

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Kent Beck
Mike Beedle
Arie van Bennekum
Alistair Cockburn
Ward Cunningham
Martin Fowler

James Grenning
Jim Highsmith
Andrew Hunt
Ron Jeffries
Jon Kern
Brian Marick

Robert C. Martin
Steve Mellor
Ken Schwaber
Jeff Sutherland
Dave Thomas

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[Twelve Principles of Agile Software](#)

Principles behind the Agile Manifesto

We follow these principles:

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Working software is the primary measure of progress.

Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

Continuous attention to technical excellence
and good design enhances agility.

Simplicity--the art of maximizing the amount
of work not done--is essential.

The best architectures, requirements, and designs
emerge from self-organizing teams.

At regular intervals, the team reflects on how
to become more effective, then tunes and adjusts
its behavior accordingly.

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History: The Agile Manifesto

On February 11-13, 2001, at The Lodge at Snowbird ski resort in the Wasatch mountains of Utah, seventeen people met to talk, ski, relax, and try to find common ground—and of course, to eat. What emerged was the Agile ‘Software Development’ Manifesto. Representatives from Extreme Programming, SCRUM, DSDM, Adaptive Software Development, Crystal, Feature-Driven Development, Pragmatic Programming, and others sympathetic to the need for an alternative to documentation driven, heavyweight software development processes convened.

Now, a bigger gathering of organizational anarchists would be hard to find, so what emerged from this meeting was symbolic—a *Manifesto for Agile Software Development*—signed by all participants. The only concern with the term *agile* came from Martin Fowler (a Brit for those who don’t know him) who allowed that most Americans didn’t know how to pronounce the word ‘agile’.

Alistair Cockburn’s initial concerns reflected the early thoughts of many participants. "I personally didn't expect that this particular group of agilites to ever agree on anything substantive." But his post-meeting feelings were also shared, "Speaking for myself, I am delighted by the final phrasing [of the Manifesto]. I was surprised that the others appeared equally delighted by the final phrasing. So we did agree on something substantive."

Naming ourselves "The Agile Alliance," this group of independent thinkers about software development, and sometimes competitors to each other, agreed on the *Manifesto for Agile Software Development* displayed on the title page of this web site.

But while the Manifesto provides some specific ideas, there is a deeper theme that drives many, but not all, to be sure, members of the alliance. At the close of the two-day meeting, Bob Martin joked that he was about to make a "mushy" statement. But while tinged with humor, few disagreed with Bob’s sentiments—that we all felt privileged to work with a group of people who held a set of compatible values, a set of values based on trust and respect for each other and promoting organizational models based on people, collaboration, and building the types of organizational communities in which we would want to work. At the core, I believe Agile Methodologists are really about "mushy" stuff—about delivering good products to customers by operating in an environment that does more than talk about "people as our most important asset" but actually "acts" as if people were the most important, and lose the word "asset". So in the final analysis, the meteoric rise of interest in—and sometimes tremendous criticism of—Agile Methodologies is about the mushy stuff of values and culture.

For example, I think that ultimately, Extreme Programming has mushroomed in use and interest, not because of pair-programming or refactoring, but because, taken as a whole, the practices define a developer community freed from the baggage of Dilbertesque corporations. Kent Beck tells the story of an early job in which he estimated a programming effort of six weeks for two people. After his manager reassigned the other programmer at the beginning of the project, he completed the project in twelve weeks—and felt terrible about himself! The boss—of course—harangued Kent about how slow he was throughout the second six weeks. Kent, somewhat despondent because he was such a "failure" as a programmer, finally realized that his original estimate of 6 weeks was extremely accurate—for 2 people—and that his "failure" was really the manager's failure, indeed, the failure of the standard "fixed" process mindset that so frequently plagues our industry.

This type of situation goes on every day—marketing, or management, or external customers, internal customers, and, yes, even developers—don't want to make hard trade-off decisions, so they impose irrational demands through the imposition of corporate power structures. This isn't merely a software development problem, it runs throughout Dilbertesque organizations.

