith, director, Agile Practice, Cutter Consortium, author of Agile Project Management “There’s tension between building software fast and delivering software that lasts, between being ultra-responsive to changes in the market and maintaining a degree of stability. In his latest work, Scaling Software Agility, Dean Leffingwell shows how to achieve a pragmatic balance among these forces. Leffingwell’s observations of the problem, his advice on the solution, and his description of the resulting best practices come from experience: he’s been there, done that, and has seen what’s worked.” —Grady Booch, IBM Fellow Agile development practices, while still controversial in some circles, offer undeniable benefits: faster time to market, better responsiveness to changing customer requirements, and higher quality. However, agile practices have been defined and recommended primarily to small teams. In Scaling Software Agility, Dean Leffingwell describes how agile methods can be applied to enterprise-class development. Part I provides an overview of the most common and effective agile methods. Part II describes seven best practices of agility that natively scale to the enterprise level. Part III describes an additional set of seven organizational capabilities that companies can master to achieve the full benefits of software agility on an enterprise scale. This book is invaluable to software

developers, testers and QA personnel, managers and team leads, as well as to executives of software organizations whose objective is to increase the quality and productivity of the software development process but who are faced with all the challenges of developing software on an enterprise scale.

Agile techniques have demonstrated immense potential for developing more effective, higher-quality software. However,scaling these techniques to the enterprise presents many challenges. The solution is to integrate the principles and practices of Lean Software Development with Agile's ideology and methods. By doing so, software organizations leverage Lean's powerful capabilities for "optimizing the whole" and managing complex enterprise projects. A combined "Lean-Agile" approach can dramatically improve both developer productivity and the software's business value.In this book, three expert Lean software consultants draw from their unparalleled experience to gather all the insights, knowledge, and new skills you need to succeed with Lean-Agile development. Lean-Agile Software Development shows how to extend Scrum processes with an Enterprise view based on Lean principles. The authors present crucial technical insight into emergent design, and demonstrate how to apply it to make iterative development more effective. They also identify several common development "anti-patterns" that can work against your goals, and they offer actionable, proven alternatives. Lean-Agile Software Development shows how to Transition to Lean Software Development quickly and successfully Manage the initiation of product enhancements Help project managers work together to manage product portfolios more effectively Manage dependencies across the software development organization and with its partners and colleagues Integrate development and QA roles to improve quality and eliminate waste Determine best practices for different software development teams The book's companion Web site, www.netobjectives.com/lasd, provides updates, links to related materials, and support for discussions of the book's content.

Today, even the largest development organizations are turning to agile methodologies, seeking major productivity and quality improvements. However, large-scale agile development is difficult, and publicly available case studies have been scarce. Now, three agile pioneers at Hewlett-Packard present a candid, start-to-finish insider's look at how they've succeeded with agile in one of the company's most mission-critical software environments: firmware for HP LaserJet printers. This book tells the story of an extraordinary experiment and journey. Could agile principles be applied to re-architect an enormous legacy code base? Could agile enable both timely delivery and ongoing innovation? Could it really be applied to 400+ developers distributed across four states, three continents, and four business units? Could it go beyond delivering incremental gains, to meet the stretch goal of 10x developer productivity improvements? It could, and it did—but getting there was not easy. Writing for both managers and technologists, the authors candidly discuss both their successes and failures, presenting actionable lessons for other development organizations, as well as approaches that have proven themselves repeatedly in HP's challenging environment. They not only illuminate the potential benefits of agile in large-scale development, they also systematically show how these benefits can actually be achieved. Coverage includes: • Tightly linking agile methods and enterprise architecture with business objectives • Focusing agile practices on your worst development pain points to get the most bang for your buck • Abandoning classic agile methods that

don’t work at the largest scale • Employing agile methods to establish a new architecture • Using metrics as a “conversation starter” around agile process improvements • Leveraging continuous integration and quality systems to reduce costs, accelerate schedules, and automate the delivery pipeline • Taming the planning beast with “light-touch” agile planning and lightweight long-range forecasting • Implementing effective project management and ensuring accountability in large agile projects • Managing tradeoffs associated with key decisions about organizational structure • Overcoming U.S./India cultural differences that can complicate offshore development • Selecting tools to support quantum leaps in productivity in your organization • Using change management disciplines to support greater enterprise agility

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.

