



MEIC, 2021-22

# Large Scale Software Development

Ademar Aguiar, Hugo Ferreira, Daniel Pinho

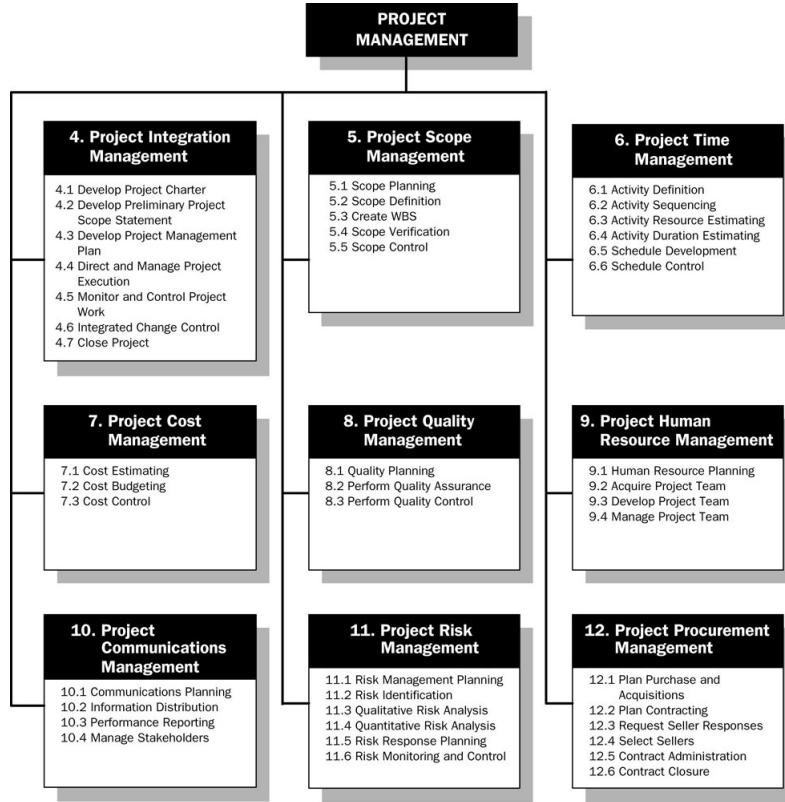
# Managing in a VUCA World



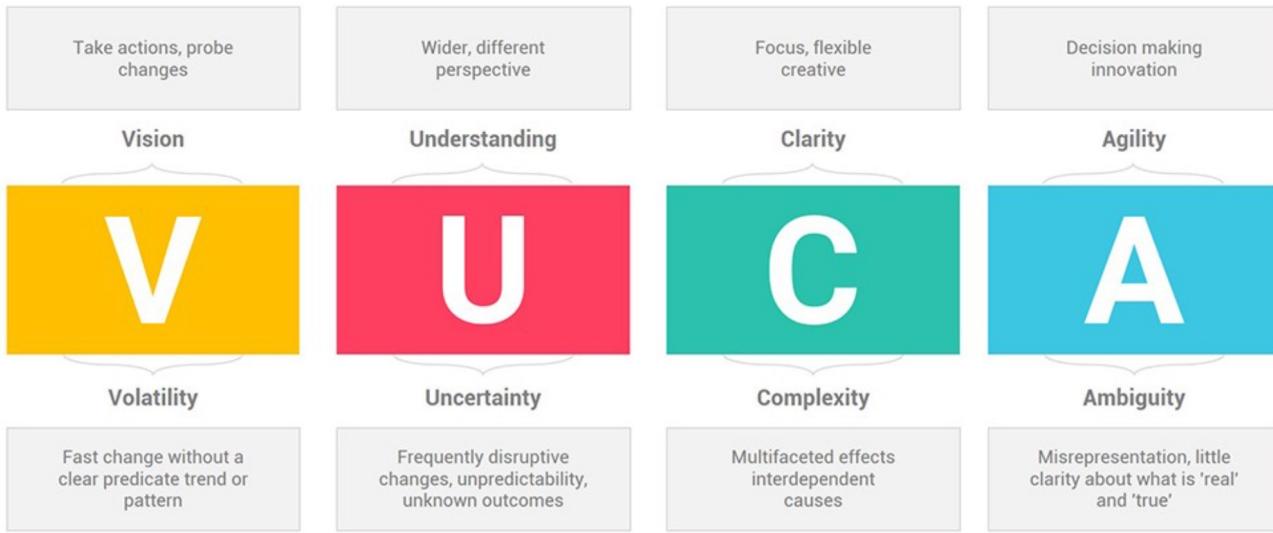
# Managing in a VUCA World

- > Volatility
  - > change is rapid and unpredictable in its nature and extent
- > Uncertainty
  - > the present is unclear and the future is uncertain
- > Complexity
  - > many different, interconnected factors come into play, with the potential to cause chaos and confusion
- > Ambiguity
  - > there is a lack of clarity or awareness about situations

