



# SCRUM

**Professional Scrum Master**

**PSM-1 Exam Prep**

**(Based on 2020 Scrum Guide)**

***Fereydoun Fardad***

***(MSc, PE, PMP, RMP, PBA, ACP, PRINCE2, IPMA-C, PSM, SFC, SFPC, SMPC, CASF, EBCL \*A, ICPA, OCB A)***

# Fereydoun Fardad



- مدرس، سخنران، نویسنده و مشاور بهبود فردی و مدیریت پروژه، کسب و کار و تعالی سازمانهای پروژه محور
- مدیر PMO، مدرس و مدیر پروژه‌های موسسه مدیریت پروژه آریانا
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- عضو موسسه PMI، انجمن مدیریت پروژه ایران و سازمان نظام مهندسی ساختمان استان تهران
- عضو تیم بازنگري ویرایش‌های PMBOK 6,7 و استانداردهای مدیریت ریسک، تخمین و مدیریت زمانبندی PMI
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- دارای مدارک مدیریت مدیریت پروژه چابک SMPC, SFPC از موسسه CertiProf آمریکا
- دارای مدرک مدیریت پروژه چابک SFC از موسسه PM Study آمریکا
- دارای مدرک مدیریت پروژه چابک CASE از موسسه SkillFront آمریکا
- دارای گواهی‌نامه سطح A شایستگی مدیریت اتحادیه اروپا (EBCL\*A)
- دارای مدرک ارزیاب حرفه‌ای ICPA از IMI-ADC
- دارای مدرک سرمیزی ISO 21500 از موسسه G-Certi
- دارای مدرک ارزیاب حرفه‌ای مدل PM-Delta (OCB) از انجمن بین‌المللی مدیریت پروژه (IPMA)
- ارزیاب و سرارزیاب جایزه تعالی مدیریت پروژه ایران (PEM) و جایزه ملی بهره‌وری و تعالی سازمانی (EFQM)
- ارزیاب مستقل مدل بلوغ مدیریت پروژه پتروشیمی (CPM3)، ارزیاب سیستم مدیریت کیفیت ISO 9001
- مدیر سیستم و کیفیت گروه پیمانکاری بام، مدیر کنترل پروژه و HSE شرکت مهندسين مشاور گذرراه
- مدیر EPMO شرکت ریل پرداز سیستم، مدیر PMO شرکت مهندسين مشاور سازه‌پردازی ایران
- مدرس دارای صلاحیت انجمن مدیریت پروژه ایران (همکار آموزشی انجمن مدیریت پروژه) و سازمان مدیریت برنامه‌ریزی (TOT)
- عضو تیم مولفین اولین کتاب مدل تعالی پروژه (PEM) در ایران
- سابقه تدریس بیش از ۴۵۰ دوره آموزشی در سازمانها و صنایع مختلف
- ارایه مقالات و سخنرانی‌های متعدد علمی در کنفرانس‌های ملی و بین‌المللی

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با سلام

دوست و سرور گرامی

تمامی حقوق این اثر متعلق به نگارنده می باشد و هرگونه نسخه برداری از آن، اعم از کپی، اسکن، تکثیر، نسخه برداری الکترونیکی و یا ترجمه بخش و یا تمام آن منوط به اجازه کتبی از نگارنده می باشد.

لذا با توجه به اینکه برای تهیه جزوه فوق زمان، هزینه و انرژی بسیار زیادی صرف شده تا از هر نظر ممتاز باشد، از شما تقاضا دارم اصول کپی رایت را رعایت کرده و در صورت نیاز، سفارش خرید آن را به تهیه کننده بدهید.  
با تشکر

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# Course Objective



## At the end of this course, you will be able to:

- Understanding the underpinning philosophy and principles of Agile and Scrum
- Understanding Scrum roles and responsibilities
- Scrum Master focus
- The artifacts produced by Scrum project
- Scrum events
- Scrum planning, estimating and measurements



## Main Goal:

- Attempt **PSM-I Exam** with confidence.
- Communicate freely within Scrum project, understanding its principles and philosophy.



## Secondary Goal:

- Benefits and value of Agile and Scrum.

# Main References



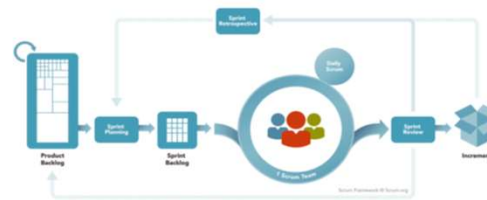
Ken Schwaber & Jeff Sutherland

## The Scrum Guide

The Definitive Guide to Scrum: The Rules of the Game

November 2020

### SCRUM FRAMEWORK



## SCRUM INSIGHTS FOR PRACTITIONERS

*The Scrum Guide Companion*

**HIREN DOSHI**

SCRUM.ORG PROFESSIONAL SCRUM TRAINER AND COACH

## The Scrum Master Training Manual

A Guide to Passing the  
Professional Scrum Master™ (PSM) Exam  
Version 1.3

By Nader K. Rad, Frank Turley

**MP MANAGEMENT PLAZA**  
THE MANAGEMENT CERTIFICATION COMPANY



# V World Before Project Management



- 26 years before PERT
- 40 years before WBS
- 38 years before PMI
- 56 years before PMBOK

**Empire State Building was built over a period of 1 year and 2 months!**

**The basic design took only 2 weeks time!**

**Is today can have such an achievement?**



# Definable Works VS. High-Uncertainty Works



## Definable Works

- Are characterized by clear procedures that have proved successful on similar projects in the past.
- The production domain and processes involved are usually well understood and there are typically low levels of execution uncertainty and risk.
- The production of a car, electrical appliance, or home after the design is complete.