In order to succeed in the new economy, to move aggressively into the era of e-business, e-commerce, and the web, companies have to rid themselves of their Dilbert manifestations of make-work and arcane policies. This freedom from the inanities of corporate life attracts proponents of Agile Methodologies, and scares the bejeebers (you can't use the word 'shit' in a professional paper) out of traditionalists. Quite frankly, the Agile approaches scare corporate bureaucrats—at least those that are happy pushing process for process' sake versus trying to do the best for the "customer" and deliver something timely and tangible and "as promised"—because they run out of places to hide.

The Agile movement is not anti-methodology, in fact, many of us want to restore credibility to the word methodology. We want to restore a balance. We embrace modeling, but not in order to file some diagram in a dusty corporate repository. We embrace documentation, but not hundreds of pages of never-maintained and rarely-used tomes. We plan, but recognize the limits of planning in a turbulent environment. Those who would brand proponents of XP or SCRUM or any of the other Agile Methodologies as "hackers" are ignorant of both the methodologies and the original definition of the term hacker.

The meeting at Snowbird was incubated at an earlier get together of Extreme Programming proponents, and a few "outsiders," organized by Kent Beck at the Rogue River Lodge in Oregon in the spring of 2000. At the Rogue River meeting attendees voiced support for a variety of "Light" methodologies, but nothing formal occurred. During 2000 a number of articles were written that referenced the category of "Light" or "Lightweight" processes. A number these articles referred to "Light methodologies, such as Extreme Programming, Adaptive Software Development, Crystal, and SCRUM". In conversations, no one really liked the moniker "Light", but it seemed to stick for the time being.

In September 2000, Bob Martin from Object Mentor in Chicago, started the next meeting ball rolling with an email; "I'd like to convene a small (two day) conference in the January to

February 2001 timeframe here in Chicago. The purpose of this conference is to get all the lightweight method leaders in one room. All of you are invited; and I'd be interested to know who else I should approach." Bob set up a Wiki site and the discussions raged.

Early on, Alistair Cockburn weighed in with an epistle that identified the general disgruntlement with the word 'Light': "I don't mind the methodology being called light in weight, but I'm not sure I want to be referred to as a lightweight attending a lightweight methodologists meeting. It somehow sounds like a bunch of skinny, feeble-minded lightweight people trying to remember what day it is."

The fiercest debate was over location! There was serious concern about Chicago in wintertime—cold and nothing fun to do; Snowbird, Utah—cold, but fun things to do, at least for those who ski on their heads like Martin Fowler tried on day one; and Anguilla in the Caribbean—warm and fun, but time consuming to get to. In the end, Snowbird and skiing won out; however, a few people—like Ron Jeffries—want a warmer place next time.

We hope that our work together as the Agile Alliance helps others in our profession to think about software development, methodologies, and organizations, in new—more agile—ways. If so, we've accomplished our goals.

Jim Highsmith, for the Agile Alliance

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Authors: The Agile Manifesto

Mike Beedle is the founder and CEO of e-Architects Inc., a consulting company that specializes in application development using distributed objects and Internet technologies. Despite Mike's business demands, he has remained billing as an on-the-trenches consultant where he applies Scrum and XP together through [XBreed](#). Mike was privileged to be an early adopter of the Scrum method, and has introduced Scrum to 7 organizations since the mid-90's. Mike's specialty is to coach companies in the creation of large scale reusable architectures involving many application teams. His record so far is 17 applications reusing the same components such as: workflows, visual components, transactions, business objects and architectural services. Mike has published in several areas including object technology, patterns, components, frameworks, software development, programming languages, reusability, workflow, BPR, and Physics. He has co-organized several workshops on objects, patterns, components, and software development through the last decade. He is co-author of *Scrum, Agile Software Development* with Ken Schwaber (Prentice Hall, fall 2001), a provocative book that assumes software development is more like *new product development* than the manufacturing-like processes that the software industry has used for the last 20 years.

