Scrum - Introduction

Petri Heiramo

Agile Coach, CST

Scrum Started in the Harvard BR.

"The… 'relay race' approach to product development…may conflict with the goals of maximum speed and flexibility. Instead a holistic or 'rugby' approach—where a team tries to go the distance as a unit, passing the ball back and forth—may better serve today's competitive requirements."

Hirotaka Takeuchi and Ikujiro Nonaka, "The New Product Development Game", *Harvard Business Review*, January 1986.

Scrum first mentioned

Scrum is a Framework

- Project management framework
  - Does not specify technical practices
  - Provides only a minimal set of project ”control” tools
- Key practices
  - Time-boxed sprints
  - Self-managing teams
  - Stand-up daily meetings
  - Iterative development
  - End-of-iteration demo
  - Continuous learning

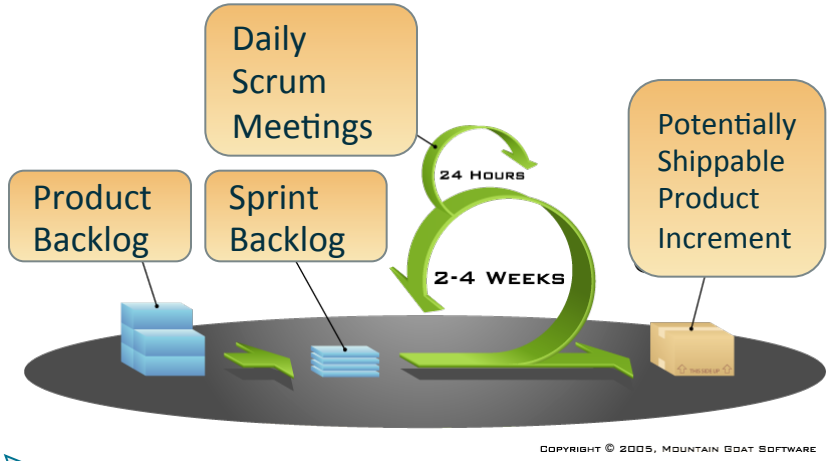
Scrum Process

"Pre-Game"

Initial planning

Initial concept

"Development Sprints"



"Post-Game"

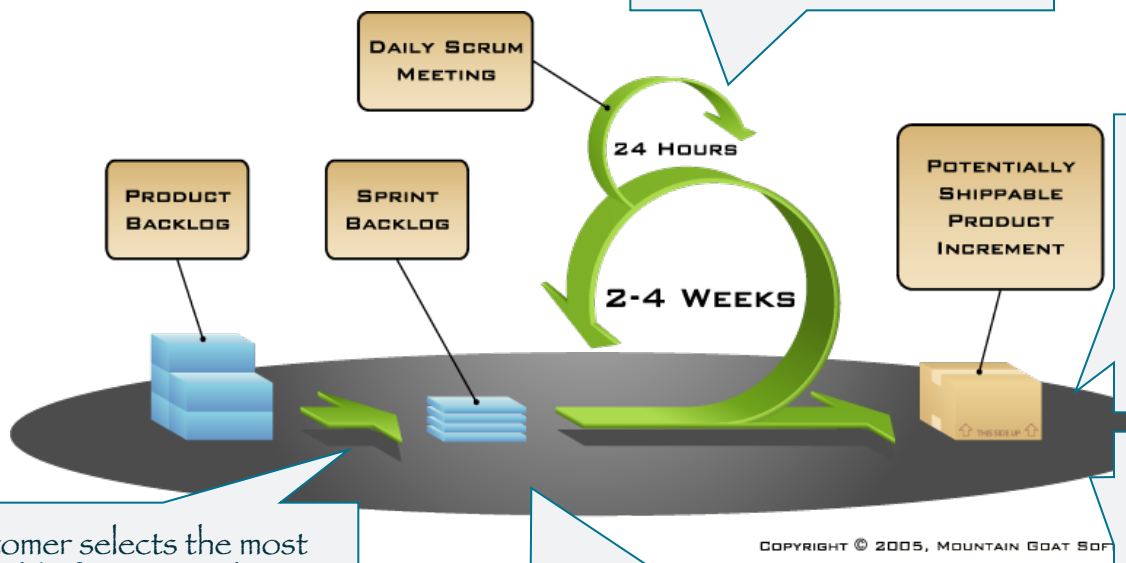
Final documentation

...

Start sprints when project can
- define initial product backlog, and
- prioritize enough work for the first sprint

Development ends
- at planned time, or
- When there are no more features valuable enough to be developed

Sprint Structure



3. Team tracks and manages the progress of the sprint through daily stand-up meetings.

4. At the end of the sprint the team presents the developed functionality to the customer for feedback. The demo is based on the agreed acceptance tests.

5. Team conducts a retrospective to identify improvement opportunities for the team and the development process.

1. Customer selects the most valuable features to be implemented in the sprint based on feedback from the team. An acceptance test for each feature is defined.

2. Team breaks the features into tasks and plans the implementation of the functionality in the sprint.

No Changes During a Sprint

Why is the development peace so important for productivity?

- Plan sprint durations around how long the PO can commit to keeping change out of the sprint
- PO can terminate an iteration if its goal is invalidated

Key Roles and Responsibilities

Product Owner

Goals
- Get the correct product
- Develop features with most value

Responsibilities
- Create a product vision
- Release planning
- Facilitate real user feedback
- Determine business value
- Define acceptance criteria

ScrumMaster

Goals
- Customer gets value for money
- Protect team from outside interference
- Product owner and team fulfill their responsibilities

Responsibilities
- Nurture Team's self-management
- Support team to be productive
- Support product owner in determining business value
- Eliminate discovered Impediments
- Facilitate the Scrum process
- Ensure communication
- Manage project environment

Development Team

Goals
- Develop most value to customer
- Maintain ability to deliver change

Responsibilities
- Estimate effort and dependencies
- Plan iteration execution
- Develop regular deliveries of ready functionality

Who is a Product Owner?