Challenges in unpredictable markets, changing customer requirements, and advancing information technologies have lead to progression towards service oriented engineering and agile and lean software development. These prevailing approaches to software systems provide solutions to challenges in demanding business environments. Agile and Lean Service-Oriented Development: Foundations, Theory and Practice explores the groundwork of service-oriented and agile and lean development and the conceptual basis and experimental evidences for the combination of the two approaches. Highlighting the best tools and guidelines for these developments in practice, this book is essential for researchers and practitioners in the software development and service computing fields.

More and more Agile projects are seeking architectural roots as they struggle with complexity and scale - and they're seeking lightweight ways to do it Still seeking? In this book the authors help you to find your own path Taking cues from Lean development, they can help steer your project toward practices with longstanding track records Up-front architecture? Sure. You can deliver an architecture as code that compiles and that concretely guides development without bogging it down in a mass of documents and guesses about the implementation Documentation? Even a whiteboard diagram, or a CRC card, is documentation: the goal isn't to avoid documentation, but to document just the right things in just the right amount Process? This all works within the frameworks of Scrum, XP, and other Agile approaches

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.

User experience (UX) design has traditionally been a deliverables-based practice, with wireframes, site maps, flow diagrams, and mockups. But in today’s web-driven reality, orchestrating the entire design from the get-go no longer works. This hands-on book demonstrates Lean UX, a deeply collaborative and cross-functional process that lets you strip away heavy deliverables in favor of building shared understanding with the rest of the product team. Lean UX is the evolution of product design; refined through the real-world experiences of companies large and small, these practices and principles help you maintain daily, continuous engagement with your teammates, rather than work in isolation. This book shows you how to use Lean UX on your own projects. Get a tactical understanding of Lean UX—and how it changes the way teams work together Frame a vision of the problem you’re solving and focus your team on the right outcomes Bring the designer’s tool kit to the rest of your product team Break down the silos created by job titles and learn to trust your teammates Improve the quality and productivity of your teams, and focus on validated experiences as opposed to deliverables/documents Learn how Lean UX integrates with Agile UX

This business parable reviews two different systems development projects. One project was an abject, expensive failure, while the other succeeded in creating a major new revenue stream, bringing in new customers. By reviewing the tales of these two systems, readers will develop a better understanding of what works and what doesn’t when it comes to the leadership and action steps required to reinvent a company’s procedures to get in step with the times. CEO Evan Nogelmeyer discovers to his dismay that in today’s business world, technology is not just for technologists. But does he discover this soon enough and once he does, does he have the tools and the business savvy he needs to stave off disaster? Evan and his team are all well-intentioned, successful business leaders with advanced degrees and backgrounds in marketing and business. But, without technical backgrounds, do they have what it takes to manage the technology overhaul so critical to the very survival of their company and the future of their own careers? A Tale of Two Systems: Lean and Agile Software Development for Business Leaders reviews two fictional systems development projects: Cremins United and Troubled Real Estate Information Management, both launched at the imaginary Cremins Corporation. Cremins is a venerable printing company that must transform itself to survive in the Internet age. One project

proves to be an abject and expensive failure, while the other succeeds in creating a major new revenue stream and solving important customer needs. Contrasting the methods employed in a traditional, process-centric 'waterfall' approach, with a lean and agile-inspired approach, this book provides business leaders with a tangible understanding of why lean thinking is so well-suited to contemporary environments requiring flexibility, speed, and the input of specialized knowledge. At the conclusion of the two tales, author Michael Levine articulates a series of conclusions and principles based on Lean Product Development, Agile, and his 25 years of experience in business systems development. While the tales told and the companies and employees that inhabit them are pure fiction, the lessons to be learned are very real and very applicable in today's highly competitive market, where victory goes time and time again to the lean and the agile.

Innovative tools and techniques for the development and design of software systems are essential to the problem solving and planning of software solutions. Software Design and Development: Concepts, Methodologies, Tools, and Applications brings together the best practices of theory and implementation in the development of software systems. This reference source is essential for researchers, engineers, practitioners, and scholars seeking the latest knowledge on the techniques, applications, and methodologies for the design and development of software systems.