## Uncertainty Works

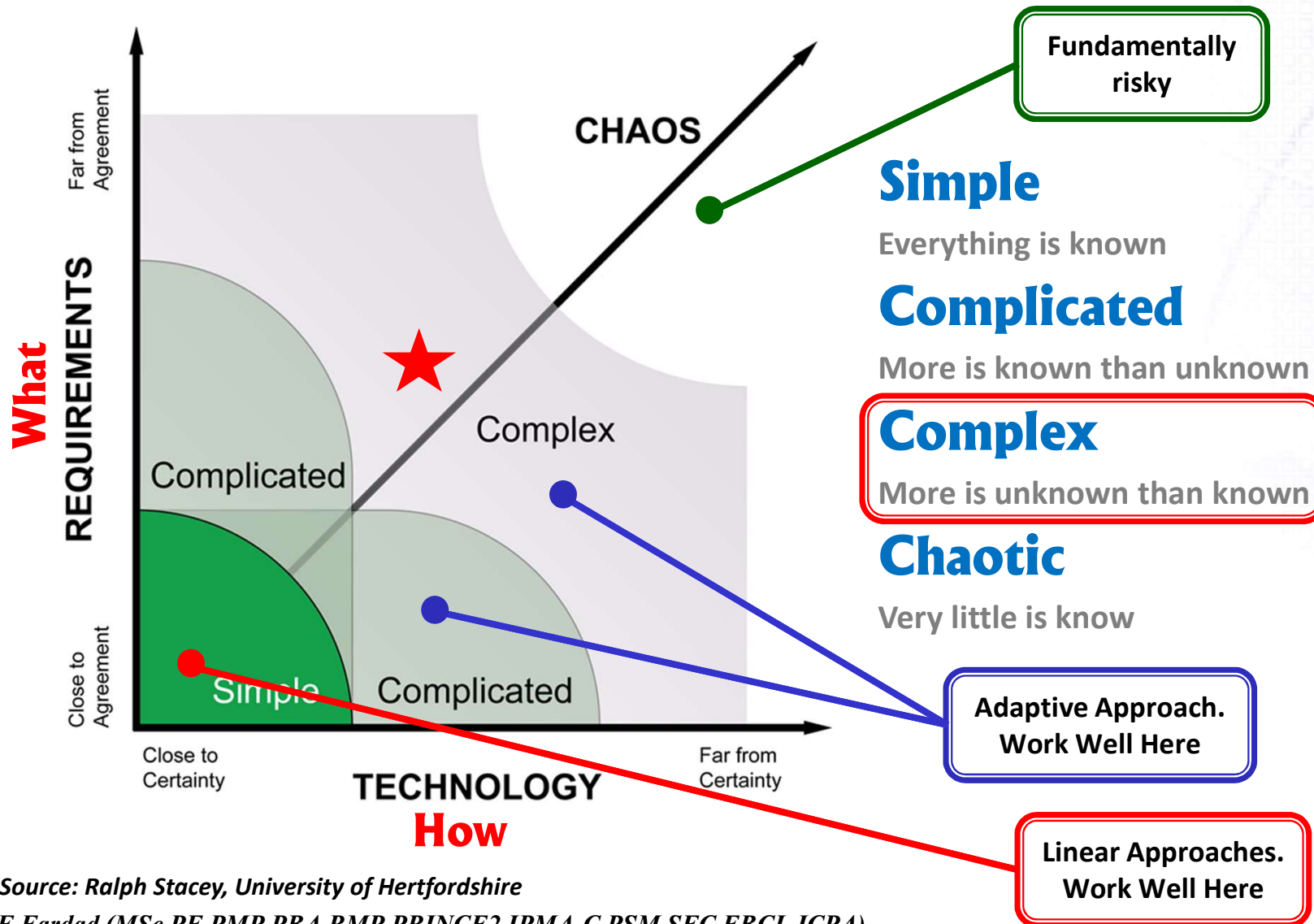
- Have high rates of change, complexity, and risk.
- New design, problem solving, & not-done-before work is exploratory.
- It requires SMEs to collaborate and solve problems to create a solution.
- Examples of people encountering high-uncertainty work include software systems engineers, product designers, doctors, and many problem-solving engineers.



- ✱ These characteristics can present problems for traditional predictive approaches that aim to determine the bulk of the requirements upfront and control changes through a change request process.
- ✱ Instead, Agile approaches were created to explore feasibility in short cycles and quickly adapt based on evaluation and feedback.



# Level of Complexity



Source: Ralph Stacey, University of Hertfordshire

F.Fardad (MSc,PE,PMP,PBA,RMP,PRINCE2,IPMA-C,PSM,SFC,EBCL,ICPA)

# Life Cycle Selection



**Predictive Life Cycle**



**Iterative Life Cycle**



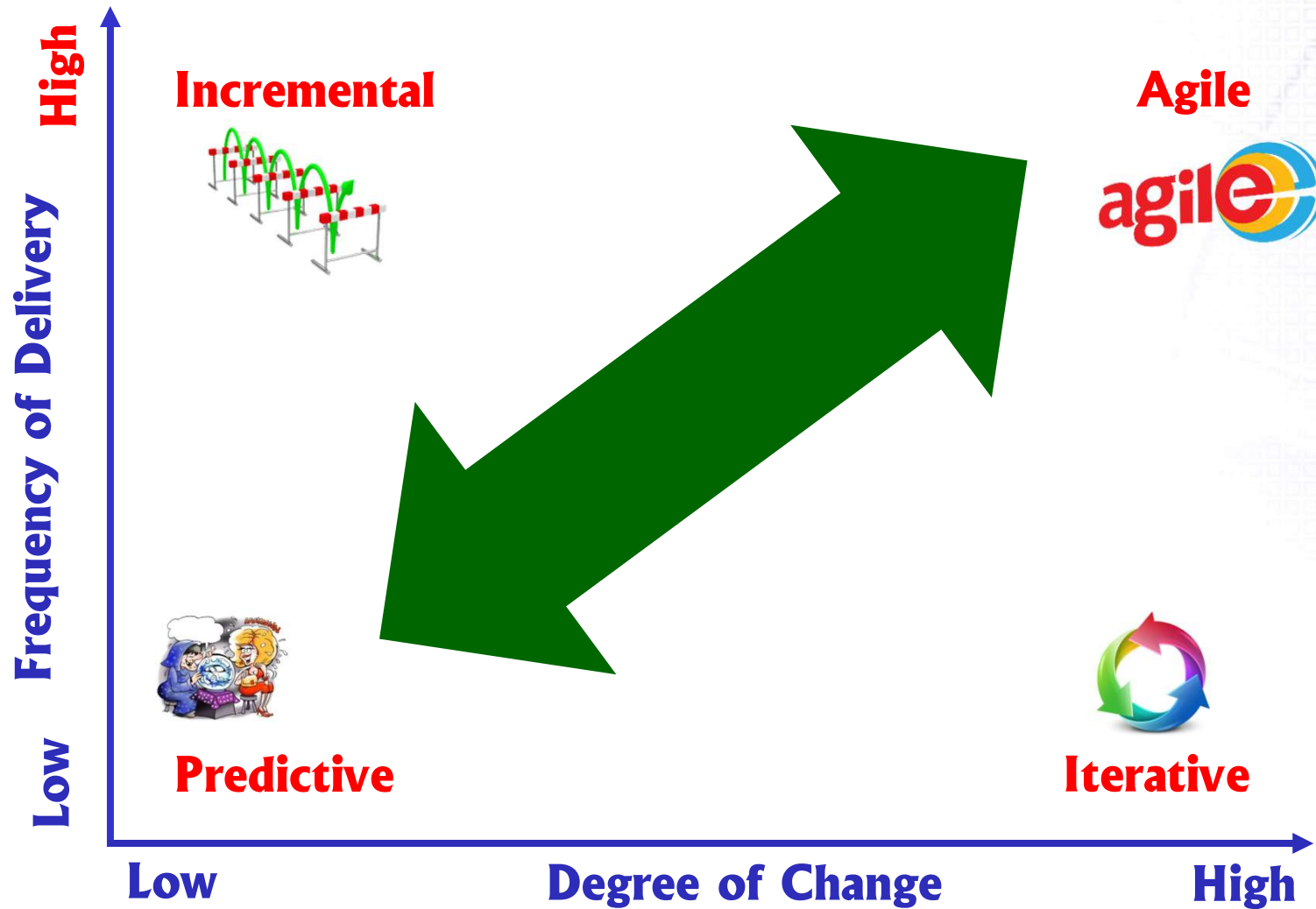
**Incremental Life Cycle**



**Agile (Adaptive) Life Cycle**



# The Continuum of Life Cycles



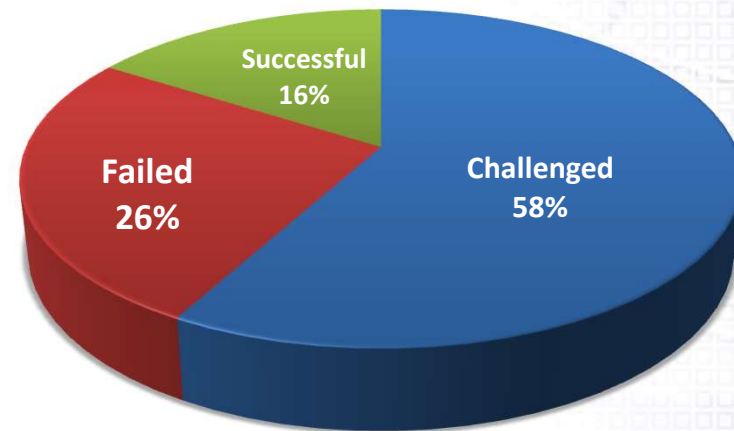
# Why Agile?