- Mishkin Berteig has suggested the following definition:

  *”It is the Product Owner who is **ultimately responsible for defining business value, priority and details** for all the work done by the development team. Product Owner’s authority stems from a deep understanding of the project’s goals and a respected position among stakeholders.”*

- Typically a project or product manager in a customer organization

- The link between an Agile development team and stakeholders
  - PO has to be in direct contact to both directions

Central Success Criteria

- One PO per project
  - When there are multiple PO's, conflicts regarding requirements and priorities are easily developed
- Ability to represent all stakeholders and user groups
  - All important needs are heard
  - Can meaningfully prioritize different needs
- Authority to make business decisions regarding project's features and priorities
- An active participation in the project
  - Requirements development and prioritization throughout the whole project
- Ability to increase Agility in the project's environment
- Focus on business value and features, not on micromanaging the team

Primary Responsibilities

- Define requirements / features
  - Business point-of-view
  - User point-of-view
  - Communication to the team
- Prioritization
  - Defining business value
  - Value / cost determination
  - Risk management
- Planning the project scope
- Approval of team's deliveries
- Evaluates project progress and results
- Collects feedback from
  - Stakeholders
  - User groups

ScrumMaster Role

”As a ScrumMaster, you are responsible for:

- Removing the barriers between development and the customer so the customer directly drives development
- Teaching the customer how to maximize ROI and meet their objectives through Scrum
- Improving the lives of the development team by facilitating creativity and empowerment
- Improving the productivity of the development team in any way possible
- Improving the engineering practices and tools so each increment of functionality is potentially shippable”

Ken Schwaber

Further Aspects on the Role

- NOT the traditional project manager
  - There are similarities, though
- Scrum Master must act **without resorting to traditional command-and-control style**
- It helps SM to an understanding of the “big picture” of the project
- Being a good SM is just as time consuming as being a good project manager (if not more)

How Many Teams for One SM?

An adequate ScrumMaster can handle two or three teams at a time. If you're content to limit your role to organizing meetings, enforcing timeboxes, and responding to the impediments people explicitly report, you can get by with part-time attention to this role. The team will probably still exceed the baseline, pre-Scrum expectation at your organization and chances are nothing catastrophic will happen.

But if you can envision a *hyperproductive* team -- a team that has a great time accomplishing things no one else can -- consider being a *great* ScrumMaster.

A great ScrumMaster can handle *one* team at a time.

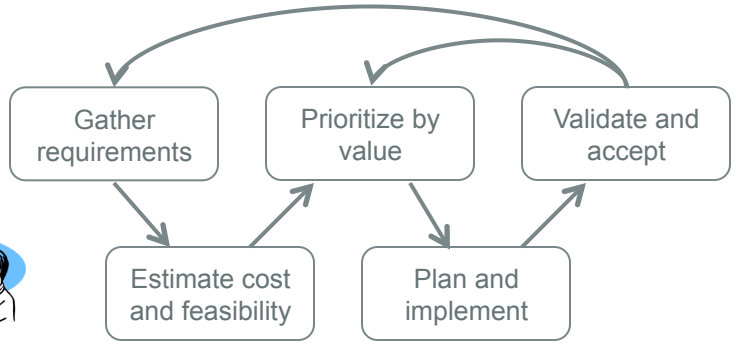
Michael James, http://danube.com/system/files/A_ScrumMaster's_Checklist_blog.pdf

How far should the ScrumMaster go in his/her quest to challenge the organization and introduce Agility and Scrum in an organization?

Far, but a dead ScrumMaster is a useless ScrumMaster.

Team and Product Owner

Clear definition of responsibilities



Product Owner

- Plans overall project schedule
- Defines requirements
- Defines business value and implementation priority

Team

- Provides estimates on effort and technical risk
- Provides information on development speed
- Commits to agreed sprint scope and delivering it

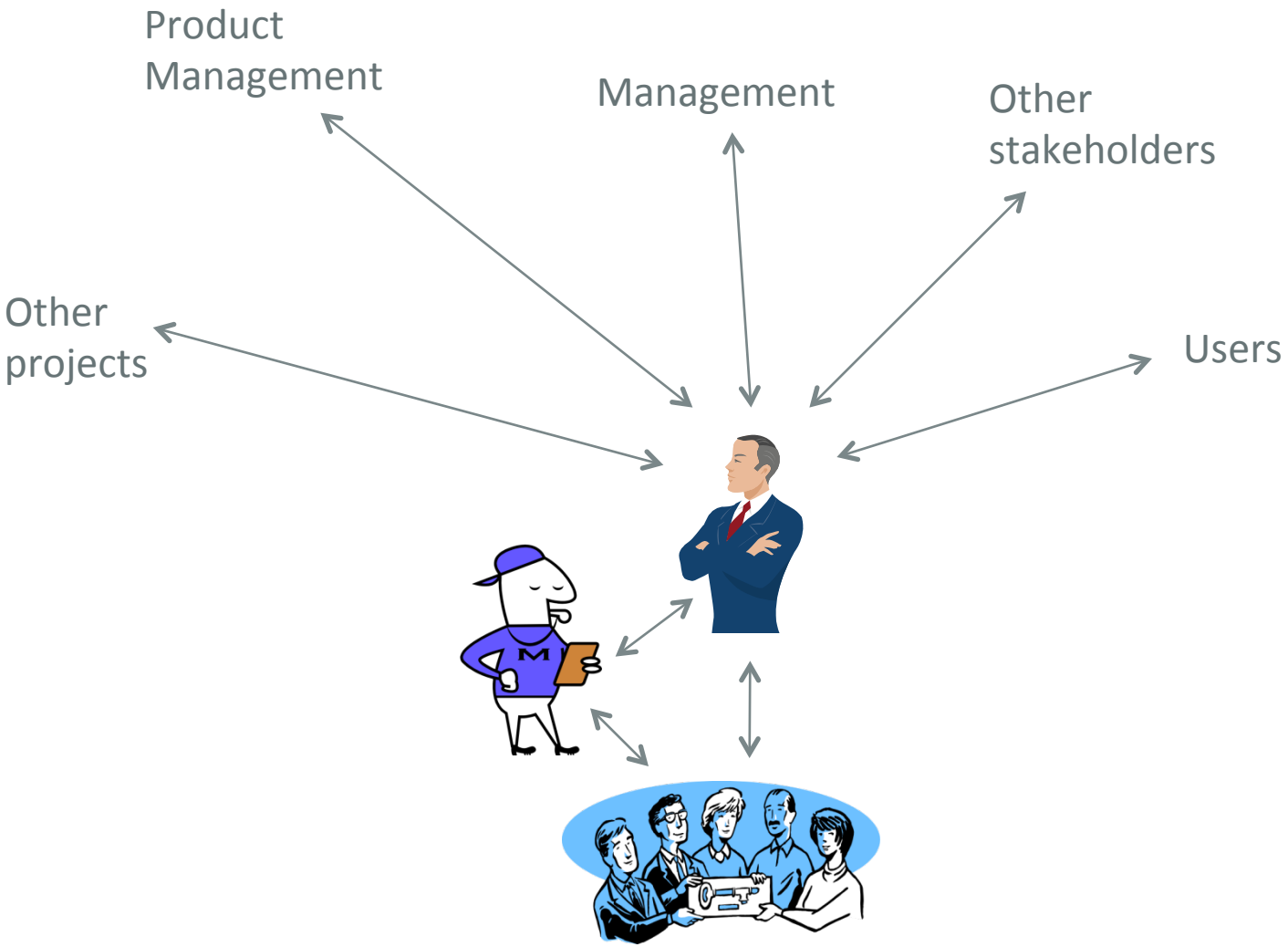
Direct communication absolutely necessary