# PMBOK Guide



# Managing in a VUCA World

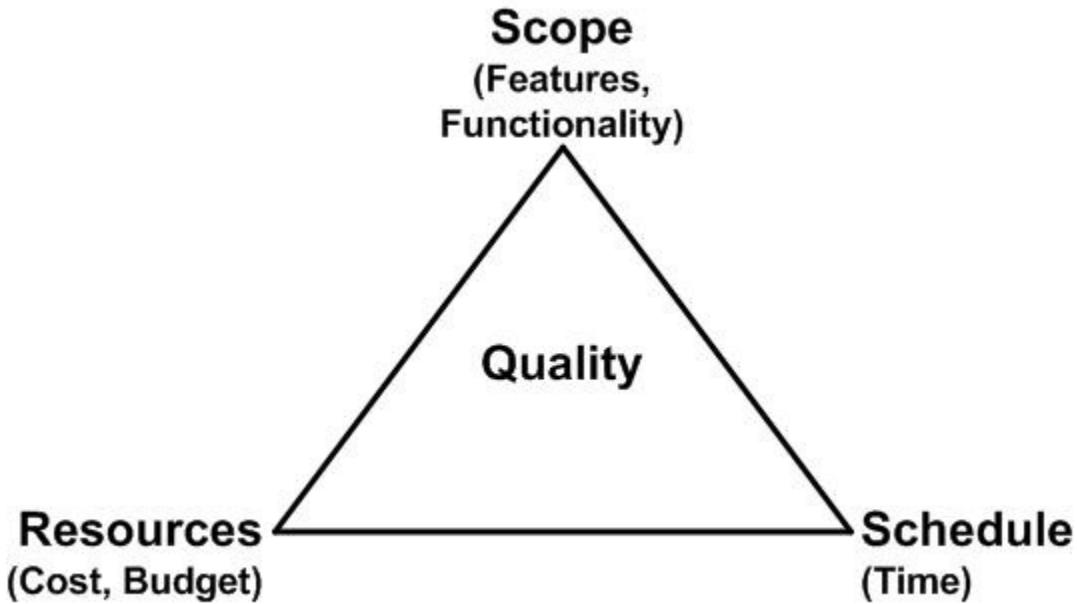


# Agility

# All we want is...

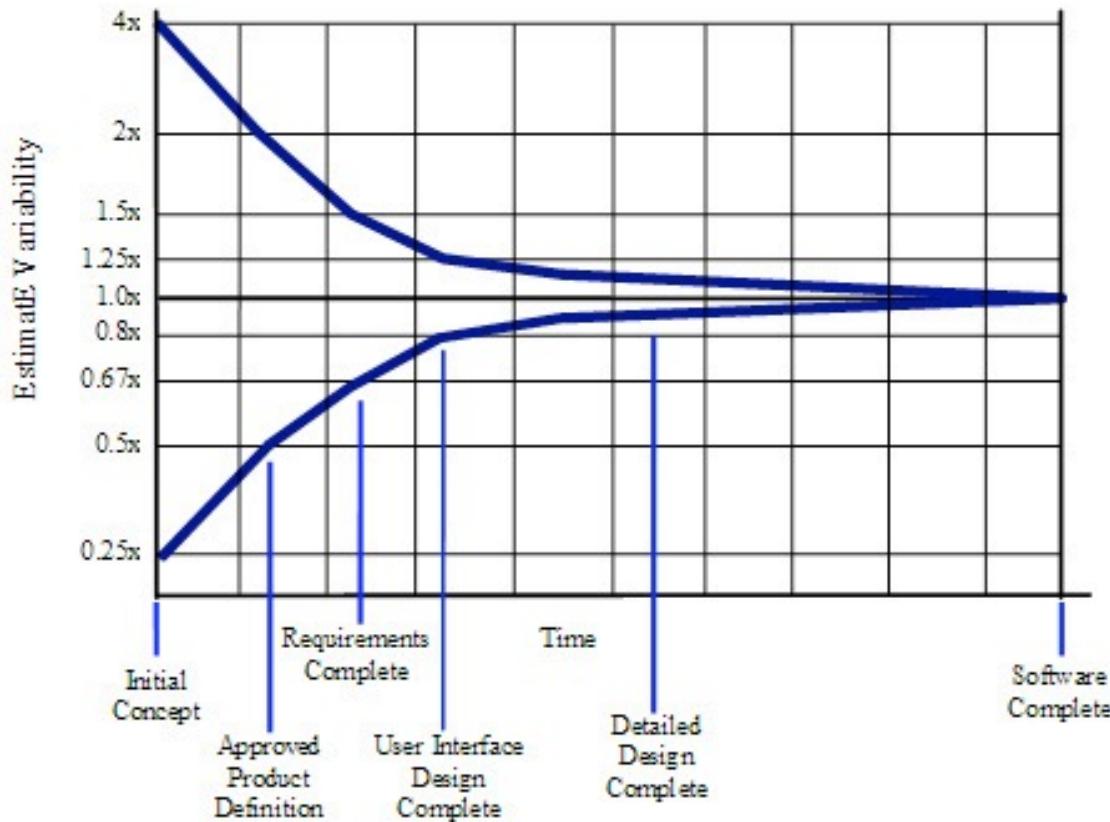
- › “high quality” of the product/service
- › “high productivity” of construction
- › “good predictability” of results

# The Iron Triangle

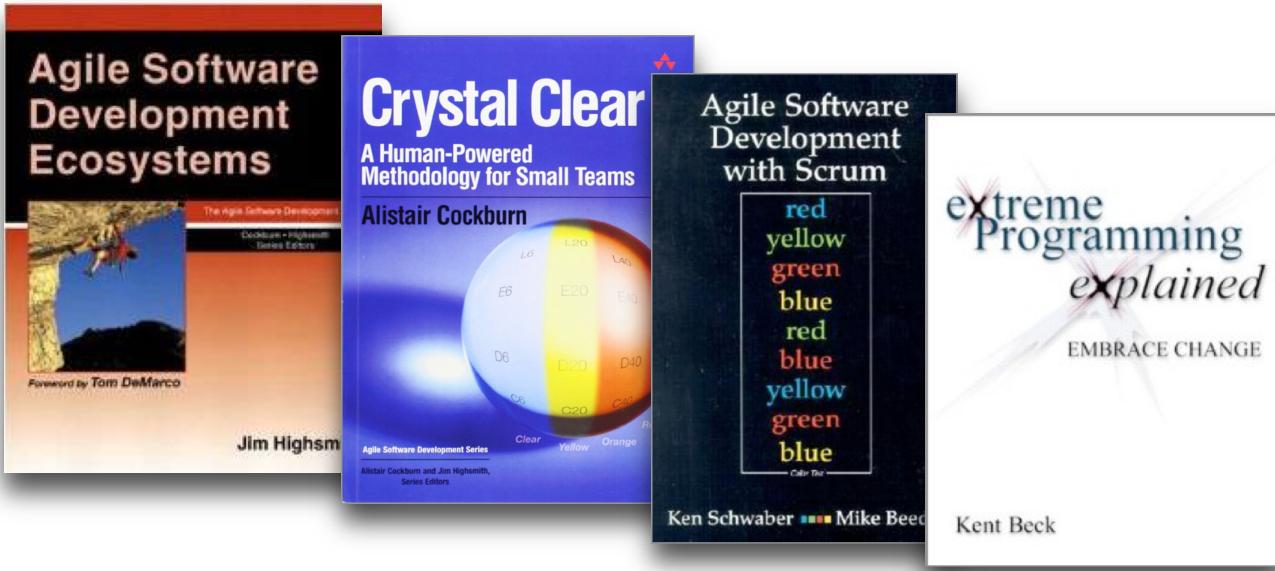


Copyright 2003-2006 Scott W. Ambler

# Scope & Variability



# Agile: ASD, Crystal Clear, Scrum, XP...



Not Secure — agilemanifesto.org

## Manifesto for Agile Software Development

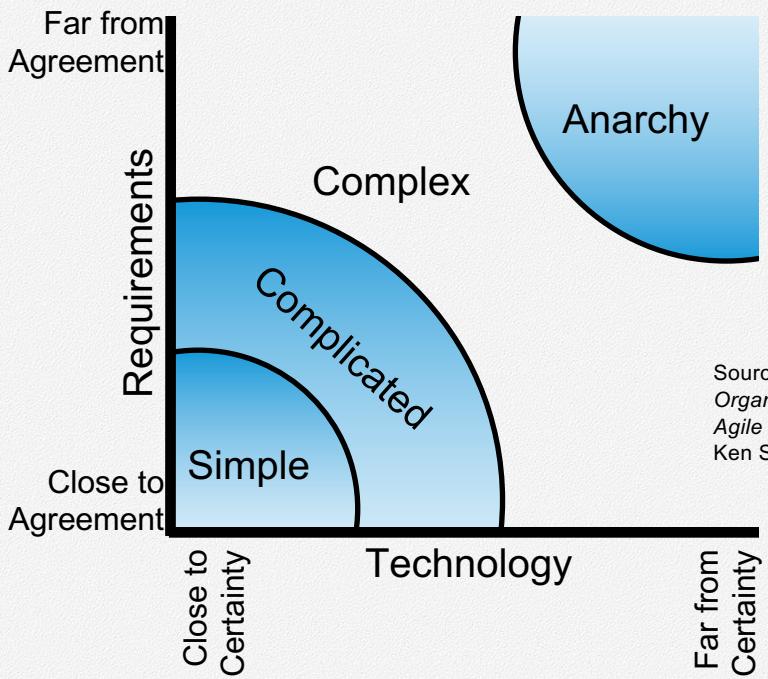
We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

- 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.

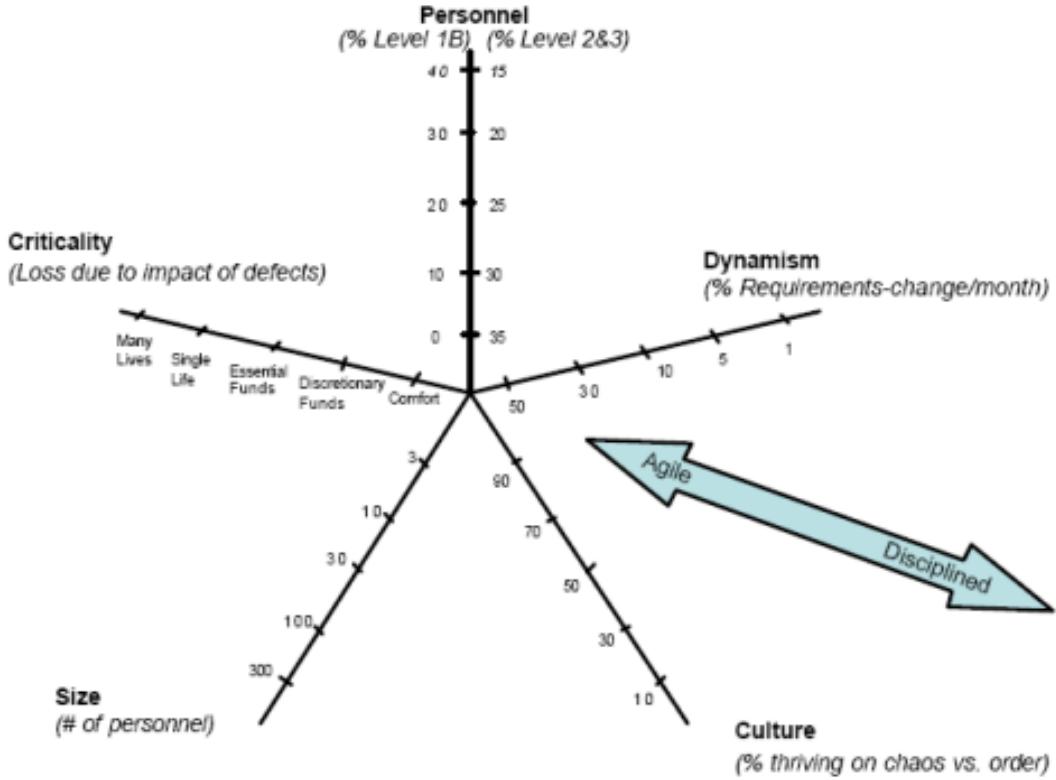
Kent Beck	James Grenning	Robert C. Martin
Mike Beedle	Jim Highsmith	Steve Mellor
Arie van Bennekum	Andrew Hunt	Ken Schwaber
Alistair Cockburn	Ron Jeffries	Jeff Sutherland
Ward Cunningham	Jon Kern	Dave Thomas
Martin Fowler	Brian Marick	