## Agile



## Waterfall



	Successful	Challenged	Failed
Agile	41%	46%	13%
Waterfall	16%	58%	26%



# Agile VS. Waterfall



## Waterfall

Time



## Agile

Time



Deliverable Product



Chance of Failure



Project Run Rate

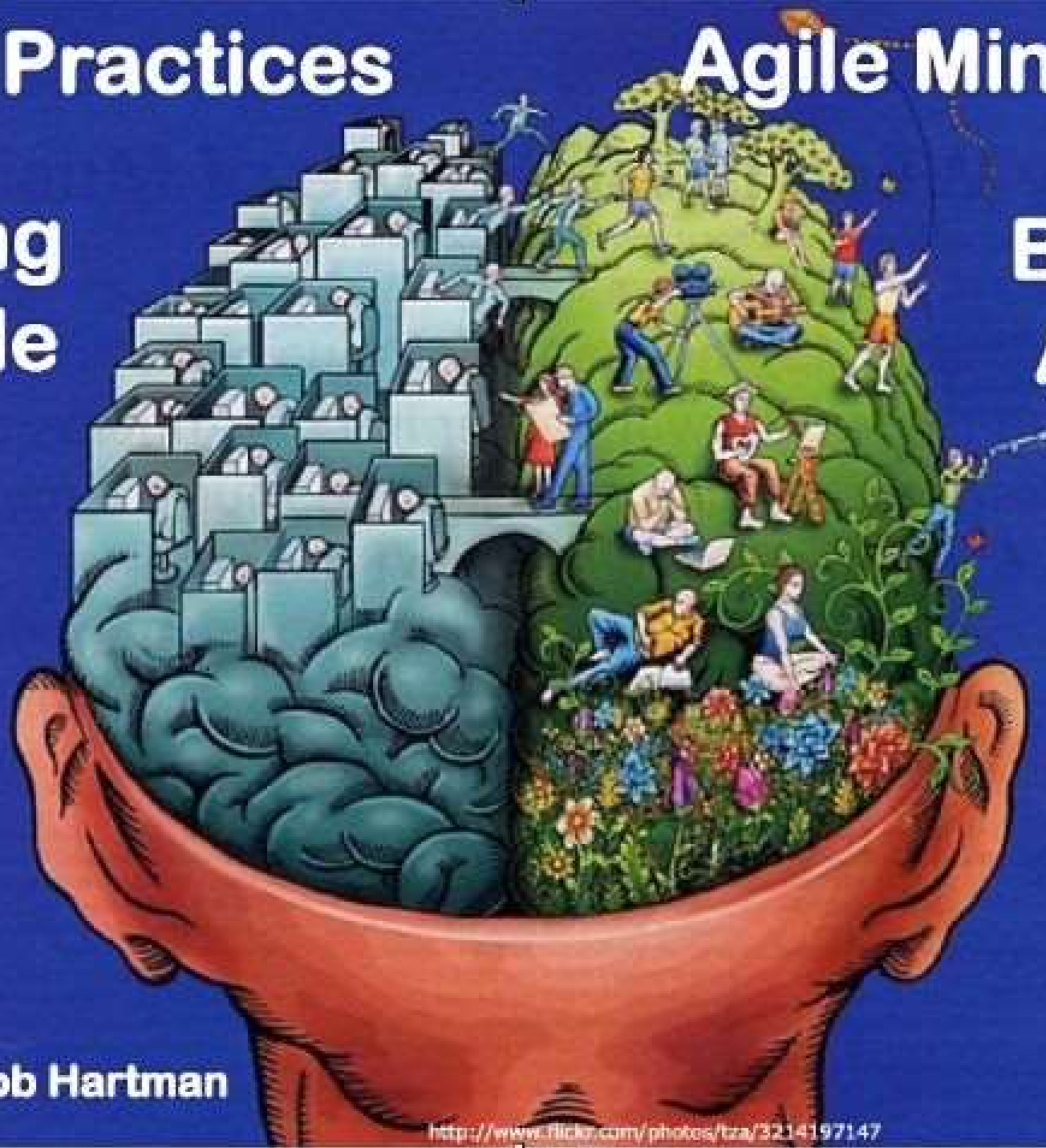
**Agile development uses an iterative approach  
to reduce risk and create products that are  
launchable throughout development.**

**Agile Practices**

**Doing  
Agile**

**Agile Mindset**

**Being  
Agile**



**Thanks, Bob Hartman**

<http://www.flickr.com/photos/tza/3214197147>



# The Agile Manifesto



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

## ***Agile***

**People and Interactions**

**Working Software** (Solution)

**Customer Collaboration**

**Responding to Change**

*Over*

## ***Traditional***

**Processes and Tools**

**Comprehensive Documentation**

**Contract Negotiation**

**Following a Plan**

**While there is value in the items on the right; we value the items on the **left more**.  
(but Agile is not just about delivering software, it applies to all types of project)**



# 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**

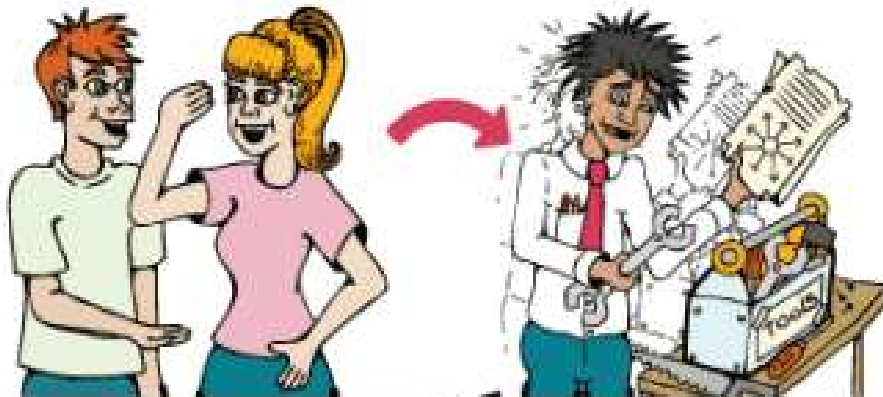
That is, while there is value in the items on the right, we value the items on the left more