- Team <-> Product owner
- Team <-> Users and other stakeholders

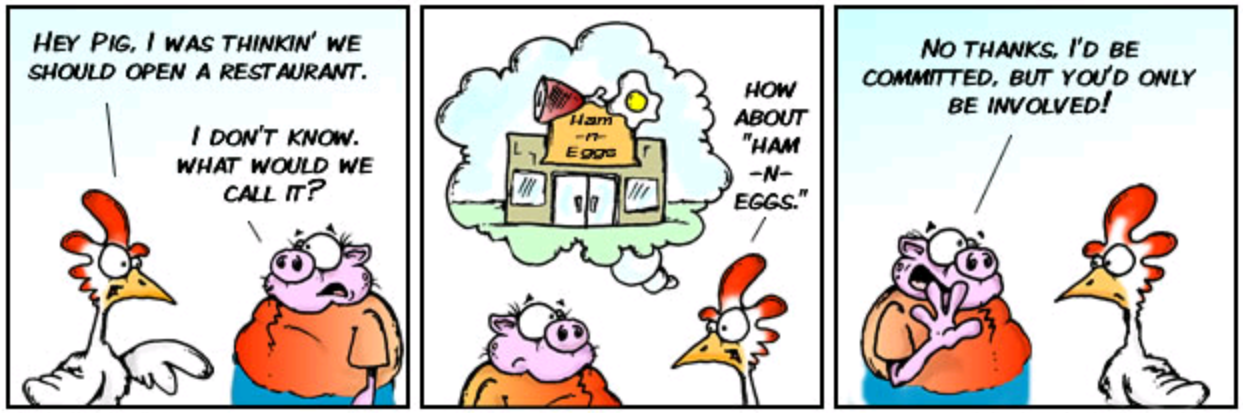
Regular meetings to set sprint scope and to demonstrate results for feedback