# Project Uncertainty



Source: *Strategic Management and Organizational Dynamics* by Ralph Stacey in *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

# How much agile?



SOFTWARE IS THE CORE OF BUSINESS

COMPANIES AT THE FOREFRONT ARE  
GIVING GLIMPSES INTO THE FUTURE

## TESLA'S PLAN TO KILL RANGE ANXIETY WITH A SOFTWARE UPDATE



U.PORTO

DEPARTAMENTO DE  
ENGENHARIA INFORMÁTICA

280group.com/product-management-blog/tesla-agile-development/

Tesla Agile Development: Product Management at its Best | 280 Group Product Management

HOME ABOUT CONTACT BLOG FREE STUFF CART

**Methodology**  
The 280 Group Optimal Product Process™

**Solutions**  
Assessments, Consulting, and Contractors

**Training**  
Product Management and Product Marketing

**Products**  
Toolkits, Self-Study Courses, and Books

**The Optimal Product Management™ BLOG**

Product Management Training & Consulting

Home > Product Management Blog > Tesla Agile Development: Product Management at its Best

**Tesla Agile Development: Product Management at its Best**

Written by: Brian Lawley | Posted on: Oct 4, 2016 | Category: Agile Product Management

**Tesla Agile Development: Version 8.0 Software and Product Management at its best.**

Last week I received the version 8 update from Tesla.

For those of you unfamiliar with how updates work with Tesla and the Model S or X, your car connects to your home wifi and then every month or so you get great new features downloaded.

In my case, since I purchased my model S one year ago I have received autopilot (the car accelerates, brakes and steers on its own based on the road and vehicles around it), summon (automatically opens my garage door and backs the car out for me) and constant updates that have improved small comfort features and fine-tuned autopilot based on the data sent

in 275    Twitter 217    f 217    G+ 7    Email

Search... 

Join 50K+ Product Managers reading the Optimal Product Management Newsletter

Subscribe And Download Our Product Management Resource Library

Enter your email..

SIGN UP NOW

Recent Blog Posts

U.PORTO

DEPARTAMENTO DE  
ENGENHARIA INFORMÁTICA

The screenshot shows a LinkedIn article page. At the top, the LinkedIn header is visible with the URL [www.linkedin.com/pulse/spacex-bringing-agile-bdd-final-frontier-timothy-brandt/](https://www.linkedin.com/pulse/spacex-bringing-agile-bdd-final-frontier-timothy-brandt/). The main image is a black and white photograph of a lit lightbulb against a dark background, with the word "Originate" overlaid in large, serif capital letters. Below the image, the title of the article is displayed: "SpaceX: Bringing Agile & BDD to the Final Frontier". The author's name, Timothy Brandt, is shown with a small profile picture, followed by "+ Follow" and "Senior Mobile Developer at Left Field Labs". Below the author information, there is a summary of the article content, mentioning the LA UNCUBED event and a discussion with Jannah Hosein, VP of Software Engineering for SpaceX. The bottom of the page includes a "Messaging" button and other LinkedIn navigation elements.

www.linkedin.com/pulse/spacex-bringing-agile-bdd-final-frontier-timothy-brandt/ (22) SpaceX: Bringing Agile & BDD to the Final Frontier | LinkedIn

Home Search My Network Jobs Messaging Notifications Me Learning Try Premium for Free Work



## SpaceX: Bringing Agile & BDD to the Final Frontier

Published on March 20, 2015

 Timothy Brandt | + Follow  
Senior Mobile Developer at Left Field Labs  
1 article

95 6 9

I recently attended the [LA UNCUBED](#) event at [The Annenberg Beach House](#) in Santa Monica, where Originate's very own [Angie Hayden](#) was speaking on "Designing Technology for People". Before her talk, I was treated to a discussion by Jannah Hosein, VP of Software Engineering for SpaceX, on "How SpaceX is Built."

For obvious reasons (does it get much cooler than exploring Space?), I found Hosein's talk fascinating, but was mostly intrigued by his explanation of their Software Development process. Mission Critical Software is a high-stakes game where bugs can have disastrous consequences including failed Missions, exploding rockets, and even possible loss of life. As such, it goes without saying that testing is paramount to ensure

Messaging

# THE MOBIUS LOOP

We believe the fixation for 'more, more, more' leads to more complexity and less ideas that have real impact. The more you know the why behind what you're creating, the more effective the outcome will be for business, people, society and the world.

At every step of the innovation journey you can choose a technique and tool to stimulate your transformational thinking. There is no one set way, just the way you want to get to ideas that make a difference.

**MOBIUS FOR INNOVATION**

**MOBIUS FOR STRATEGY**

**MOBIUS FOR PRODUCT**

# Survey Data Shows That Many Companies Are Still Not Truly Agile

MARCH 22, 2018

[SAVE](#) [SHARE](#) [TEXT SIZE](#) [PRINT](#)

In Today's Digital Economy, Agile Practices Can't Be Limited to Just the IT and Development Realms



By Surya Panditi, SVP and GM, Agile Management, CA Technologies

Agile practices have a vital part to play in the rapid delivery and continuous maintenance of software-driven products and services.

When software is ubiquitous, agile needs to be likewise. It's no use having technology that's responsive to the business if the business can't respond to technology and the demands coming from its customers.



FROM PLANNING TO DEVELOPMENT TO MANAGEMENT TO SECURITY, AT CA TECHNOLOGIES WE CREATE SOFTWARE THAT FUELS TRANSFORMATION FOR COMPANIES IN THE APPLICATION ECONOMY.

## The Right Conditions for Agile

CONDITIONS	FAVORABLE	UNFAVORABLE
<b>Market Environment</b>	Customer preferences and solution options change frequently.	Market conditions are stable and predictable.
<b>Customer Involvement</b>	Close collaboration and rapid feedback are feasible.  Customers know better what they want as the process progresses.	Requirements are clear at the outset and will remain stable.  Customers are unavailable for constant collaboration.
<b>Innovation Type</b>	Problems are complex, solutions are unknown, and the scope isn't clearly defined. Product specifications may change. Creative breakthroughs and time to market are important.  Cross-functional collaboration is vital.	Similar work has been done before, and innovators believe the solutions are clear. Detailed specifications and work plans can be forecast with confidence and should be adhered to. Problems can be solved sequentially in functional silos.
<b>Modularity of Work</b>	Incremental developments have value, and customers can use them. Work can be broken into parts and conducted in rapid, iterative cycles.  Late changes are manageable.	Customers cannot start testing parts of the product until everything is complete.  Late changes are expensive or impossible.
<b>Impact of Interim Mistakes</b>	They provide valuable learning.	They may be catastrophic.