How to scale ATDD to large projects --

From near-extinction in the early eighties, Harley-Davidson rose to worldwide recognition and is still today one of the great, iconic American motorcycle brands. In this insider guide, former Harley-Davidson executive Dantar Oosterwal offers an exclusive look at how Harley-Davidson was able to adapt in an ever-changing world to stay on top and stay in existence. In The Lean Machine, readers learn about Harley-Davidson's secret weapon and go-to formula for outstanding success: Knowledge-Based Product Development. Rooted in Japanese productivity improvement techniques, this method helped Harley realize an unprecedented fourfold increase in throughput in half the time--powering annual growth of more than ten percent. Winner of the 2017 Shingo Prize for Literature, The Lean Machine--which is part business journal, part analysis, and part step-by-step toolkit--takes readers through the day-to-day transformation at Harley and identifies universal change and improvement issues so that companies in any industry can incorporate this game-changing system--with predictably excellent results.

The Must-have Reference Guide for SAFe® Practitioners "There are a lot of methods of scale out there, but the Scaled Agile Framework is the one lighting up the world." –Steve Elliot, Founder/CEO AgileCraft "You don't have to be perfect to start SAFe because you learn as you go–learning is built in. Before SAFe, I would not know how to help my teams but now I have many tools to enable the teams. My job is really fun and the bottom line is I have never enjoyed my job more!" –Product Manager, Fortune 500 Enterprise Captured for the first time in print, the SAFe body of knowledge is now available as a handy desktop reference to help you accomplish your mission of building better software and systems. Inside, you'll find complete coverage of what has, until now, only been available online at scaledagileframework.com. The SAFe knowledge base was developed from real-world field experience and provides proven success patterns for implementing Lean-Agile software and systems development at enterprise scale. This book provides comprehensive guidance for work at the enterprise Portfolio, Value Stream, Program, and Team levels, including the various roles, activities, and artifacts that constitute the Framework, along with the foundational elements of values, mindset, principles, and practices. Education & Training Key to Success The practice of SAFe is spreading

rapidly throughout the world. The majority of Fortune 100 U.S. companies have certified SAFe practitioners and consultants, as do an increasing percentage of the Global 1000 enterprises. Case study results–visit scaledagileframework.com/case-studies–typically include: 20—50% increase in productivity 50%+ increases in quality 30—75% faster time to market Measurable increases in employee engagement and job satisfaction With results like these, the demand from enterprises seeking SAFe expertise is accelerating at a dramatic rate. Successful implementations may vary in context, but share a common attribute: a workforce well trained and educated in SAFe practices. This book–along with authorized training and certification–will help you understand how to maximize the value of your role within a SAFe organization. The result is greater alignment, visibility, improved performance throughout the enterprise, and ultimately better outcomes for the business.

The Must-have Reference Guide for SAFe® Professionals “There are a lot of methods of scale out there, but the Scaled Agile Framework is the one lighting up the world.” –Steve Elliot, Founder/CEO AgileCraft “Since beginning our Lean-Agile journey with SAFe, Vantiv has focused its strategic efforts and its execution. We have improved the predictability of product delivery while maintaining high quality, and have become even more responsive to customers–resulting in higher customer satisfaction. And just as important, employee engagement went up over the past year.” –Dave Kent, Enterprise Agile Coach, Vantiv Fully updated to include the new innovations in SAFe 4.5, the SAFe® 4.5 Reference Guide is ideal for anyone serious about learning and implementing the world’s leading framework for enterprise agility. Inside, you’ll find complete coverage of the scaledagileframework.com knowledge base, the website that thousands of the world’s largest brands turn to for building better software and systems. SAFe was developed from real-world field experience and provides proven success patterns for implementing Lean-Agile software and systems development at enterprise scale. This book provides comprehensive guidance for work at the enterprise Portfolio, Large Solution, Program, and Team levels, including the various roles, activities, and artifacts that constitute the Framework. Education & Training Key to Success The practice of SAFe is spreading rapidly throughout the world. The majority of Fortune 100 companies have certified SAFe professionals and consultants, as do an increasing percentage of the Global 2000. Case study results–visit scaledagileframework.com/case-studies–typically include: 30 — 75% faster time-to-market 25 — 75% increase in productivity 20 — 50% improvements in quality 10 — 50% increased employee engagement Successful implementations may vary in context but share a common attribute: a workforce well trained and educated in SAFe practices. This book–along with authorized training and certification–will help you understand how to maximize the value of your role within a SAFe organization. The result is greater alignment and visibility, improved performance throughout the enterprise, and ultimately better outcomes for the business.