- Also other communication as necessary to clarify requirements

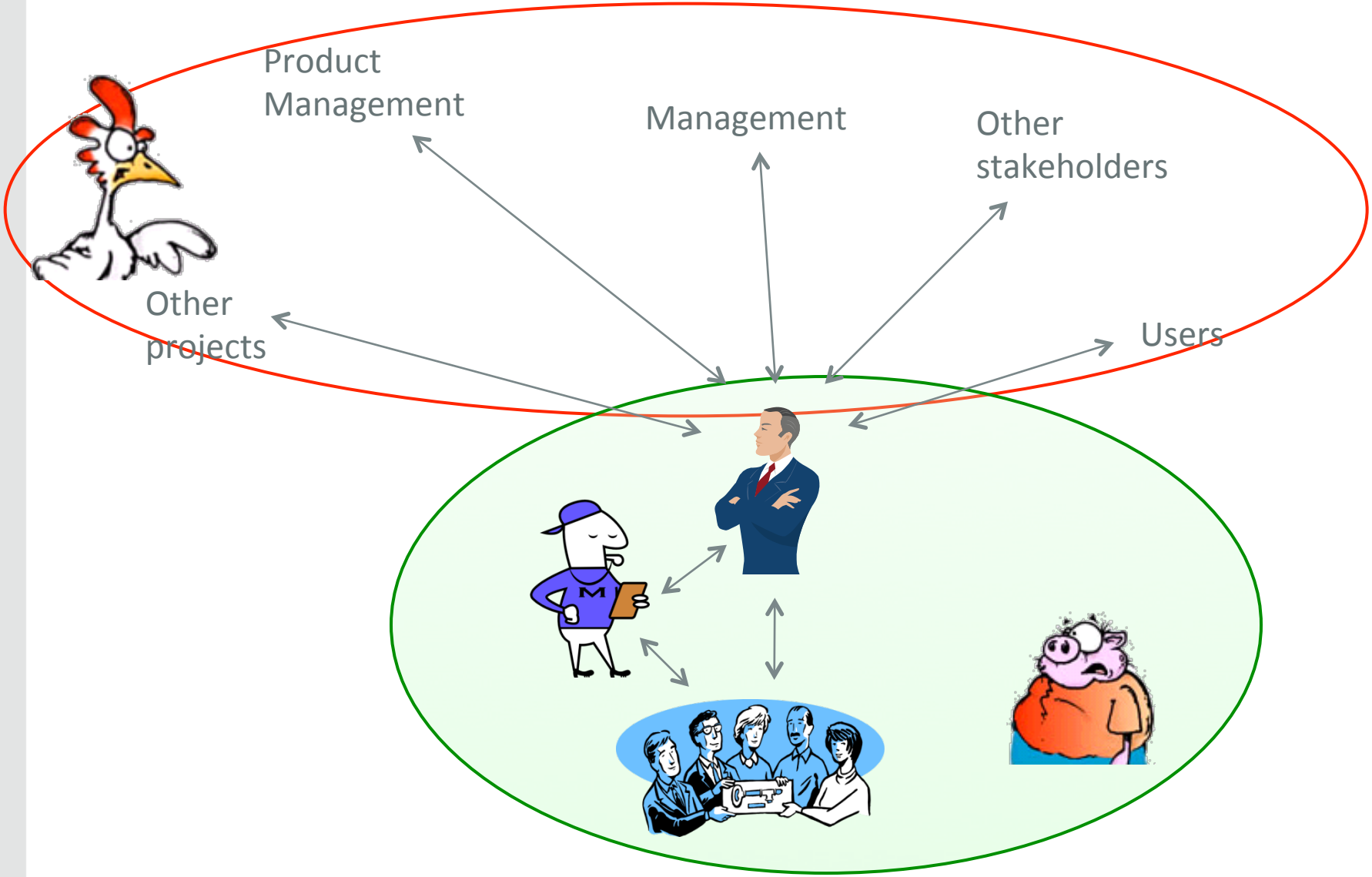
Stakeholders



Pigs and Chickens



Pigs and Chickens - Translated



Scrum Meetings

- Sprint Planning
  - Sprint goal (team with product owner)
  - Design and task planning (team)
- Daily Scrums
- Sprint Review
- Sprint Retrospective

Planning Activities

- Release planning
  - Analyze and evaluate product backlog
    - Is it up to date? Are there new stories to be evaluated?
    - Is it prioritized?
  - Plan longer term goals
    - When do we need to be ready? What does ”ready” mean at that time?
- Sprint Planning
  - Decide a sprint goal and agree sprint scope
  - Divide the work needed to tasks (work planning)
  - Estimate the size of the tasks in ideal hours
    - Confirm team commitment by comparing to estimated capacity

Daily Scrums

- Purpose: The team coordinates its activities and collaboration among themselves
  - NOT: Team reporting to ScrumMaster
  - NOT: Team doing design
  - This is a work planning meeting, no other activities
- Project's internal meeting
  - Others can participate, but not talk
- Design issues and other topics shall have separate meetings arranged after the daily scrum

Daily Scrum Rules

- Everyone participates
- Everyone stands
- 15 minutes, no more
- No design
  - Talk about it after the meeting
- No other activities

Print this and put it on a wall in the team room. You can detach yourself from the team, helping them to talk to each other.

Daily Scrum Rules

Everyone participates

Everyone stands

15 minutes, no more

No design

- Talk about it after the meeting

No other activities

The 3 Questions

- What did I do yesterday
- What I plan to do today
- Is there anything in my way?

Print this, too, so that you don't have to repeat the questions every time. By repeating, you enforce the traditional management approach unconsciously.

The 3 Questions

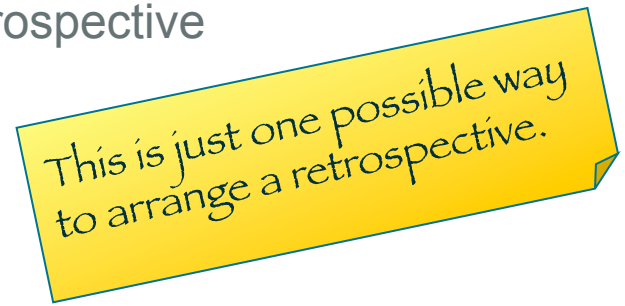
- What did I do yesterday
- What I plan to do today
- Is there anything in my way?

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 maximum
  - No slides
- Whole team participates
  - PO, Team, SM
- Invite the world
  - Show your progress to your stakeholders
  - Get stakeholder feedback

Sprint Retrospective

- Inspect & Adapt
  - Key rule to successful Agile development
- Arranged at the end of every sprint
  - PO, Team, SM, possibly also stakeholders
- Discuss together
  - What to start doing
  - What to stop doing
  - What to continue doing
- Select a few (maybe one or two) concrete actions for the next sprint
  - Review at the next retrospective



Scrum Artifacts

- Product Backlog
  - ”Feature list” / requirements
- Sprint Backlog
  - ”Task list”, implementation plan
- Burndown charts
  - Release burndown
  - Sprint burndown

Product Backlog

- Contains all planned and potential functionality
- Prioritized by Product Owner on business value
- Each sprint, a set of functionality is chosen for implementation
  - Decided in collaboration between Product Owner and Team

Story ID	Story name	Status	Size	Sprint	Comments
1	User can see main view and browse the file list	Done	8	1	Use hard-coded directory, no subfolders
2	User can set initial directory	Assigned	5	2	Simple popup from Options menu, application starts in the directory
3	User can browse into subdirectories	Assigned	5	2	Recursive
4	User can open text files	Planned	3	3	Use Notepad to display
5	User can open any recognized files	Planned	8	3	Retrieve association information from system, invoke correct application
6	User is displayed an error message when trying to open an unrecognized file	Planned	2		Simple popup, no chance to associate to a program
7	User can use an internal editor to edit text files	Removed	20		Simple editing