# 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 & interactions

Over

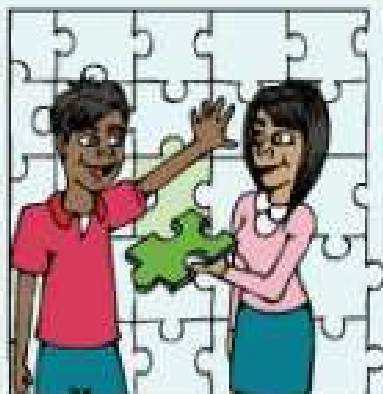
Processes & tools



Working software

Over

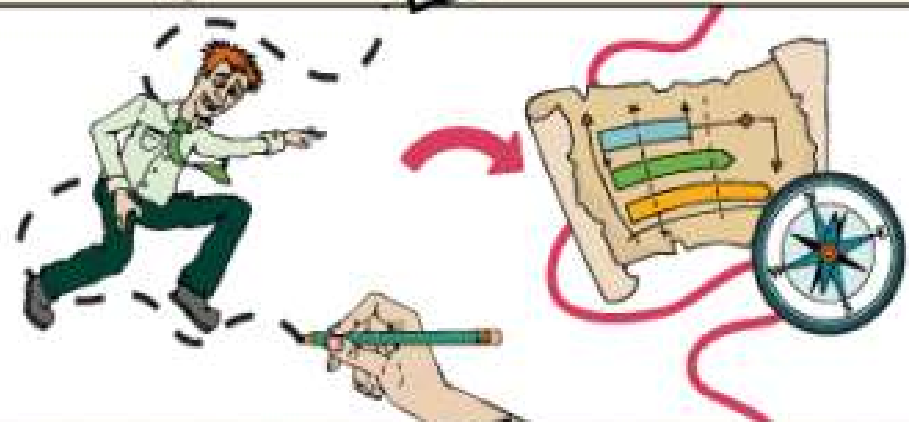
Comprehensive documentation



Customer collaboration

Over

Contract negotiation



Responding to change

Over

Following a plan

# The 12 agile principles\*

## 1 Satisfy the **customer**



## Welcome **change**



## Deliver **frequently**

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5
story	story	story	story	story
story	story	story	story	story
story	story	story	story	story