Lean Business Analysis Weaponizes the Agile Software Development Revolution With the widespread adoption of Agile, software development has gone through some serious remodeling. The changes are a seismic shift from the days of mega-projects and monolithic methodologies. Agile teams build robust products incrementally and iteratively, requiring fast feedback from the business community to define ongoing work. As a result, the process of defining IT requirements is evolving rapidly. Backlogs replace requirements definition documents. User Stories, Epics and Features replace requirement statements. Scenarios and Examples replace test cases. The timing of business analysis activities is shifting like sand. But What Is LEAN Business Analysis? Business Analysis defines the future of Information Technology (IT) in an organization. Lean Business Analysis is the essential next step that enables the business community to take advantage of the speed of software delivery. This book offers a brief overview of how you can reduce waste in Business Analysis practices to optimally support the new lean and agile software development world. Learn how lean principles: Gain business agility by shifting from Project to Product

Thinking Accelerate time-to-market with a Minimum Viable Product (MVP) Combat waste in your Business Analysis Life Cycle Optimize software development with effective Product Backlogs Improve the outcome of your Business Analysis techniques Express business needs in Features, User Stories, and Scenarios Deliver product quality with Acceptance (Business-Facing) Testing The authors describe the problems and the process plaguing organizations struggling to ensure that the software development community produces the IT environment that the business community needs. They also show solutions that take advantage of Lean Manufacturing principles to capture and analyze business needs. They explain types of waste prevalent in conventional Business Analysis and suggest approaches to minimize the waste while increasing the quality of the deliverables, namely actionable Features, User Stories, and Requirements that enable Agile Teams. Who Should Read This Book? This book will help anyone who is involved with Agile Software development. In particular, it targets the neglected business roles such as Product Owners, Business Analysts, Test Developers, Business-side and Agile Team Members, Subject Matter Experts, and Product Managers. Who Wrote It? The authors, Tom and Angela Hathaway, have taught thousands of students in face-to-face training, published multiple business analysis books, produced courses available on platforms such as Udemy.com with over 30K students, and enriched the global community with millions of views on their YouTube channel "baexperts".

“We need better approaches to understanding and managing software requirements, and Dean provides them in this book. He draws ideas from three very useful intellectual pools: classical management practices, Agile methods, and lean product development. By combining the strengths of these three approaches, he has produced something that works better than any one in isolation.” –From the Foreword by Don Reinertsen, President of Reinertsen & Associates; author of Managing the Design Factory; and leading expert on rapid product development Effective requirements discovery and analysis is a critical best practice for serious application development. Until now, however, requirements and Agile methods have rarely coexisted peacefully. For many enterprises considering Agile approaches, the absence of effective and scalable Agile requirements processes has been a showstopper for Agile adoption. In Agile Software Requirements, Dean Leffingwell shows exactly how to create effective requirements in Agile environments. Part I presents the “big picture” of Agile requirements in the enterprise, and describes an overall process model for Agile requirements at the project team, program, and portfolio levels Part II describes a simple and lightweight, yet comprehensive model that Agile project teams can use to manage requirements Part III shows how to develop Agile requirements for complex systems that require the cooperation of multiple teams Part IV guides enterprises in developing Agile requirements for ever-larger “systems of systems,” application suites, and product portfolios This book will help you leverage the benefits of Agile without sacrificing the value of effective requirements discovery and analysis. You’ll find proven solutions you can apply right now–whether you’re a software developer or tester, executive, project/program manager, architect, or team leader.