Sprint Backlog

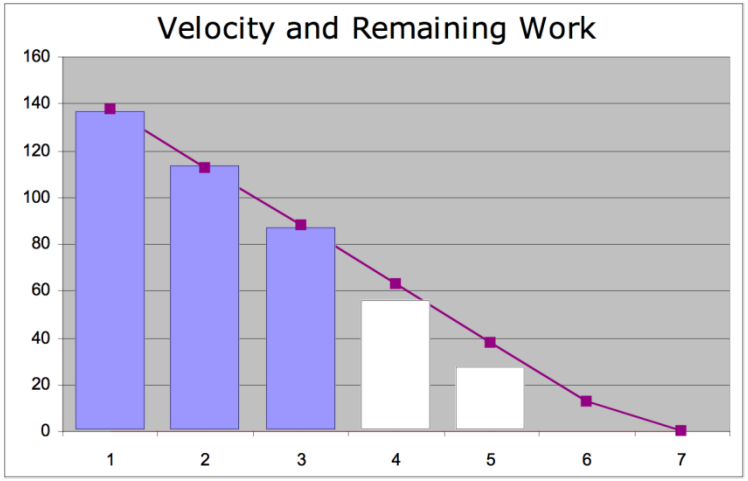
- Created by team for each sprint
  - Consists of tasks needed to implement planned functionality
- Used by the team to track their progress through the iteration
- Focus of sprint backlog planning is to plan the sprint execution and design the features
  - Estimates give a means to evaluate remaining work
  - The accuracy of task estimation is not so relevant, as long as the team can meet its commitment
  - Tasks can be changed freely during the sprint

Sprint Backlog on a Wall

Tracking Progress

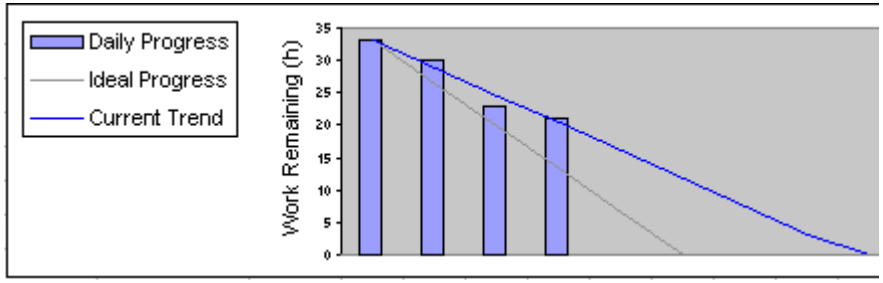
At sprint level:

- Shows remaining work in the project
- Gives an estimate of development speed and estimated end



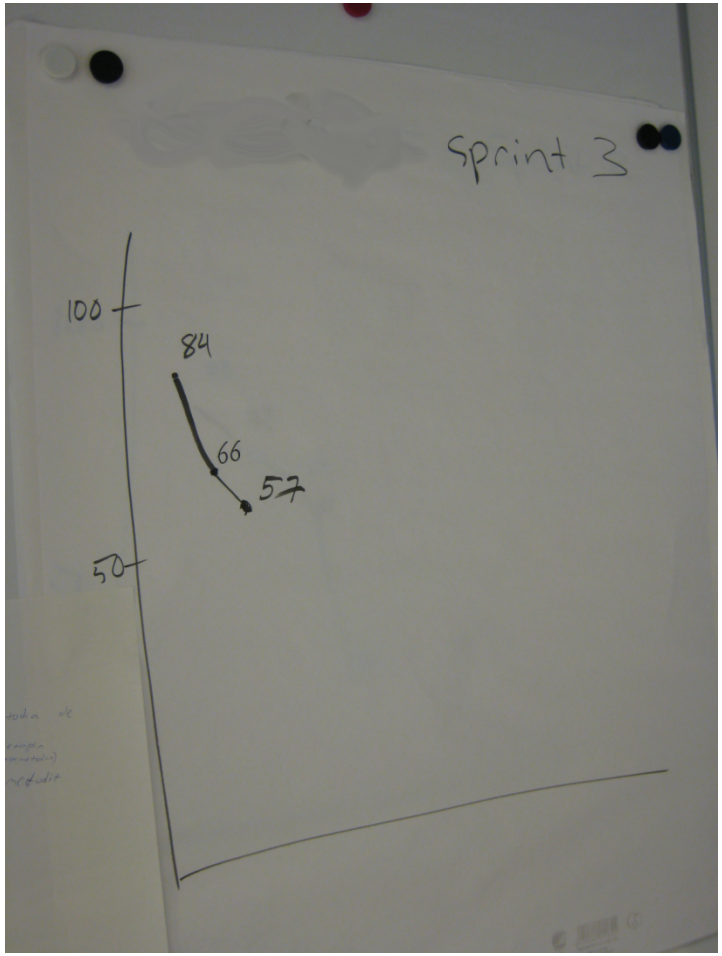
At daily level:

- Team tracks remaining work in the sprint
- Tells the team how they are progressing and can they expect to finish the sprint on time