Arie van Bennekum has been actively involved in DSDM and the [DSDM Consortium](#) since 1997. Before that he had been working with Rapid Application Development. His passion for agile methods is based on delivering to customers what they really need in a way that really suits end- users and business. Because facilitated sessions are very important within the DSDM method and his passion for group processes and human behaviour, he is very often involved in projects as facilitator and coach. At this moment in time he is a member of the board of DSDM Consortium Benelux and accredited as a DSDM- practitioner, DSDM-trainer, DSDM Consultant and IAF Certified Professional Facilitator (CPF).

Alistair Cockburn, founder of [Humans and Technology](#), is known for his extensive interviews of project teams. These interviews, together with his active participation on live projects, form the basis for his methodology designs: light but sufficient, and self-evolving. Alistair's work in the 1990s grew into the Crystal family of agile methodologies. Alistair and Jim Highsmith are now working together to evolve Crystal and the Adaptive ideas into recommendations for

creating agile software development ecosystems, the meeting of generic methodology with a project team's specific situation. Alistair and Jim are co-sponsoring the Agile Software Development book series to publish techniques for personal growth and examples of agile methodologies that have been used successfully.

Ward Cunningham is a founder of [Cunningham & Cunningham, Inc.](#) He has also served as Director of R&D at Wyatt Software and as Principle Engineer in the Tektronix Computer Research Laboratory before that. Ward is well known for his contributions to the developing practice of object-oriented programming, the variation called Extreme Programming, and the communities hosted by his WikiWikiWeb. He is active with the Hillside Group and has served as program chair of the Pattern Languages of Programs conference which it sponsors. Ward created the CRC design method which helps teams find core objects for their programs. Ward has written for PLoP, JOOP and OOPSLA on Patterns, Objects, CRC and related topics.

[Martin Fowler](#) is the Chief Scientist for Thoughtworks, an application development and consulting company. He's been involved for over a decade in using object-oriented techniques for information systems. Although his primary interest has been in software design he's never been able to avoid software process and has been interested in approaches that allow methodology to fit people rather than the other way around. He's the author of Analysis Patterns, UML Distilled, Refactoring, and Planning Extreme Programming.

[Jim Highsmith](#) is the primary developer of the "Adaptive Software Development" Agile Method and author of a book by the same name. He has spoken (or scheduled to speak) about Adaptive Development and other Agile Methods at conferences such as OOPSLA, Cutter Summit, SD 2001, XP2001 & Flexible Processes, Project World, and XP Universe. Jim co-authored, with Martin Fowler, "The Agile Manifesto" article in the August 2001 issue of "Software Development" magazine and has several additional "Agile" articles in the works. Jim and Alistair Cockburn are working to combine ASD and Crystal methods and they are also co-editors of a new Addison-Wesley book series on Agile Software Development. Jim is working on a book on all the Agile Methods to be published in 2002.

Andrew Hunt is a partner in [The Pragmatic Programmers](#), and co-author of the best-selling book *The Pragmatic Programmer: From Journeyman to Master*, the new *Programming Ruby*, and various articles. Between writing, speaking engagements, woodworking and playing the piano, Andy finds time for his consulting business specializing in agile software development. Andy has been writing software professionally since the early 80's across diverse industries such as telecommunications, banking, financial services, utilities, medical imaging, graphic arts, and Internet services. Andy is based in Raleigh NC and, with co-

author Dave Thomas, is known for bringing method-independent, pragmatic best practices to software development projects throughout the U.S. He is President of the RTP chapter of the Independent Computer Consultant's Association and a member of the ACM and IEEE.

Ron Jeffries is the proprietor of XProgramming.com, a consultant with [Object Mentor](http://ObjectMentor.com), and the author (with Ann Anderson and Chet Hendrickson) of *Extreme Programming Installed*. Ron was the first Extreme Programming coach, and is a prolific contributor to the XP-related Internet groups, and a frequent speaker at software conferences.