SOURCE BAIN & COMPANY  
FROM "EMBRACING AGILE," MAY 2016

© HBR.ORG

# How Agile Teams Can Help Turnarounds Succeed

by Darrell K. Rigby, Simon Henderson, and Marco D'Avino

JULY 02, 2018



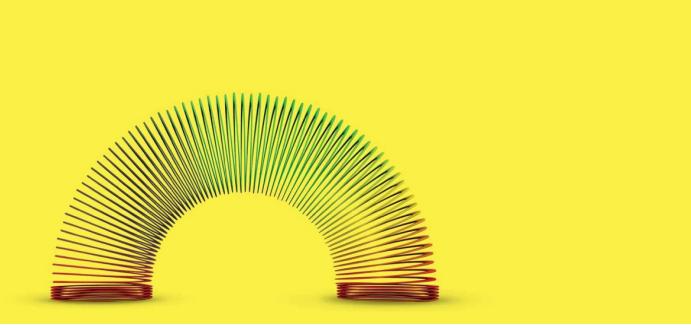
PATRICK SMITH/GETTY IMAGES

Agile – the management approach that relies on small, entrepreneurial, close-to-the-customer teams – has a reputation that reflects its rapid adoption in software development. It's for techies. It's for hip Silicon Valley startups. It is most definitely not



To mitigate such risks, agile turnaround leaders typically take five actions:

- **They communicate – even over-communicate – the strategic ambition to a broader range of people.** Since leaders know they will be delegating far more decisions, they ensure that people making those decisions are fully aligned on what to do and why to do it. That way, how they do it can be flexible yet faithful to the strategy.
- **They serve as coaches, not commanders.** In a turnaround, people are afraid to make mistakes, so they bring decisions to their boss. Strong leaders act as coaches and trainers to expand the quantity and quality of decision makers.
- **They strengthen lines of communication among the teams.** To avoid becoming a bottleneck, they develop tools that help everyone see what all the teams are doing at any time.
- **They accelerate learning loops, emphasizing progress over perfection.** They embrace unpredictability and don't get slowed by excessive precision. Adequate approximations will do.
- **They shift measurement and reward systems to larger teams.** One of the biggest problems in a crisis is that people focus on doing what is best for the individuals they know and trust – which often means people in their own silos. Effective turnaround leaders enlarge circles of trust and collaboration.



CHANGE MANAGEMENT

## Agile at Scale

by Darrell K. Rigby, Jeff Sutherland, and Andy Noble

FROM THE MAY-JUNE 2018 ISSUE

**B**y now most business leaders are familiar with agile innovation teams. These small, entrepreneurial groups are designed to stay close to customers and adapt quickly to changing conditions. When implemented correctly, they almost always result in higher team productivity and morale, faster time to market, better quality, and lower risk than traditional approaches can achieve.

Naturally, leaders who have experienced or heard about agile teams are asking some compelling questions. What if a company were to launch dozens, hundreds, or even thousands of agile teams throughout the organization? Could whole segments of the

www.pmi.org/learning/featured-topics/agile

**Project Management Institute**

HOME ABOUT JOIN PMI CONTACT **LOG IN** **REGISTER**

Search

myPMI Certifications Membership Learning Events Business & Government PMBOK® Guide & Standards Store

Learning » Featured Topics

# Agile Practices

Agile approaches to project management aim for early, measurable ROI through defined, iterative delivery of product increments. They feature continuous involvement of the customer throughout the product development cycle. Although agile has its roots in software and IT, agile adoption is growing and expanding in a wide range of industries.

[Browse or search all Agile Practices content](#)

---

**ARTICLE** | Agile Practices, PMO | 1 September 2018

PM Network

**Following the Compass**

PM Network interviews Jorge Stone, PMO director at GM Mexico in Mexico City.

---

**ARTICLE** | Agile Practices, Time Management, Cost Control | 1 September 2018

PM Network

**Snap Precision**

By Fewell, Jesse | If you've worked on agile projects, you've likely heard an agile champion make bizarre statements about estimating a budget and schedule. When you press further for estimates, you might get an even...

---



Problem Solver – Blend Agile an... 

**Two Powerful Reasons to Blend Agile and Waterfall**

Every project is different and a "one size fits all" approach may not always be the right way. In this Problem Solver video, Dave Prior, PMP, PMI-ACP—Agile Consultant and podcaster, explains the benefits

www.pmi.org/pmbok-guide-standards/practice-guides/agile

Project Management Institute

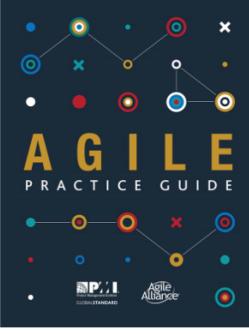
HOME ABOUT JOIN PMI CONTACT LOG IN REGISTER

Search

myPMI Certifications Membership Learning Events Business & Government PMBOK® Guide & Standards Store

PMBOK® Guide and Standards » Practice Guides

# Agile Practice Guide

 PRACTICE GUIDE | Agile Practices | September 2017

How to cite this article:  
Agile Practice Guide (2017).

Receive the *Agile Practice Guide* when you purchase the *PMBOK® Guide – Sixth Edition*.

[ORDER NOW](#)

Created in partnership with Agile Alliance®, the *Agile Practice Guide\** provides tools, situational guidelines and an understanding of the various agile approaches available to enable better results. It is especially useful for those project managers accustomed to a more traditional environment to adapt to a more agile approach.

The *Agile Practice Guide* contains the following sections:

- **An Introduction to Agile** describes the *Agile Manifesto* mindset, values and principles. It also covers the concepts of definable and high-uncertainty work, and the correlation between lean, the Kanban Method and agile approaches.
- **Life Cycle Selection** introduces the various life cycles discussed in the practice guide and covers suitability filters, tailoring guidelines and common combinations of approaches.
- **Implementing Agile: Creating an Agile Environment** talks about critical factors to consider when creating an agile environment such as servant leadership and team composition.

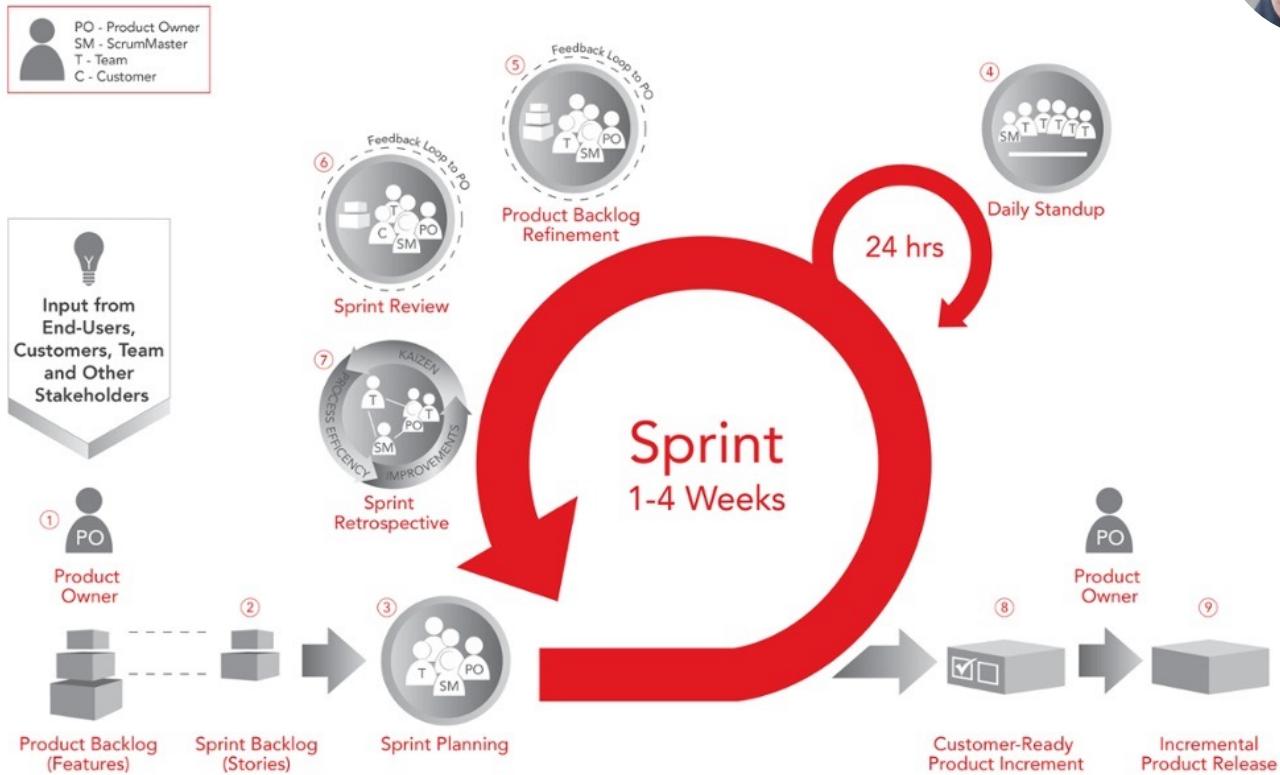
[Like](#) [Tweet](#) [Share](#) [G+](#)