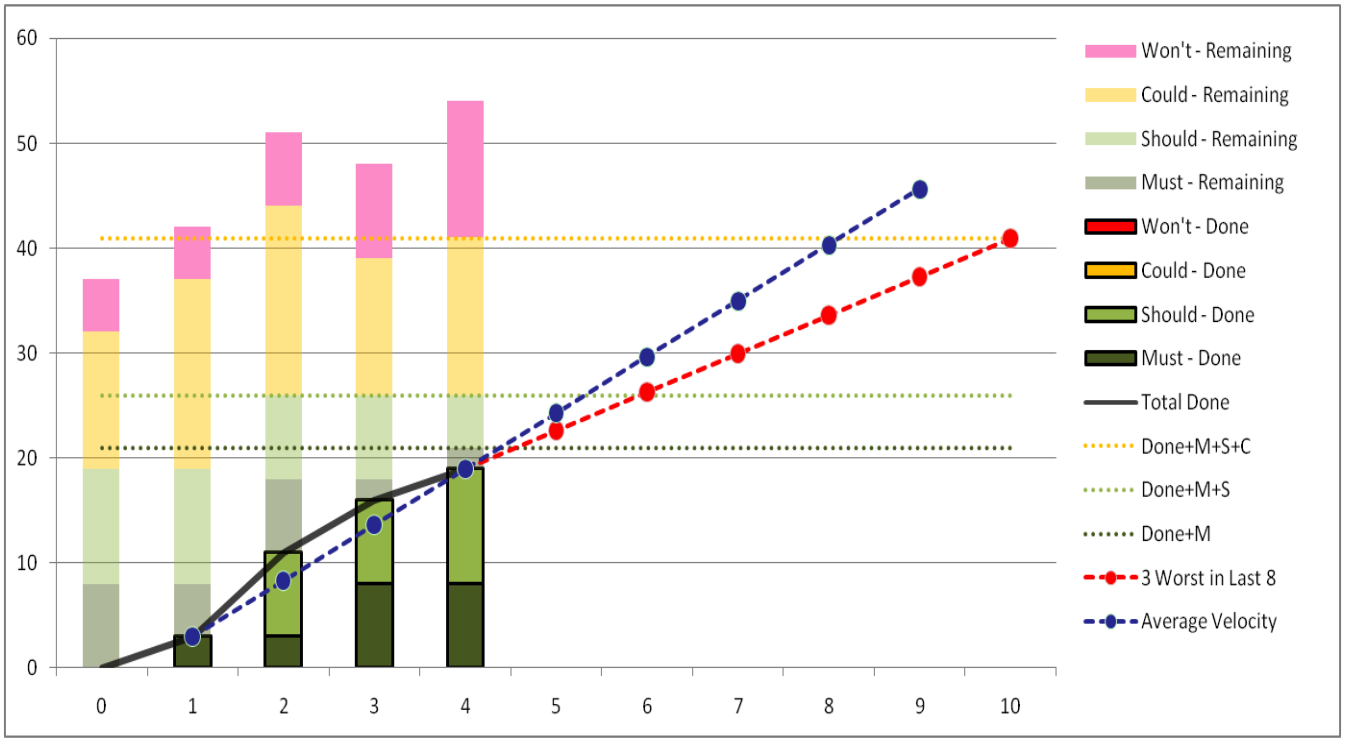


Burndown in Practice

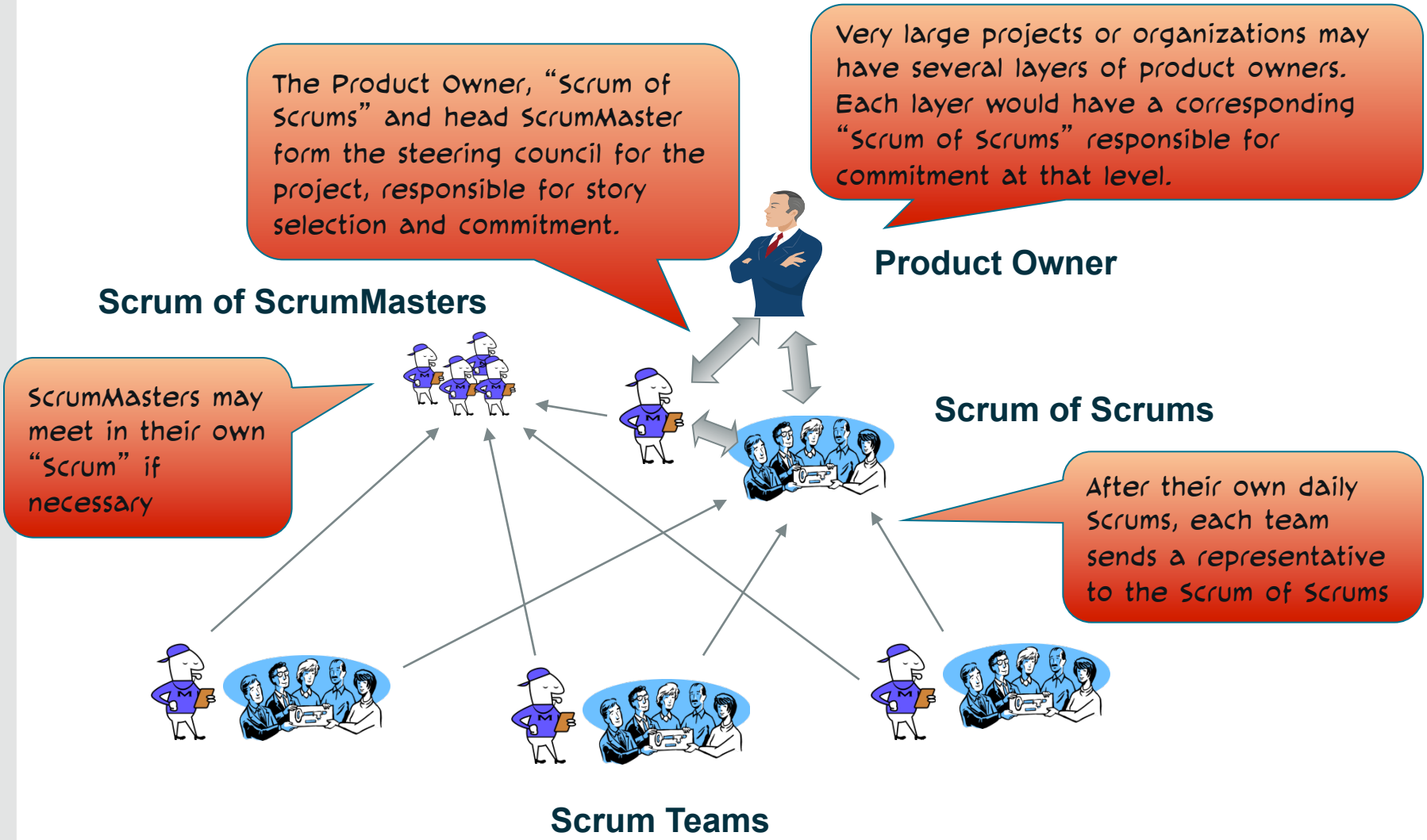
- "Big visible charts"
  - Often the best means of radiating information
  - Simple is beautiful
- If teams use a tool for task tracking, it will provide the burndown