## 4 Work **together**



## 5 Trust and **support**



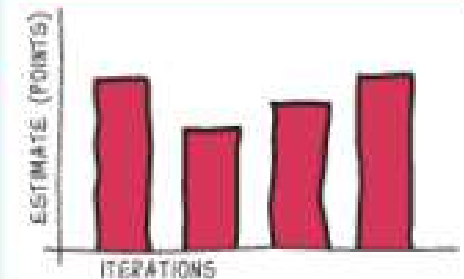
## Face-to-face **conversation**



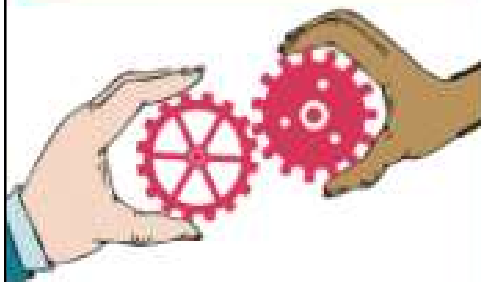
## Working **software**



## 8 Sustainable **development**



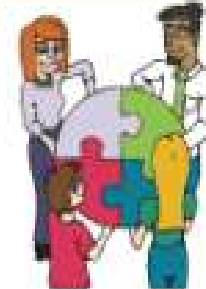
## 9 Continuous **attention**



## 10 Maintain **simplicity**



## 11 Self-organizing **teams**



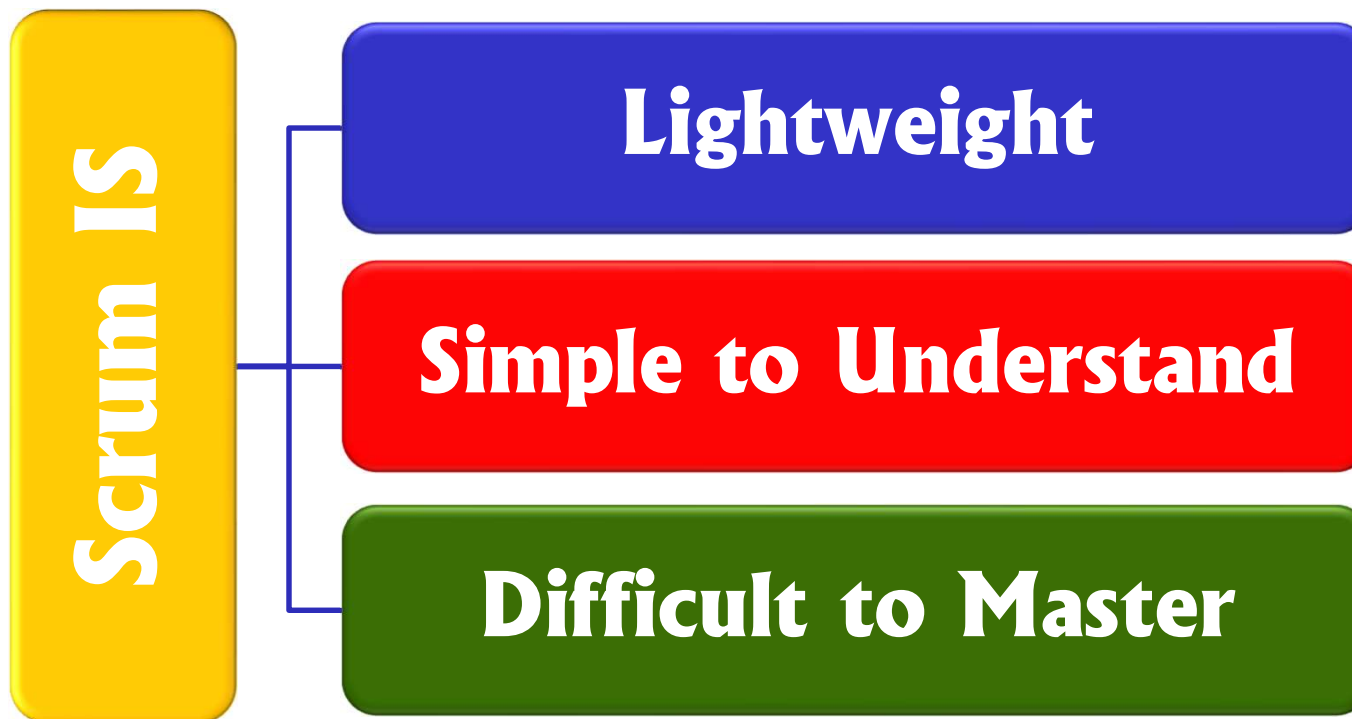
## 12 Reflect and **adjust**



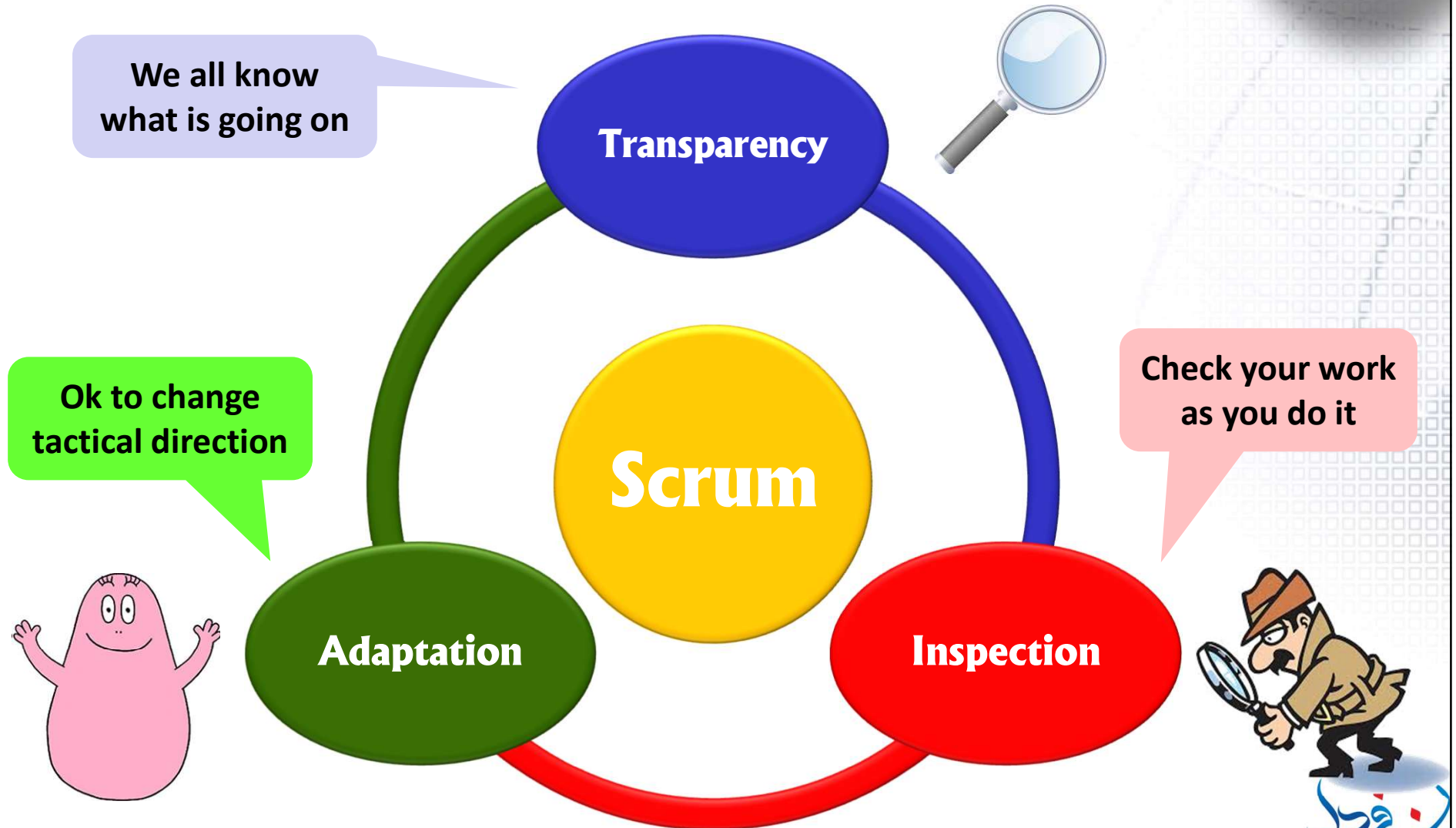
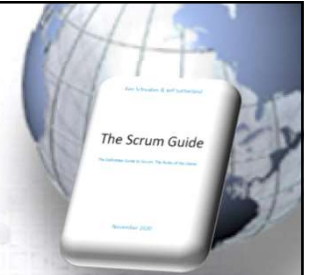
# What Is Scrum?



**Scrum (n): Scrum is a Lightweight Framework that helps people, teams and organizations generate Value through Adaptive Solutions for Complex Problems.**

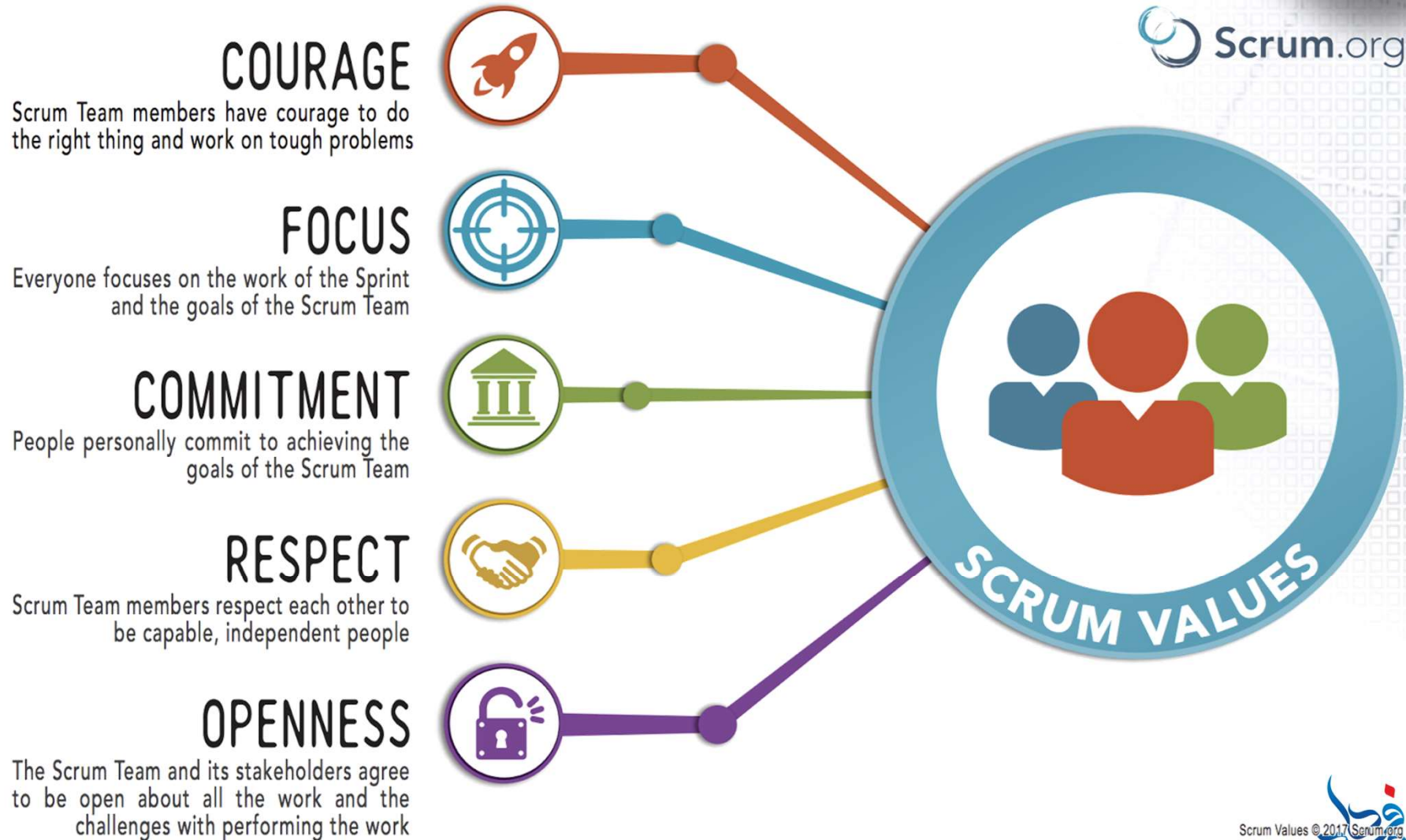


# 3 Pillars of Empiricism





# Scrum Values



# SCRUM PROCESS OVERVIEW

## SCRUM TEAM



Team



Product Owner



ScrumMaster



Stakeholders

## CORE MEETINGS

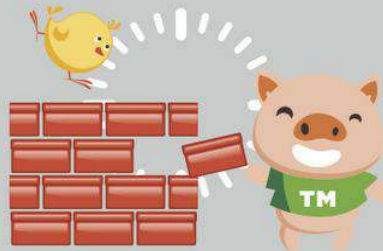
1. Sprint planning
  - a. What
  - b. How
2. Daily Scrum
3. Sprint review
4. Sprint retrospective