## Errata Sheets

Find the latest corrections and updates to the Agile Practice Guide

# Scrum

# Scrum



# Scrum: foundations

- › Trust
- › Focus
- › Transparency
- › Courage
- › Respect
- › Commitment
- › Trust :)

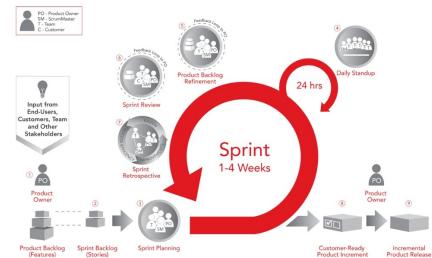
# Team

- > Typically 5-9 people
- > Cross-functional:
  - > Programmers, testers, user experience designers, etc.
- > Members should be full-time
  - > May be exceptions (e.g., database administrator)
- > Teams are self-organizing
  - > Ideally, no titles but rarely a possibility
- > Membership should change only between sprints



# Scrum Master

- > Represents management to the project
- > Responsible for enacting Scrum values and practices
- > Removes impediments
- > Ensure that the team is fully functional and productive
- > Enable close cooperation across all roles and functions
- > Shield the team from external interferences

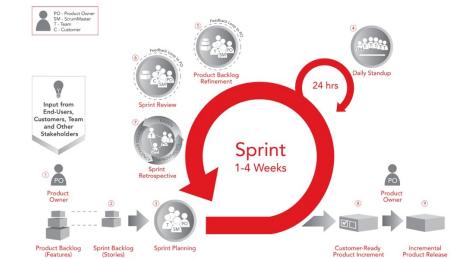
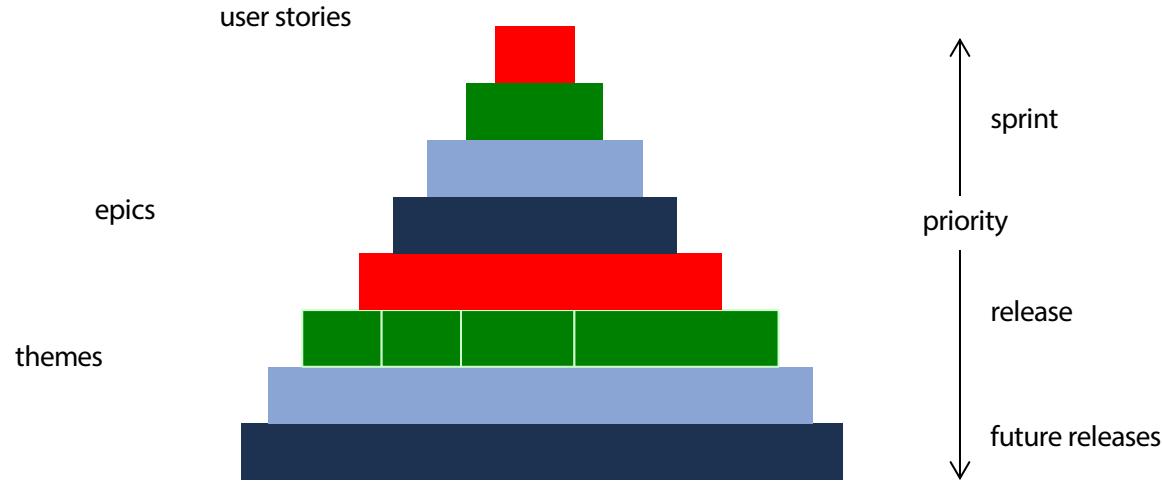


# Product Owner

- > Define the features of the product
- > Decide on release date and content
- > Be responsible for the profitability of the product (ROI)
- > Prioritize features according to market value
- > Adjust features and priority every iteration, as needed
- > Accept or reject work results



# Themes, epics, user stories -> priorities

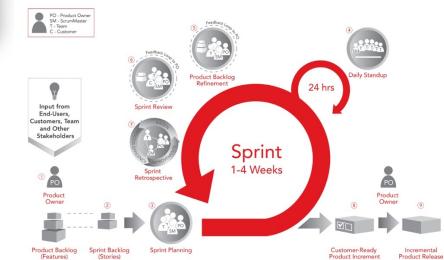


# User Stories

- > Write the user stories in a template such as:
  - > As a <user role>,
  - > I want <goal>
  - > so that <reason>.
- > **INVEST** in high quality user stories, i.e.:
  - > Independent
  - > Negotiable
  - > Valuable
  - > Estimable
  - > Small
  - > Testable



# Sprint Planning



# Sprint Review

- > Team presents what it accomplished during the sprint
- > Typically takes the form of a demo of new features or underlying architecture
- > Informal
  - > 2-hour prep time rule
  - > No slides
- > Whole team participates
- > Invite the world

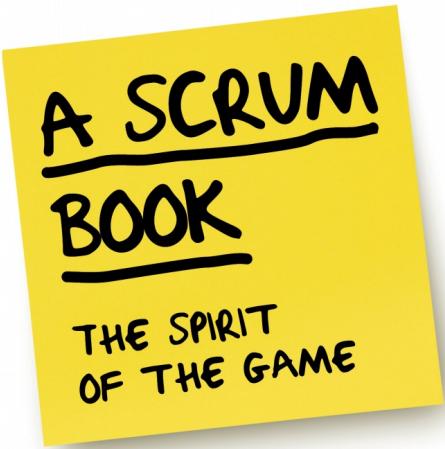


# Scrum: key practices

- > Organize work in *short cycles*.
- > The management doesn't *interrupt* the team during a work cycle.
- > The team reports to *the client* not the manager.
- > The team estimates *how much time* work will take.
- > The team decides *how much* work they can do in an iteration.
- > The team decides *how to* do the work in the iteration.
- > The team *measures its own performance*.
- > Define work goals *before* each cycle starts.
- > Define work goals through *user stories*.
- > Systematically *remove impediments*.

> Source: Steven Denning: Scrum is a Major Management Discovery. Forbes Blog. April 29, 2011.





Jeff Sutherland  
James O. Coplien  
The Scrum Patterns Group  
*edited by Adaobi Obi Tulton*

<https://pragprog.com/book/jcscrum/a-scrum-book>

**A Scrum Book**  
The Spirit of the Game

Jeff Sutherland  
James O. Coplien  
  
Lachlan Heasman  
Mark den Hollander  
Cesário Ramos

and The Scrum Patterns Group:

Esther Vervloed, Neil Harrison, Kiro Harada, Joseph Yoder,  
June Kim, Alan O'Callaghan, Mike Beedle, Gertrud Bjørnvig,  
Dina Friis, Ville Reijonen, Gabrielle Benefield, Jens Østergaard,  
Veli-Pekka Eloranta, Evan Leonard, and Ademar Aguiar

[The Pragmatic Bookshelf](#)  
Raleigh, North Carolina

# ScrumPLoP, since 2010



# 94 patterns within 2 pattern languages

## Product Organization Pattern Language & Value Stream Pattern Language

- § 1 The Spirit of the Game
- § 2 The Mist
- § 3 Fertile Soil
- § 4 Conway's Law
- § 5 Birds of a Feather
- § 6 Involve the Managers
- § 7 Scrum Team
- § 8 Collocated Team
- § 9 Small Teams
- § 10 Cross-Functional Team
- § 11 Product Owner
- § 12 Product Owner Team
- § 13 Development Partnership
- § 14 Development Team
- § 15 Stable Teams
- § 16 Autonomous Team
- § 17 Self-Organizing Team
- § 18 Mitosis
- § 19 Scrum Master
- § 20 Oyatsu Jinja (おやつ神社)
- § 21 Small Red Phone
- § 22 Scrum (Master) Coach
- § 23 Fixed Work
- § 24 Sprint Planning
- § 25 Swarming: One-Piece Continuous Flow
- § 26 Kaizen Pulse
- § 27 Remove the Shade
- § 28 Pop the Happy Bubble
- § 29 Daily Scrum
- § 30 Scrum Master Incognito
- § 31 Norms of Conduct
- § 32 Emergency Procedure