Burn-Up



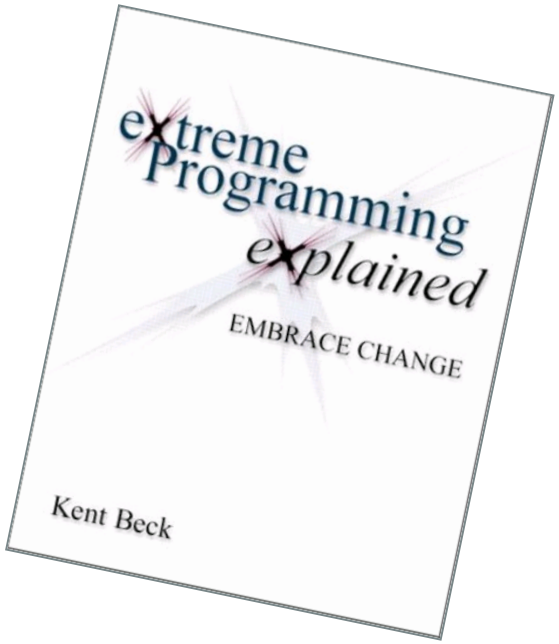
Scaling Scrum



A Scrum Reading List

- The Scrum Guide - http://www.Scrum.org/scrumguides/
- Agile and Iterative Development: A Manager's Guide by Craig Larman
- Agile Estimating and Planning by Mike Cohn
- Agile Project Management with Scrum by Ken Schwaber
- Agile Retrospectives by Esther Derby and Diana Larsen
- Agile Software Development Ecosystems by Jim Highsmith
- Agile Software Development with Scrum by Ken Schwaber and Mike Beedle
- Scrum and The Enterprise by Ken Schwaber
- User Stories Applied for Agile Software Development by Mike Cohn
- Lots of weekly articles at www.scrumalliance.org
- Lots of interesting material at www.agilealliance.org

XP Overview



Origins of Extreme Programming

- Kent Beck and Ward Cunningham draw from previously published practices to their own work together
  - SmallTalk, OO patterns, ...
- 1996 – C3 project started at Chrysler
  - Kent Beck coaching
  - Radical success after previous failed attempts
  - Distributed Computing magazine article in 1998[1])
- 1999 Extreme Programming Explained published

1) http://www.xprogramming.com/publications/distributed_computing.htm

XP Values and Principles

Values

Communication – Problems in projects can be invariably be traced back to somebody not talking to someone else about something important.

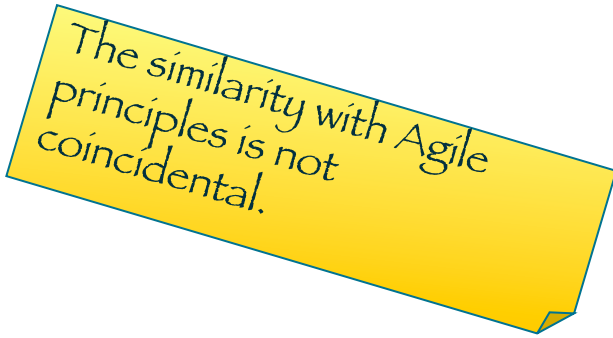
Simplicity – "What is the simplest thing that could possibly work?“ Simple things are also easier to communicate.

Feedback – Concrete information about the current state of the system is absolutely priceless.

Courage – It takes courage to accept change, to re-engineer constantly, to trust that we can fix tomorrow's problems tomorrow, to throw code away when it doesn't work and restart from scratch, etc

Principles

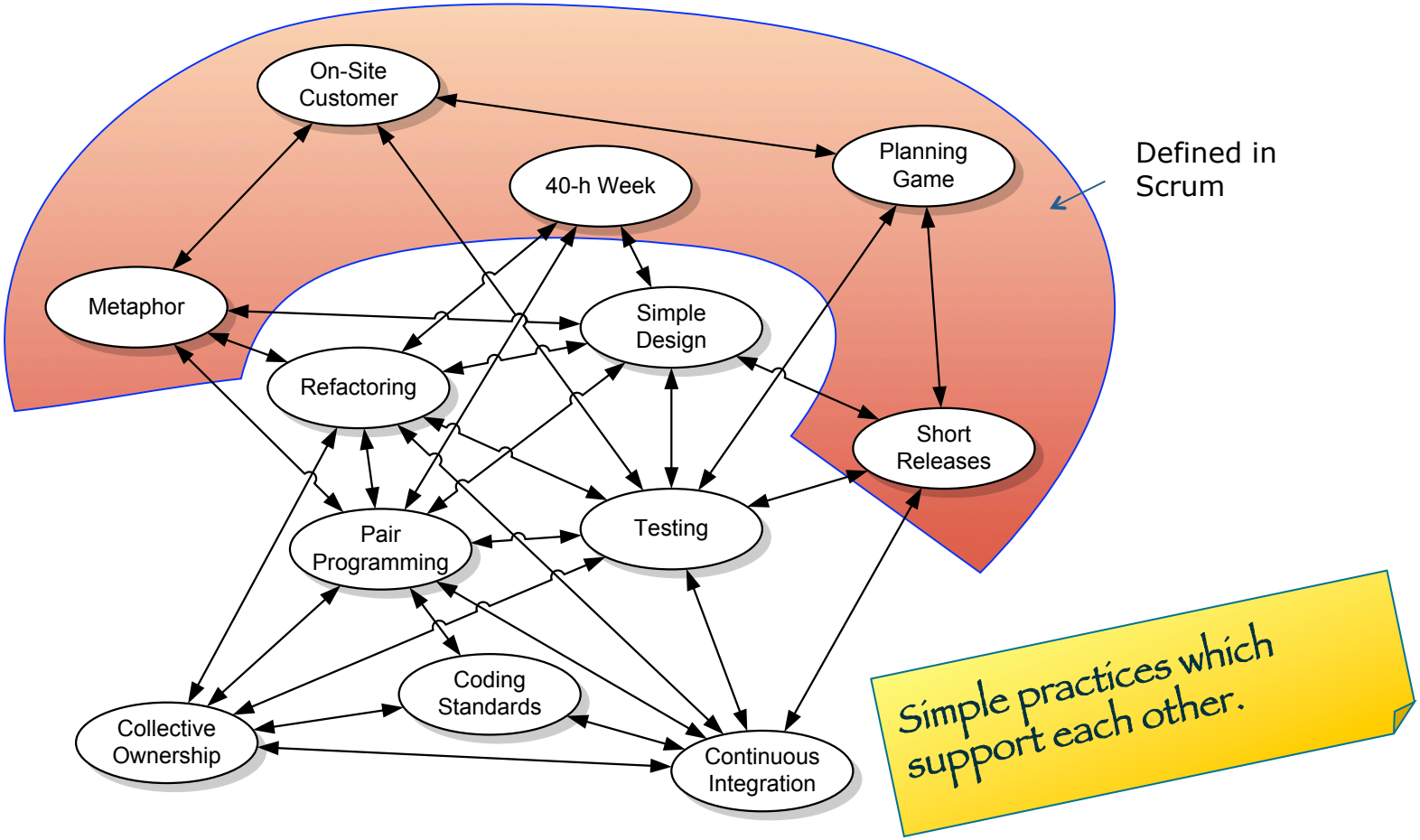
- Rapid feedback
- Assume simplicity
- Incremental change
- Embracing change
- Quality work
- Small initial investment
- Play to win
- Concrete experiments
- Work with people's instincts and not against them
- Accepted responsibility
- Travel light