WHAT IS THIS BOOK ABOUT? Communicate Business Needs in an Agile (e.g. Scrum) or Lean (e.g. Kanban) Environment Problem solvers are in demand in every organization, large and small, from a Mom and Pop shop to the federal government. Increase your confidence and your value to organizations by improving your ability to analyze, extract, express, and discuss business needs in formats supported by Agile, Lean, and DevOps. The single largest challenge facing organizations around the world is how to leverage their Information Technology to gain competitive advantage. This is not about how to program the devices; it is figuring out what the devices should do. The skills needed to identify and define the best IT solutions are invaluable for every role in the organization. These skills can propel you from the mail room to the boardroom by making your organization more effective and more profitable. Whether you: - are tasked with defining business needs for a product or existing software, - need to prove that a digital solution works, - want to expand your User Story and requirements discovery

toolkit, or - are interested in becoming a Business Analyst, this book presents invaluable ideas that you can steal. The future looks bright for those who embrace Lean concepts and are prepared to engage with the business community to ensure the success of Agile initiatives. WHAT YOU WILL LEARN Learn Step by Step When and How to Define Lean / Agile Requirements Agile, Lean, DevOps, and Continuous Delivery do not change the need for good business analysis. In this book, you will learn how the new software development philosophies influence the discovery, expression, and analysis of business needs. We will cover User Stories, Features, and Quality Requirements (a.k.a. Non-functional Requirements – NFR). User Story Splitting and Feature Drill-down transform business needs into technology solutions. Acceptance Tests (Scenarios, Scenario Outlines, and Examples) have become a critical part of many Lean development approaches. To support this new testing paradigm, you will also learn how to identify and optimize Scenarios, Scenario Outlines, and Examples in GIVEN-WHEN-THEN format (Gherkin) that are the bases for Acceptance Test Driven Development (ATDD) and Behavior Driven Development (BDD). This book presents concrete approaches that take you from day one of a change initiative to the ongoing acceptance testing in a continuous delivery environment. The authors introduce novel and innovative ideas that augment tried-and-true techniques for: - discovering and capturing what your stakeholders need, - writing and refining the needs as the work progresses, and - developing scenarios to verify that the software does what it should. Approaches that proved their value in conventional settings have been redefined to ferret out and eliminate waste (a pillar of the Lean philosophy). Those approaches are fine-tuned and perfected to support the Lean and Agile movement that defines current software development. In addition, the book is chock-full of examples and exercises that allow you to confirm your understanding of the presented ideas. WHO WILL BENEFIT FROM READING THIS BOOK? How organizations develop and deliver working software has changed significantly in recent years. Because the change was greatest in the developer community, many books and courses justifiably target that group. There is, however, an overlooked group of people essential to the development of software-as-an-asset that have been neglected. Many distinct roles or job titles in the business community perform business needs analysis for digital solutions. They include: - Product Owners - Business Analysts - Requirements Engineers - Test Developers - Business- and Customer-side Team Members - Agile Team Members - Subject Matter Experts (SME) - Project Leaders and Managers - Systems Analysts and Designers - AND “anyone wearing the business analysis hat”, meaning anyone responsible for defining a future IT solution TOM AND ANGELA’S (the authors) STORY Like all good IT stories, theirs started on a project many years ago. Tom was the super techie, Angela the super SME. They fought their way through the 3-year development of a new policy maintenance system for an insurance company. They vehemently disagreed on many aspects, but in the process discovered a fundamental truth about IT projects. The business community (Angela) should decide on the business needs while the technical team’s (Tom)’s job was to make the technology deliver what the business needed. Talk about a revolutionary idea! All that was left was learning how to communicate with each other without bloodshed to make the project a resounding success. Mission accomplished. They decided this epiphany was so important that the world needed to know about it. As a result, they made it their mission (and their passion) to share this ground-breaking concept with the rest of the world. To achieve that lofty goal, they married and began the mission that still defines their life. After over 30 years of living and working together 24x7x365, they are still wildly enthusiastic about helping the victims of technology learn how to ask for and get the IT solutions they need to do their jobs better. More importantly, they are more enthusiastically in love with each other than ever before!

Agile is a relatively recent methodology used in the development process of a project. Therefore, it is important to share new emerging knowledge with researchers and professionals interested in adopting an agile mindset. Emerging Innovations in Agile Software Development

focuses on the use of agile methodologies to manage, design, develop, test and maintain software projects. Emphasizing research-based solutions for contemporary software development, this publication is designed for use by software developers, researchers, and graduate-level students in software engineering and project management programs.