- § 33 Illegitimus Non Interruptus
  - § 34 Scrum of Scrums
  - § 35 Sprint Review
  - § 36 Sprint Retrospective
  - § 37 MetaScrum
  - § 38 Product Pride
  - § 39 Vision
  - § 40 Impediment List
  - § 41 Value Stream
  - § 42 Set-Based Design
  - § 43 Sprint Burndown Chart
  - § 44 Scrum Board
  - § 45 Product Roadmap
  - § 46 Sprint
  - § 47 Organizational Sprint Pulse
  - § 48 Release Plan
  - § 49 Release Range
  - § 50 ROI-Ordered Backlog
  - § 51 High Value First
  - § 52 Change for Free
  - § 53 Money for Nothing
  - § 54 Product Backlog
  - § 55 Product Backlog Item
  - § 56 Information Radiator
  - § 57 Pigs Estimate
  - § 58 Small Items
  - § 59 Granularity Gradient
  - § 60 Estimation Points
  - § 61 Fixed-Date PBI
  - § 62 Vacation PBI
  - § 63 Enabling Specification
  - § 64 Refined Product Backlog
- § 65 Definition of Ready
  - § 66 Yesterday's Weather
  - § 67 Running Average Velocity
  - § 68 Aggregate Velocity
  - § 69 Specialized Velocities
  - § 70 Updated Velocity
  - § 71 Sprint Goal
  - § 72 Sprint Backlog
  - § 73 Sprint Backlog Item
  - § 74 Teams that Finish Early Accelerate Faster
  - § 75 Production Episode
  - § 76 Developer-Ordered Work Plan
  - § 77 Follow the Moon
  - § 78 Visible Status
  - § 79 Dependencies First
  - § 80 Good Housekeeping
  - § 81 Whack the Mole
  - § 82 Definition of Done
  - § 83 Team Sprint
  - § 84 Responsive Deployment
  - § 85 Regular Product Increment
  - § 86 Release Staging Layers
  - § 87 Testable Improvements
  - § 88 One Step at a Time
  - § 89 Value Areas
  - § 90 Value Stream Fork
  - § 91 Happiness Metric
  - § 92 Scrumming the Scrum
  - § 93 Greatest Value
  - § 94 Product Wake

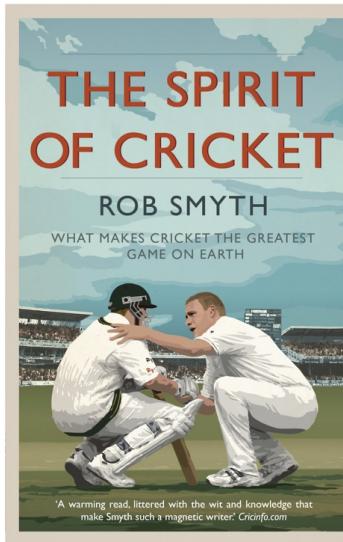
# Why we need Scrum Patterns?

- > Finding where to start implementing Scrum can be a *mystery*, and finding where to improve can be a *challenge*.
- > The book offers proven solutions called *patterns* that the authors have distilled while observing many Scrum Teams – both their successes and failures.
- > These solutions will help you implement and improve your use of Scrum whether you are a *beginner* or an *experienced* practitioner.
- > The book stands on Scrum's deepest foundations and reflects contributions from many early shapers of Scrum, including one of its inventors.

*adapted from "Introduction" at scrumplor.org*

## ¶1 The Spirit of the Game

Confidence stars: \*\*



... the Scrum framework does not have all the answers, which means that the team cannot look to Scrum for direction when it does not give a final answer.



Written rules might give concrete guidance for how to work together, but *spirit* is part of culture that guides interactions and may be discerned only when ignored or violated.

Cricket is a game that owes much of its unique appeal to the fact that it

## discussion

## forces

Scrum requires a spirit of interaction between people that can be difficult to define. This spirit is part of the culture of the organization and may be indiscernible for the people within the culture. Though it may be difficult to define the spirit is easy to recognize when it is broken.

Changing habits is difficult. Moving from a command-and-control organization to [#16 Autonomous Teams](#) might feel uncomfortable for developers as they are faced with the need to think more for themselves, and it might make managers feel that they are losing power as the teams can make decisions without their approval. Individuals in the organization might balk at changing

Scrum is about teamwork, but some prefer to pursue personal success instead of team success, or even broader definitions of success.

## solution

*Therefore:*

When using Scrum the product community must focus on explicitly creating a culture in the organization where people know and follow the spirit of Scrum.

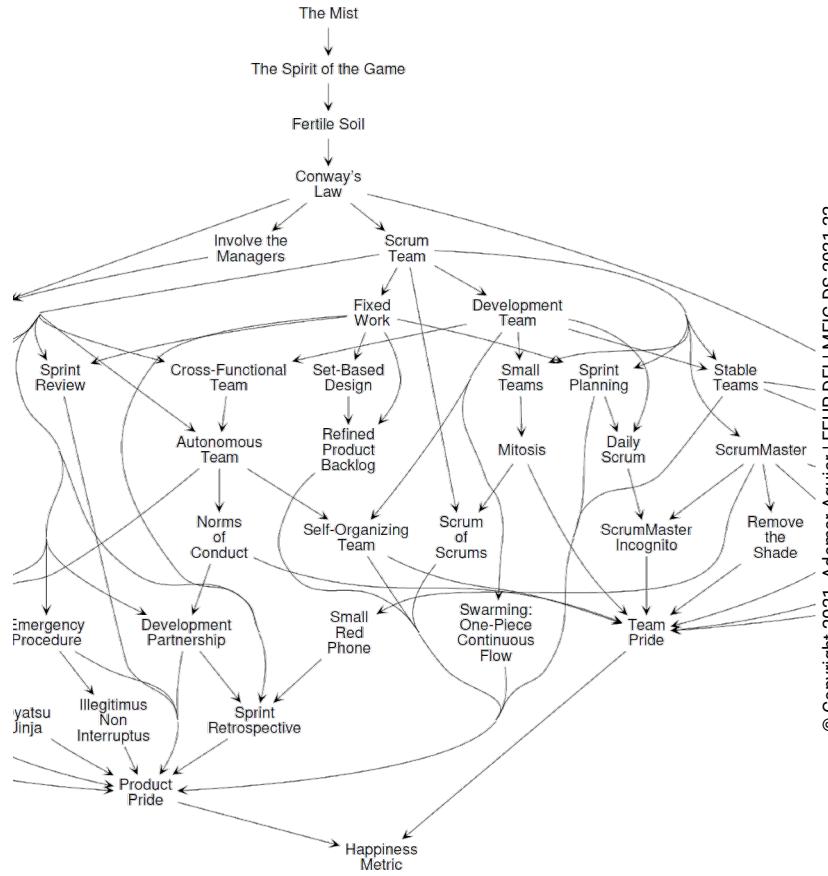
## resulting context

within the spirit of Scrum. When starting to use the Scrum framework the team will find it challenging to work within the spirit. It will feel uncomfortable for people, and will be arduous — again, it's about habits. To overcome this challenge it is essential to start with good [#19 ScrumMasters](#) and [#11 Product Owners](#), and it is necessary for everyone on the team to support each other to work within the spirit. A new culture emerges, where the spirit will be inherent in the ways of working and interacting.

In Scrum and Cricket there are clear rules for the game; in both, it is essential that the spirit is a guide for the people using these rules.

# Product Organization Pattern Language

37 patterns + 2 sequences to build your Scrum Team and other associations of people that are common to Scrum practice.



# Product Organization Sequence

- ¶1 THE SPIRIT OF THE GAME
- ¶2 THE MIST
- ¶95 COMMUNITY OF TRUST
- ¶13 FERTILE SOIL
- ¶14 CONWAY'S LAW
- ¶15 BIRDS OF A FEATHER
- ¶16 INVOLVE THE MANAGERS
- ¶7 SCRUM TEAM
- ¶11 PRODUCT OWNER
- ¶13 DEVELOPMENT PARTNERSHIP
- ¶14 DEVELOPMENT TEAM

- ¶119 SCRUM MASTER
- ¶124 SPRINT PLANNING
- ¶125 SWARMING: ONE-PIECE CONTINUOUS FLOW
- ¶129 DAILY SCRUM
- ¶132 EMERGENCY PROCEDURE
- ¶133 ILLEGITIMUS NON INTERRUPTUS
- ¶134 SCRUM OF SCRUMS \*
- ¶135 SPRINT REVIEW
- ¶136 SPRINT RETROSPECTIVE
- ¶137 METASCRUM
- ¶138 PRODUCT PRIDE
- ¶118 TEAM PRIDE