Things You Can't Do Without

- **Coding** – Code is of course needed to compile the software, but is also a method for communication, testing and design.
- **Testing** – Tests define when coding is done; when they all run, you're done. Testing gives confidence to make changes and coding with testing is faster to do than coding only (time saved in debugging). Automated tests also provide safeguards against errors in further development and keep the software alive longer.
- **Listening** – Without listening, you won't know what the customer wants and you don't know what the other developers are doing.
- **Designing** – Design gives the code structure that will enable further coding. XP creates an atmosphere in which good designs are created, bad designs fixed and current design is learned by everyone who needs to learn it.

XP Practices



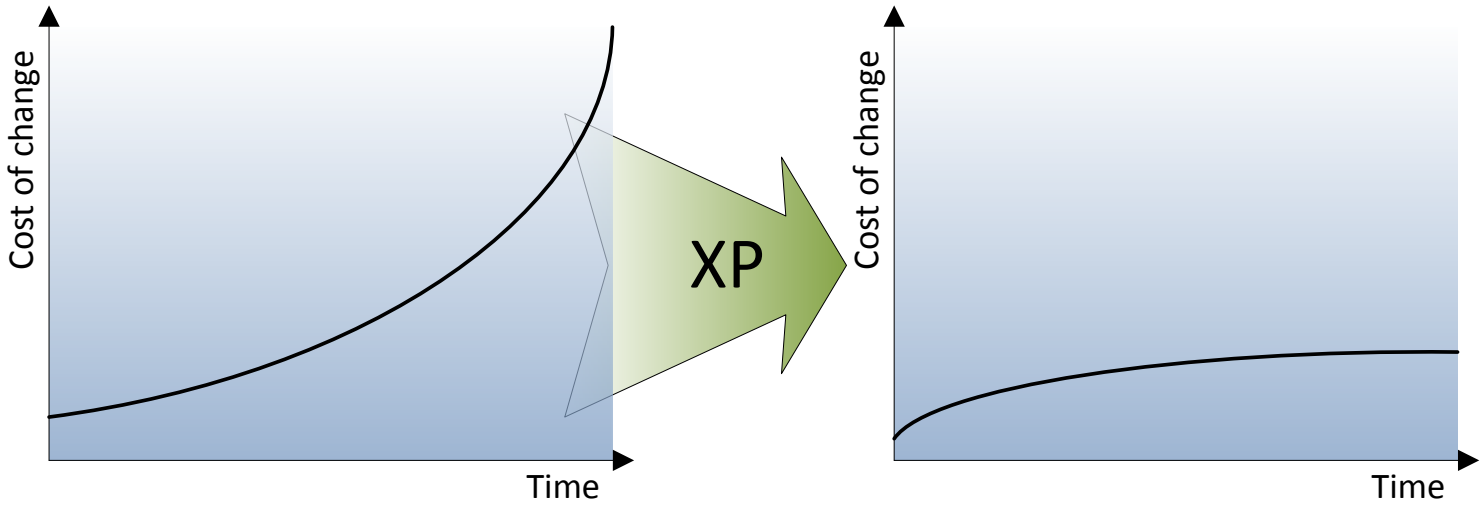
Typical Techniques for Practices

- Object-oriented design and programming languages
- Test Driven Development
- Automated testing frameworks (xUnit, Fit & Fitnesse, ...)
- Version control systems (CVS, Subversion, ...) and build automation tools (e.g. Ant, CruiseControl, ...)

What is the Goal?

The ability to deliver change means that the team can deliver customer value throughout the project, regardless of when the customer need is identified.

Low cost of change and fast delivery mean that at any moment, we only need to decide on things that important right then, and we can leave our options open regarding other functionality.



Waterfall / phased

Agile / iterative

How Important Are These Things Really?

"I've never seen or heard of a hyperproductive team that wasn't doing the eXtreme Programming practices (as described by Kent Beck, Ron Jeffries, etc.)."

Michael James, http://danube.com/system/files/A_ScrumMaster's_Checklist_blog.pdf