Jon Kern is passionate about helping clients succeed in delivering business value through software development efforts. His varied career has spanned jet engine R&D through centrifuge-based flight simulators, to being an object-oriented evangelist through the 90s beginning with C++ and moving to Java. He first published his lightweight iterative development methodology in (strangely enough) developers guides for Lotus Notes 4.5 and 5.0. He was motivated heavily by his friend Peter Coad's mantra to deliver "frequent, tangible, working results." He put his techniques to work on DoD projects, and then at his own company (Lightship, Inc.). In 1999, he joined Peter Coad for the start up of TogetherSoft, where he created the professional mentor group, and guided product development. Jon was a co-author of Java Design, and worked with Peter and Jeff De Luca (the primary contributor to FDD) to help shape the chapter on Feature-Driven Development (FDD) in Java Modeling in Color with UML. Jon constantly seeks better ways for teams to accomplish their goals, from a technology perspective and from a process and methodology perspective. In Jon's words, Pragmatic MDA via Compuware's OptimalJ (<http://www.optimalj.com>) represents an exciting, revolutionary advancement in having an environment that promotes best practices, solid architecture, agile development, quality by design (not accident), and laser-like focus on delivering business value through strategic use of IT resources. You can find Jon blogging at <http://blogs.compuware.com/cs/blogs/jkern/>

Brian Marick is a programmer and software testing consultant. He came to Snowbird as a representative of a part of the software testing community that's been developing a testing style emphasizing exploration, lessened reliance on documentation, increased acceptance of change, and the notion that a project is an ongoing conversation about quality. He is beginning an exploration of what "Agile Testing" might mean, and how it fits in with Agile Development, in the [Agile Testing](#) section of his web page.

Robert C. Martin has been a software professional since 1970. He is president and founder of [Object Mentor Inc.](http://ObjectMentor.com), a firm of highly experienced consultants who offer XP and agile process consulting, software design consulting, training, and development services to major corporations around the world. In 1995 he

authored the best-selling book: Designing Object Oriented C++ Applications using the Booch Method, published by Prentice Hall. In 1997 he was chief editor of the book: Pattern Languages of Program Design 3, published by Addison Wesley. In 1999 he was the editor of "More C++ Gems" published by Cambridge Press. He is co-author of "XP in Practice", James Newkirk, and Robert C. Martin, Addison Wesley, 2001. He is currently working on "Principles, Patterns, and Practices of Agile Software Development" to be published by Prentice Hall in 2002. From 1996 to 1999 he was the editor-in-chief of the C++ Report. He has published dozens of articles in various trade journals, and is a regular speaker at international conferences and trade shows.

Ken Schwaber is president of Advanced Development Methods (ADM), a company dedicated to improving the software development practice. He is an experienced software developer, product manager, and industry consultant. Schwaber initiated the process management product revolution of the early 1990's and also worked with Jeff Sutherland to formulate the initial versions of the Scrum development process. Over the last five years he has formalized [Scrum](#), helped many organizations successfully deploy products and systems using Scrum, and co-authored *Scrum, Agile Software Development* with Mike Beedle (Prentice Hall, fall 2001).

Jeff Sutherland is Chief Technology Officer of PatientKeeper, an MIT based startup providing mobile/wireless applications to clinicians. He has been CTO or VP of Engineering in nine software technology companies and introduced improved agile development processes to each of them. His work on reusable business object components through the Object Management Group and the OOPSLA Business Object Workshop during the last decade has led to new database products, software development environments, CASE/OOAD tools, as well as vertical applications in multiple industries. As founder and VP of Engineering at Individual Inc. he launched personal NewsPage. As the former Senior VP of Engineering and CTO of IDX Systems, he developed new Internet applications for healthcare. His work on large component-based software projects has led to innovations in banking, insurance, library systems, aerospace, airline and aircraft leasing, nuclear engineering, and robotics. As an inventor of the SCRUM development process, his experience in organizational development has repeatedly enabled high-octane development teams to deliver world-class software products. Learn more about [Jeff](#).

Dave Thomas believes that the heart of a project is not the methodology but the people. Members of the team need to be technically competent, motivated, and aligned. This focus on the individual was one of the reasons he co-authored [The Pragmatic Programmer](#). But the technical side is not enough. Each team member must also be involved: involved in their work, involved in their team, and involved in their organization. Dave and Andy are now working on ways to help individuals make the transition to Agile methodologies.