# ¶3 Fertile Soil



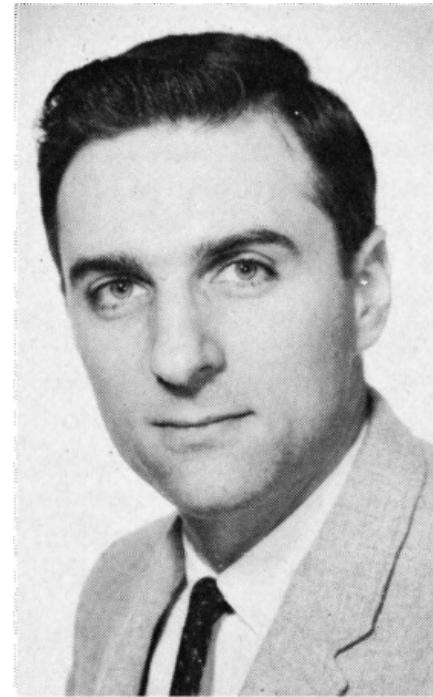
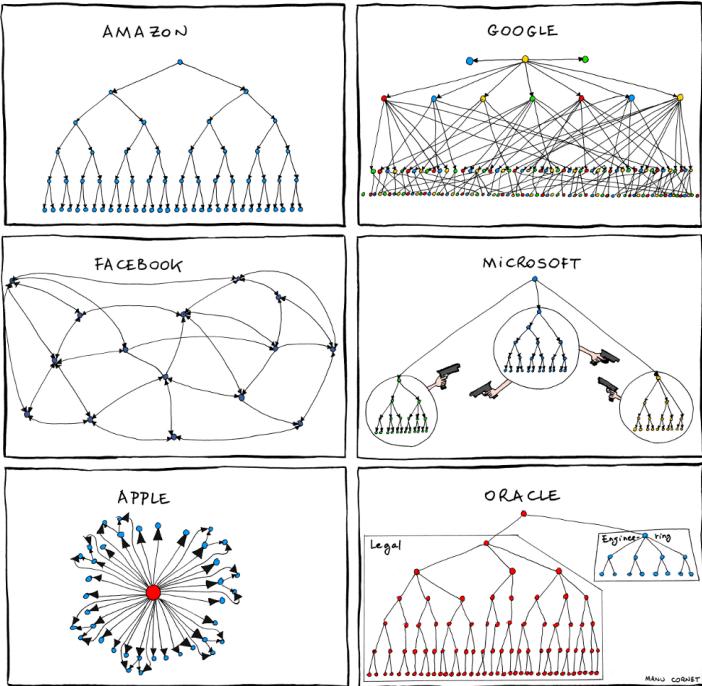
# ¶3 Fertile Soil

It is the moment by moment interactions of people working together on a product that build and sustain product organizations. Interaction qualities both reflect and define organization qualities.

*Therefore:*

Demonstrate the values of **Commitment, Focus, Openness, Respect** and **Courage** in your day to day behaviors and interactions (*Agile Software Development with Scrum [SB01]*). This helps create a virtuous circle that supports **transparency**, and that makes it possible to build on the **inspection and adaptation** at the core of effective Scrum efforts.

# ¶4 Conway's Law



## ¶4 Conway's Law

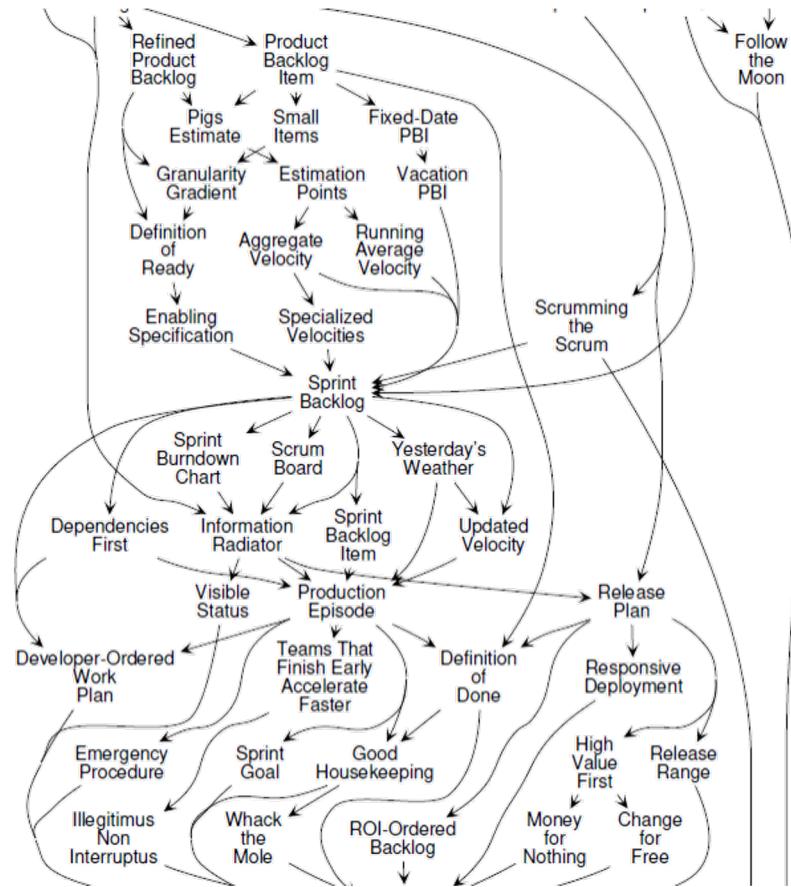
Effective communication and feedback are at the heart of effective complex system development, and the organization structure should be optimized for the most crucial paths of communication. Communication and feedback, together with self-organization, are the agile heart.

*Therefore:*

**Organize** the work force into ***Small Teams*** of more or less **five people**, **partitioned** according to the most important **concerns** for the creation of **value** by the enterprise. Supplement this structure with a small number of crosscutting structures for secondary but important concerns, never forgetting that these structures are only optimizations in what is otherwise an open environment of unconstrained cooperation.

# Value Stream Pattern Language

56 patterns + 2 sequences to build relationships between steps of product construction and the artifacts that represent parts of the process.



# Value Stream Sequence

- ¶2 THE MIST
- ¶39 VISION
- ¶41 VALUE STREAM
- ¶45 PRODUCT ROADMAP
- ¶46 SPRINT
- ¶54 PRODUCT BACKLOG
- ¶55 PRODUCT BACKLOG ITEM
- ¶71 SPRINT GOAL
- ¶72 SPRINT BACKLOG
- ¶75 PRODUCTION EPISODE
- ¶84 RESPONSIVE DEPLOYMENT
- ¶135 SPRINT REVIEW
- ¶136 SPRINT RETROSPECTIVE \*
- ¶185 REGULAR PRODUCT INCREMENT
- ¶186 RELEASE STAGING LAYERS
- ¶189 VALUE AREAS
- ¶190 VALUE STREAM FORK
- ¶193 GREATEST VALUE
- ¶194 PRODUCT WAKE

# ¶41 Value Stream



# ¶41 Value Stream

The development process and the path from conception to market are as important to product success as the product idea itself.

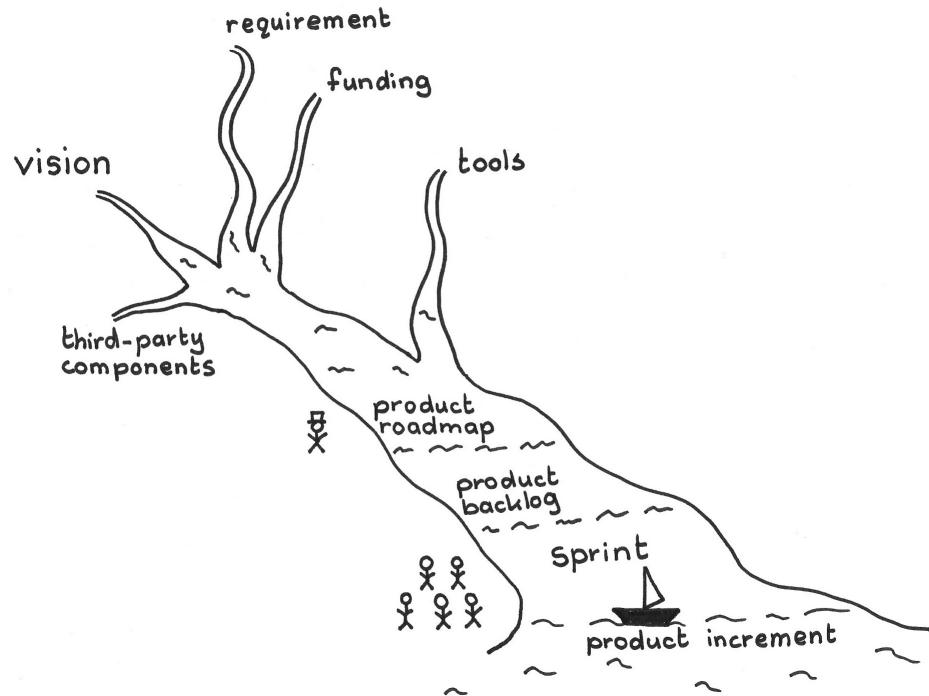
Therefore:

The **Product Owner** creates an **ecosystem** whose elements build on each other to **deliver ever-increasing value** in an evolving product. At the center of this ecosystem, there is a process to deliver ongoing and evolving streams of product increments to stakeholders: the **Value Stream**.