Happens at regular intervals

ONE SPRINT: REPEAT N TIMES

## CORE ARTIFACTS

1. Product backlog
2. Sprint backlog
3. Burn-down/ burn-up charts



## IT'S "DONE"

Potentially shippable product increment

3

## SPRINT REVIEW

INSPECT AND ADAPT THE PRODUCT  
The TM's demo the new product increment to the PO and stakeholders; everyone gives feedback and discusses new ideas, PO makes necessary changes to the product backlog

4

## SPRINT RETROSPECTIVE

INSPECT AND ADAPT THE PROCESS  
The TM's evaluate their process and how well they work together; teams adapt to enable high performance

## THE SPRINT

THE 3 QUESTIONS ARE ANSWERED  
2  
**DAILY SCRUM**

## DAILY SCRUM



## THE TEAM

The team completes the tasks in the sprint backlog while consulting with the PO and stakeholders on requirements and "doneness"

## THE SCRUMMASTER

The SM facilitates the Scrum process as a servant-leader, radiates information to the stakeholders, and clears roadblocks out of the team's way

1b

## "HOW" MEETING

The TM's create the sprint backlog by decomposing the product backlog items they committed to into tasks and estimating the tasks

TO DO	IN PROGRESS	READY FOR REVIEW	DONE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1

## SPRINT PLANNING

## "WHAT" MEETING



The PO presents the highest priority product backlog items and the TM's determine what they can accomplish and commit to in the sprint



ONE SPRINT: REPEAT N TIMES

HIGH PRIORITIES

## PRODUCT BACKLOG

The PO works with the appropriate individuals to seed, prioritize, and groom the product backlog

LOW PRIORITIES



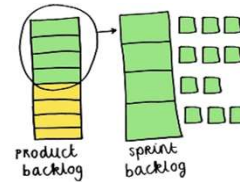
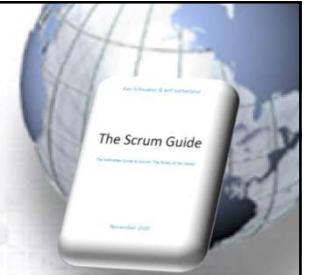
# ClearlyAgile

## SCRUM PROCESS

Working hard on delivering your business value, quickly, while never compromising on quality



# Scrum Structure



## Team (Roles)

- Product Owner
- Scrum Master
- Development Team

## Artifacts

- Increment
- Product Backlog
- Sprint Backlog

## Events

- Sprint
- Sprint Planning
- Daily Scrum
- Sprint Review
- Retrospective



# The Scrum Team (Roles)

There are **3 Roles** in a Scrum project



1 person  
Full-time or part-time  
Business oriented



1 person  
Full-time or part-time  
Scrum coach and problem solver



Normally  
Full-time (recommended)  
Technical

Defining other roles is **forbidden!**

**Scrum Master Service To The:**

**Product Owner**

**Development Team**

**Organization**



# Scrum Events

## Scrum Events

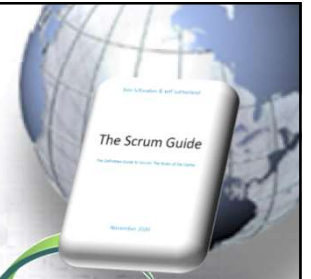
**The Sprint**

**Sprint Planning**

**Daily Scrum**

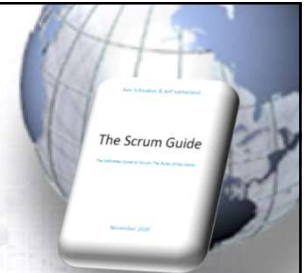
**Sprint Review**

**Sprint Retrospective**





# The Sprint





# Sprint Planning

## PRODUCT BACKLOG

### View Grades, current semester

As a student I can see my grades online so that I don't have to wait until I get to school to know whether I'm passing.

Acceptance Criteria: Columns align neatly on FingerFly 4.1 and iPhone.

EFFORT: SMALL.

### Update Grades, current semester

As a teacher, I can update grades online so I don't depend on administrators to do it for me.

EFFORT: MEDIUM.

### View Grades, previous semester

EFFORT: SMALL.

### Attendance

EFFORT: MEDIUM.

### GPA

EFFORT: SMALL.

### Report Cards

EFFORT: EXTRA LARGE.

### Event Calendar

### Alumni Archives

## SPRINT BACKLOG

COMMITTED  
BACKLOG ITEMS

NOT STARTED

IN PROGRESS

COMPLETED

PRODUCT OWNER

DEVELOPMENT TEAM



## SPRINT TIMEBOX

Two weeks

	M	T	W	Th	F	M	T	W	Th	F
5:00										
10:00	Sprint Planning Meeting									Sprint Planning Meeting
11:00										
12:00										
1:00										
2:00										
3:00										
4:00										
5:00										