Studies on software project delivery show that the most common cause of failure is mismanagement of the project's requirements. This book takes a holistic approach to managing requirements to show you how to bridge the gap between requirements and specifications and deliver a successful software project that meets your client's expectations.

This book constitutes the refereed proceedings of three international workshops held in Rome, Italy, in conjunction with the 15th International Conference on Agile Software Development, XP 2014, in May 2014. The workshops comprised Principles of Large-Scale Agile Development, Refactoring & Testing (RefTest 2014), and Estimations in the 21st Century Software Engineering (EstSE21 2014). The 13 revised full papers presented were carefully reviewed and selected from 28 submissions. In addition, an introduction and a keynote paper are included.

This book constitutes revised selected papers from the 9th Brazilian Workshop on Agile Methods, WBMA 2018, held in Campinas, Brazil, in October 2018. The 6 full and 1 short papers presented in this volume were carefully reviewed and selected from 18 submissions. Accepted papers in this edition present empirical results and literature reviews on agile requirements validation in Brazilian software development companies; a survey on Brazilian software processes about to be agile or not; an evaluation of an agile maturity model; strategies to increase customer value in agile software development; an agile development environment and scrum in a strongly hierarchical organization.

This succinct book explains how you can apply the practices of Lean software development to dramatically increase productivity and quality. Based on techniques that revolutionized Japanese manufacturing, Lean principles are being applied successfully to product design, engineering, the supply chain, and now software development. With The Art of Lean Software Development, you'll learn how to adopt Lean practices one at a time rather than taking on the entire methodology at once. As you master each practice, you'll see significant, measurable results. With this book, you will: Understand Lean's origins from Japanese industries and how it applies to software development Learn the Lean software development principles and the five most important practices in detail Distinguish between the Lean and Agile methodologies and understand their similarities and differences Determine which Lean principles you should adopt first, and how you can gradually incorporate more of the methodology into your process Review hands-on practices, including descriptions, benefits, trade-offs, and roadblocks Learn how to sell these principles to management The Art of Lean Software Development is ideal for busy people who want to improve the development process but can't afford the disruption of a sudden and complete transformation. The Lean approach has been yielding dramatic results for decades, and with this book, you can make incremental changes that will produce immediate benefits. "This book presents Lean practices in a clear and concise manner so readers are motivated to make their software more reliable and less costly to maintain. I recommend it to anyone looking for an easy-to-follow guide to transform how the developer views the process of writing good software."-- Bryan Wells, Boeing Intelligence & Security Sytems Mission System "If you're new to Lean software development and you're not quite sure where to start, this book will help get your development process going in the right direction, one step at a time."-- John McClenning, software development lead, Aclara

Agile architecting is a key issue to scale agile to develop large software systems. This chapter describes a set of mechanisms that make agile architecting feasible. These mechanisms are smoothly integrated in a tailored Scrum for agile architecting by (1) defining product requirements in terms of features by using feature pools and feature trees to provide the portfolio and roadmap visions of a product, (2)

designing highly flexible architecture called working architecture, (3) bridging user stories and software architecture through features and design decisions as traceability mechanisms, and (4) systematically assisting agile practitioners by conducting change impact analysis of features through various iterations of the agile process. This tailored Scrum for agile architecting has been successfully put into practice to develop several projects, which have been deployed in a software factory set up in collaboration between the Technical University of Madrid (UPM) and the company Indra. In this chapter, one of these projects is used to illustrate how this tailored Scrum has been applied and how it can be adopted.

In recent years, our world has experienced a profound shift and progression in available computing and knowledge sharing innovations. These emerging advancements have developed at a rapid pace, disseminating into and affecting numerous aspects of contemporary society. This has created a pivotal need for an innovative compendium encompassing the latest trends, concepts, and issues surrounding this relevant discipline area. During the past 15 years, the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline. The Encyclopedia of Information Science and Technology, Fourth Edition is a 10-volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives, applications, and techniques contributed by thousands of experts and researchers from around the globe. This authoritative encyclopedia is an all-encompassing, well-established reference source that is ideally designed to disseminate the most forward-thinking and diverse research findings. With critical perspectives on the impact of information science management and new technologies in modern settings, including but not limited to computer science, education, healthcare, government, engineering, business, and natural and physical sciences, it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition to every academic and corporate library.