# #41 Value Stream

The building blocks include the artifacts (backlogs, product components) and the processes that guide and coordinate the creation of these artifacts (through events and joint work).

The people build the processes that guide the creation of the artifacts, themselves enact them, and are instrumental in evolving them.



# #54 Product Backlog



# ¶54 Product Backlog

At any given time, it is important that the whole team is aligned about what they need to deliver next, and that the direction be transparent. The *Development Team* can't do everything at once – in fact, you can't even do two things well at the same time. It's important to maintain focus.

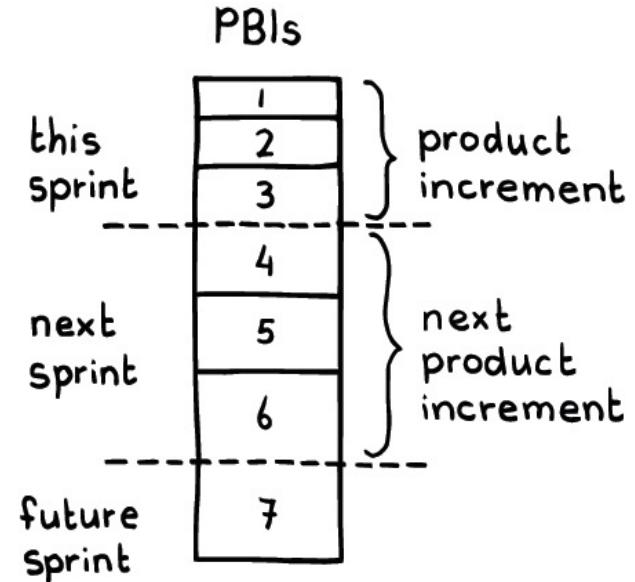
*Therefore:*

For each product, **create a single ordered list** called the ***Product Backlog*** – a list of *Regular Product Increment* contributions called **¶55 Product Backlog Items (PBIs)**, arranged in delivery order.

# ¶54 Product Backlog

The *Product Backlog* details the *Product Owner* vision for the product according to the expectations of all stakeholders, with each *PBI* describing a contribution to a deliverable *Regular Product Increment*.

The *Product Owner* has final authority over the content of the *Product Backlog*; however, he or she usually develops the *Product Backlog* in a joint effort with the *Development Team* during regular events convened to maintain a ¶64 *Refined Product Backlog*, as well as during ¶24 *Sprint Planning*.



# Product Backlog Sequence

- ¶50 ROI-ORDERED BACKLOG
- ¶51 HIGH VALUE FIRST
- ¶55 PRODUCT BACKLOG ITEM
- ¶56 INFORMATION RADIATOR**
- ¶59 GRANULARITY GRADIENT
- ¶63 ENABLING SPECIFICATION
- ¶64 REFINED PRODUCT BACKLOG
- ¶65 DEFINITION OF READY**

# 94 patterns within 2 pattern languages

## Product Organization Pattern Language & Value Stream Pattern Language

§ 1 The Spirit of the Game

§ 2 The Mist

§ 3 Fertile Soil

§ 4 Conway's Law

§ 5 Birds of a Feather

§ 6 Involve the Managers

§ 7 Scrum Team

§ 8 Collocated Team

§ 9 Small Teams

§ 10 Cross-Functional Team

§ 11 Product Owner

§ 12 Product Owner Team

§ 13 Development Partnership

§ 14 Development Team

§ 15 Stable Teams

§ 16 Autonomous Team

§ 17 Self-Organizing Team

§ 18 Mitosis

§ 19 Scrum Master

§ 20 Oyatsu Jinja (おやつ神社)

§ 21 Small Red Phone

§ 22 Scrum (Master) Coach

§ 23 Fixed Work

§ 24 Sprint Planning

§ 25 Swarming: One-Piece Continuous Flow

§ 26 Kaizen Pulse

§ 27 Remove the Shade

§ 28 Pop the Happy Bubble

§ 29 Daily Scrum

§ 30 Scrum Master Incognito

§ 31 Norms of Conduct

§ 32 Emergency Procedure

§ 33 Illegitimus Non Interruptus

§ 34 Scrum of Scrums

§ 35 Sprint Review

§ 36 Sprint Retrospective

§ 37 MetaScrum

§ 38 Product Pride

§ 39 Vision

§ 40 Impediment List

§ 41 Value Stream

§ 42 Set-Based Design

§ 43 Sprint Burndown Chart

§ 44 Scrum Board

§ 45 Product Roadmap

§ 46 Sprint

§ 47 Organizational Sprint Pulse

§ 48 Release Plan

§ 49 Release Range

§ 50 ROI-Ordered Backlog

§ 51 High Value First

§ 52 Change for Free

§ 53 Money for Nothing

§ 54 Product Backlog

§ 55 Product Backlog Item

§ 56 Information Radiator

§ 57 Pigs Estimate

§ 58 Small Items

§ 59 Granularity Gradient

§ 60 Estimation Points

§ 61 Fixed-Date PBI

§ 62 Vacation PBI

§ 63 Enabling Specification

§ 64 Refined Product Backlog

§ 65 Definition of Ready

§ 66 Yesterday's Weather

§ 67 Running Average Velocity

§ 68 Aggregate Velocity

§ 69 Specialized Velocities

§ 70 Updated Velocity

§ 71 Sprint Goal

§ 72 Sprint Backlog

§ 73 Sprint Backlog Item

§ 74 Teams that Finish Early Accelerate Faster

§ 75 Production Episode

§ 76 Developer-Ordered Work Plan

§ 77 Follow the Moon

§ 78 Visible Status

§ 79 Dependencies First

§ 80 Good Housekeeping

§ 81 Whack the Mole

§ 82 Definition of Done

§ 83 Team Sprint

§ 84 Responsive Deployment

§ 85 Regular Product Increment

§ 86 Release Staging Layers

§ 87 Testable Improvements

§ 88 One Step at a Time

§ 89 Value Areas

§ 90 Value Stream Fork

§ 91 Happiness Metric

§ 92 Scrumming the Scrum

§ 93 Greatest Value

§ 94 Product Wake



Jeff Sutherland  
James O. Coplien  
The Scrum Patterns Group  
*edited by Adaobi Obi Tulton*

<https://pragprog.com/book/jcscrum/a-scrum-book>

## A Scrum Book

The Spirit of the Game

Jeff Sutherland  
James O. Coplien

Lachlan Heasman  
Mark den Hollander  
Cesário Ramos

and The Scrum Patterns Group:

Esther Vervloed, Neil Harrison, Kiro Harada, Joseph Yoder,  
June Kim, Alan O'Callaghan, Mike Beedle, Gertrud Bjørnvig,  
Dina Friis, Ville Reijonen, Gabrielle Benefield, Jens Østergaard,  
Veli-Pekka Eloranta, Evan Leonard, and Ademar Aguiar

[The Pragmatic Bookshelf](#)  
Raleigh, North Carolina

# References

The ScrumPLoP site, The Scrum Patterns Group, <http://www.scrumplop.org>, 2010-2017.

The Scrum Guide, Jeff Sutherland and Ken Schwaber, <http://scrumguides.org>, 2017.

Scrum: The Art of Doing Twice the Work in Half the Time, Jeff Sutherland, 2014.

Secrets of Scrum, Gertrud Bjornvig & James Coplien, slideshare, 2014.

Alexander, A Pattern Language, Oxford, 1977.

# FEUP.DEI