Sprint Execution

SCRUMMASTER

MEETING  
TIMEBOX



# Sprint Planning

Input

Sprint Planning

Output



Product Backlog



Capacity  
/Velocity



Current  
Product  
Status



Constraints

1 What?



2 How?

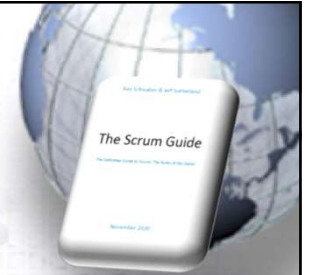


Sprint Goal



Sprint Backlog

# Sprint Planning 3 Topics

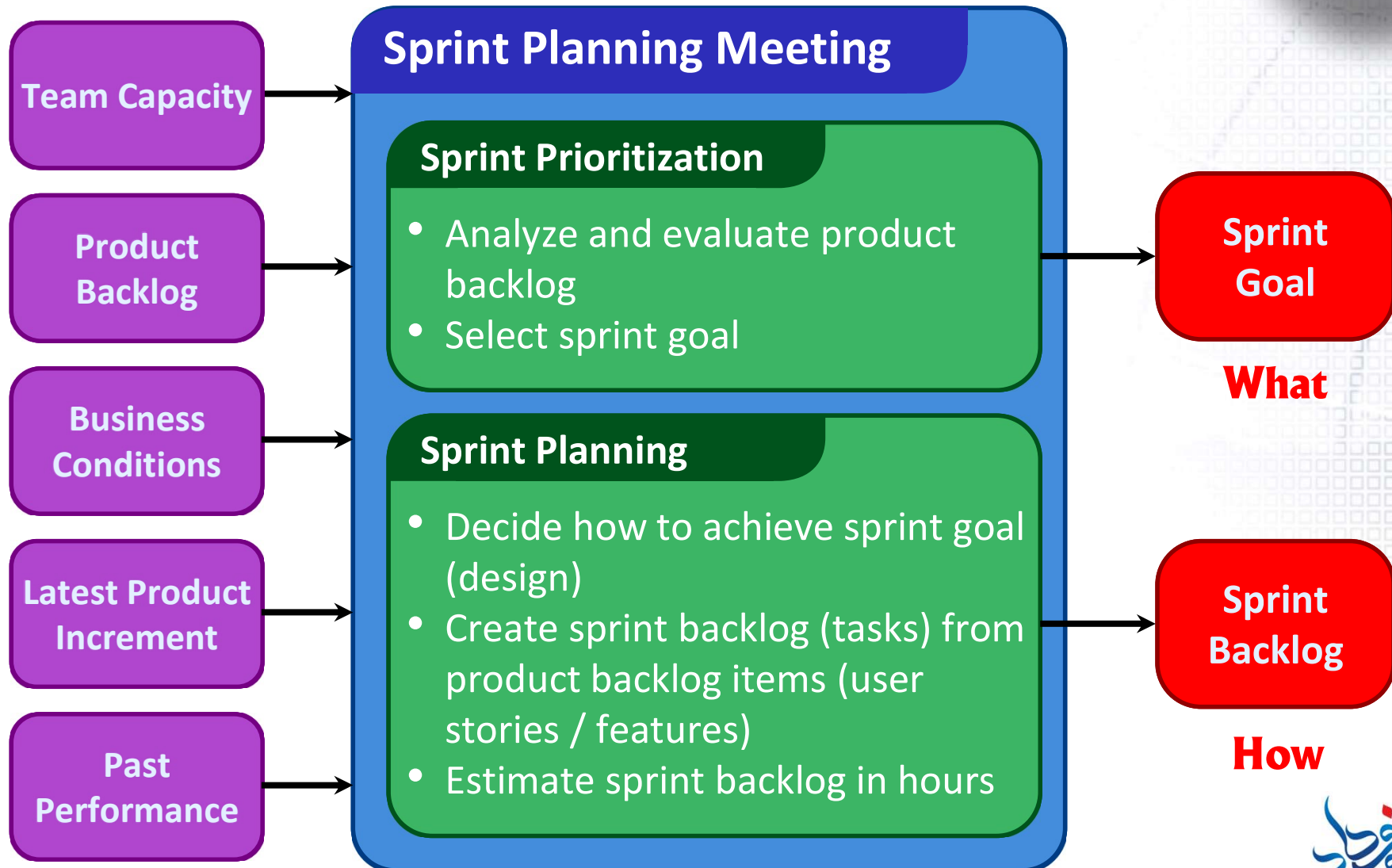


**Why** is This Sprint Valuable?

**What** Can Be Done This Sprint?

**How** Will the Chosen Work Get Done?

# Sprint Planning





# Sprint Retrospective

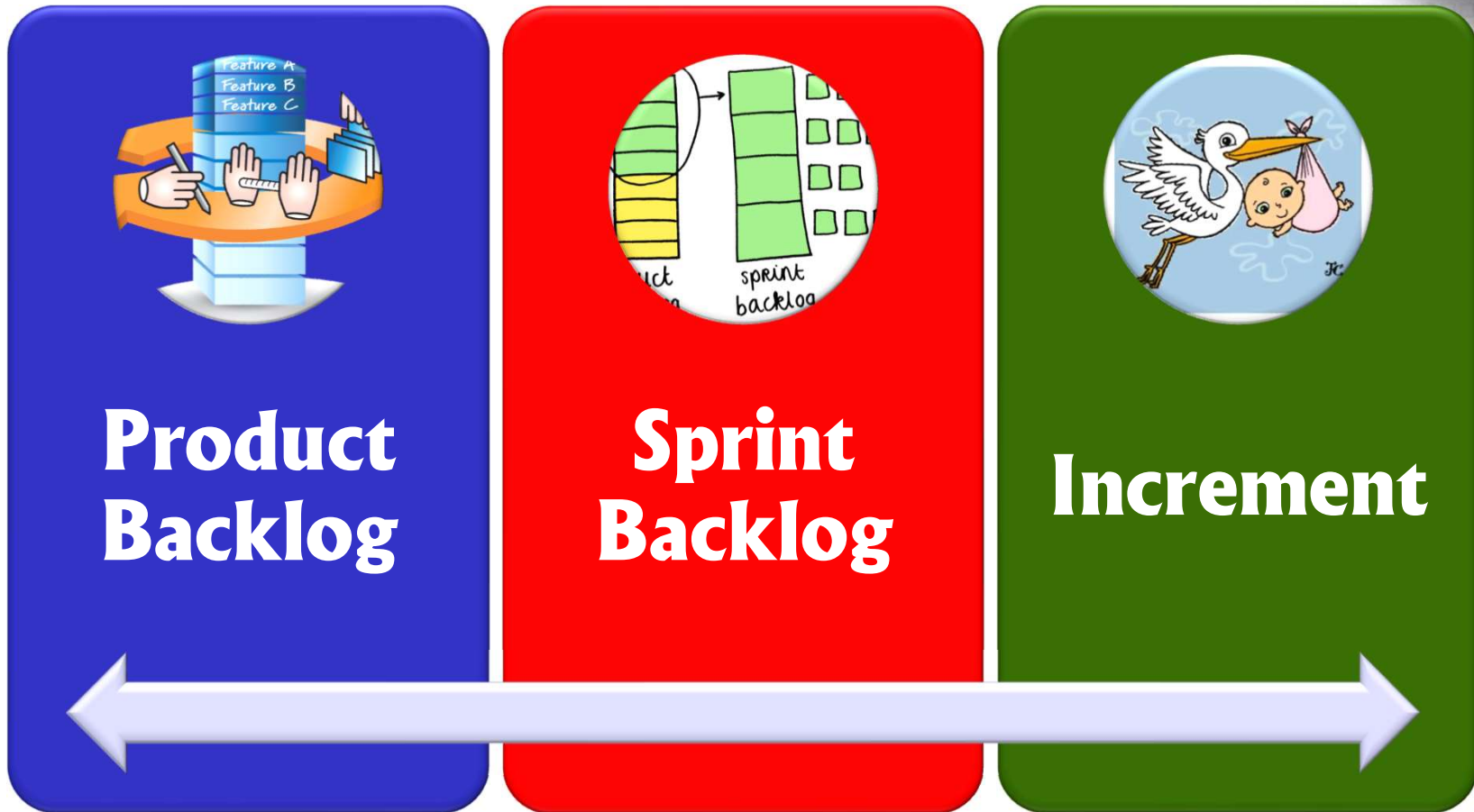
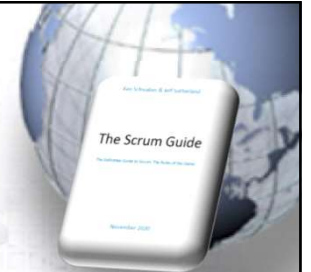


## RETROSPECTIVE MEETING

3 Hours

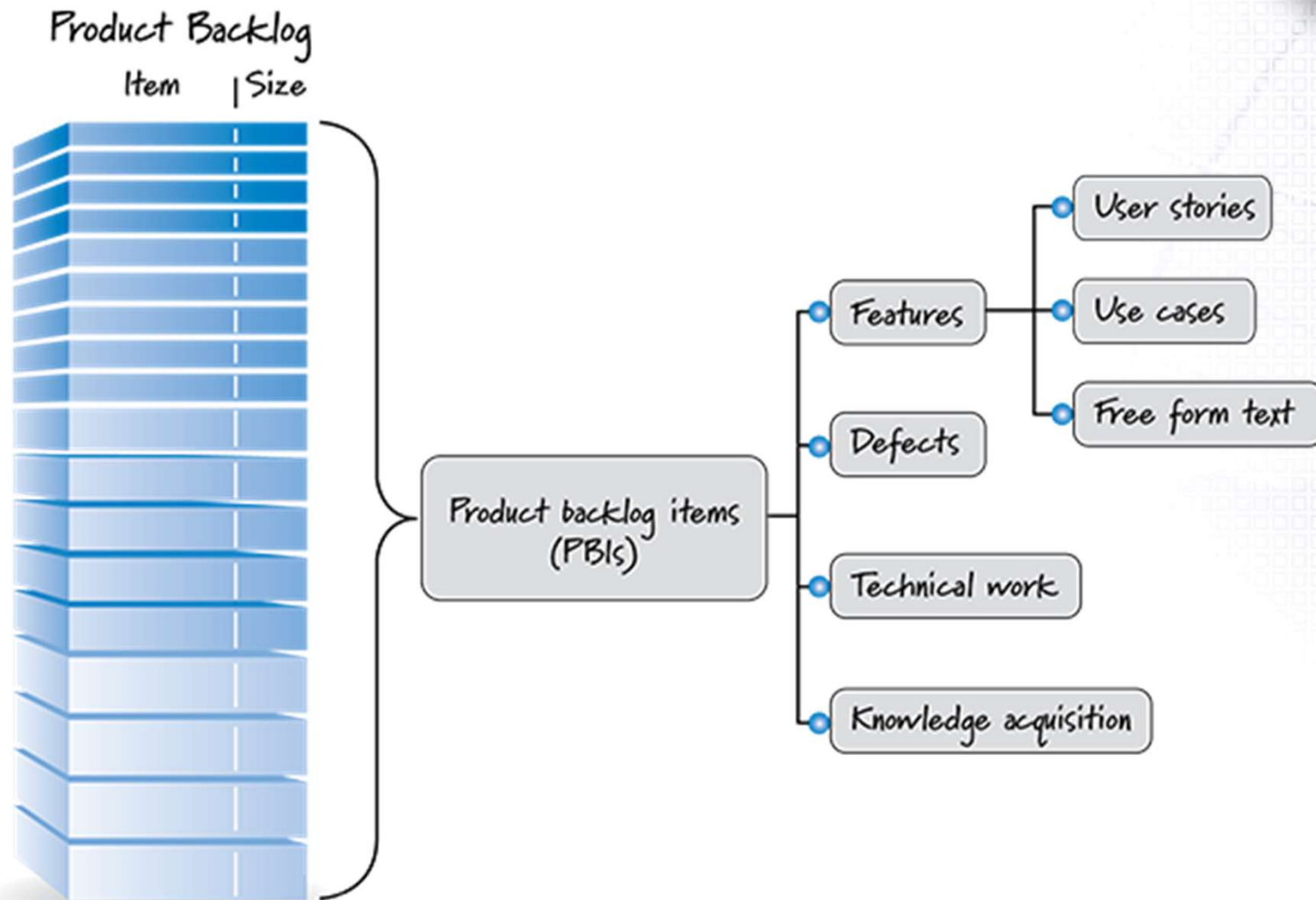


# Scrum Artifacts



- Scrum's artifacts represent work or value to provide transparency and opportunities for inspection and adaptation. Artifacts defined by Scrum are specifically designed to maximize transparency of key information so that everybody has the same understanding of the artifact.

# Product Backlog

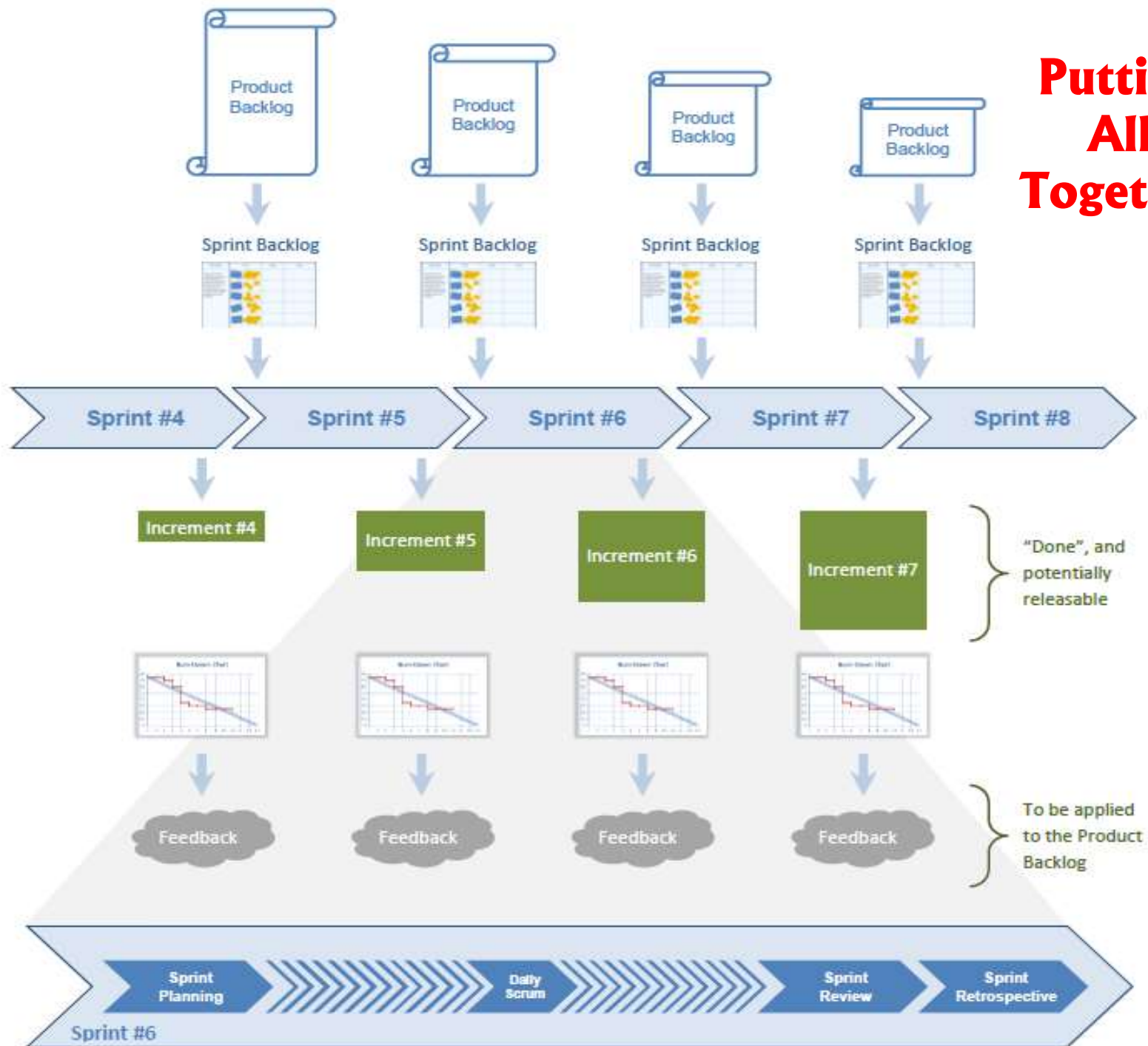


# Burn-Down Chart





**Putting  
All  
Together**



# Reference



- ❖ *The Scrum Guide, The Definitive Guide to Scrum: The Rules of The Game, Nov. 2020, Ken Schwaber & Jeff Sutherland.*
- ❖ *The Scrum Master Training Manual, ver. 1.2, Nader K. Rad & Frank Turley, Management Plaza, 2013.*
- ❖ *Scrum Insight for Practitioners, The Scrum Guide Companion, Hiren Doshi, 2016.*
- ❖ *An Introduction to Scrum, Mike Cohn, mountain goat software.*
- ❖ *Agile Estimating and Planning by Mike Cohn.*

