Agile Software Development

Agenda

- Introduction to Agile
- Principles of Agile (Agile Manifesto)
- The People Involved
- Product Manager vs. Product Owner
- Release vs. Sprint vs. Iteration
- Product Backlog vs. Sprint Backlog
- Agile Reports
- Agile Solution Providers
- Problems with Agile and how we can Help
- Resources

Introduction to Agile

Agile software development refers to a group of software development methodologies that are based on similar principles. Agile methodologies generally promote:

- A **project management process** that encourages frequent inspection and adaptation;
- a leadership philosophy that encourages **team work, self-organization** and **accountability**;
- a set of engineering best practices that allow for **rapid delivery of high-quality** software;
- and a business approach that aligns development with customer needs and company goals.

MYTH: No documentation

MYTH: Undisciplined

MYTH: Agile is a process

Manifesto for Agile Software Development

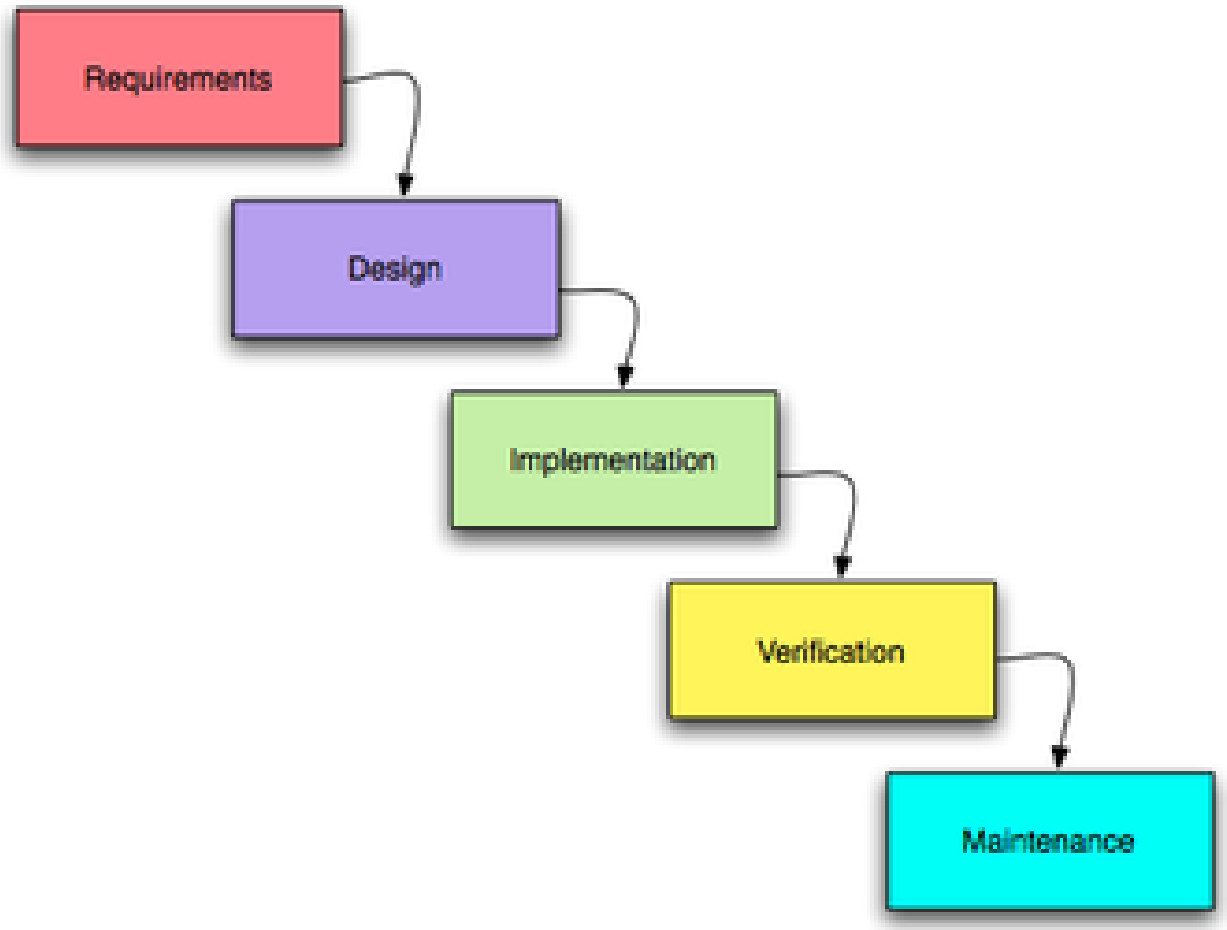
- **Individuals** and **interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

Principles of Agile

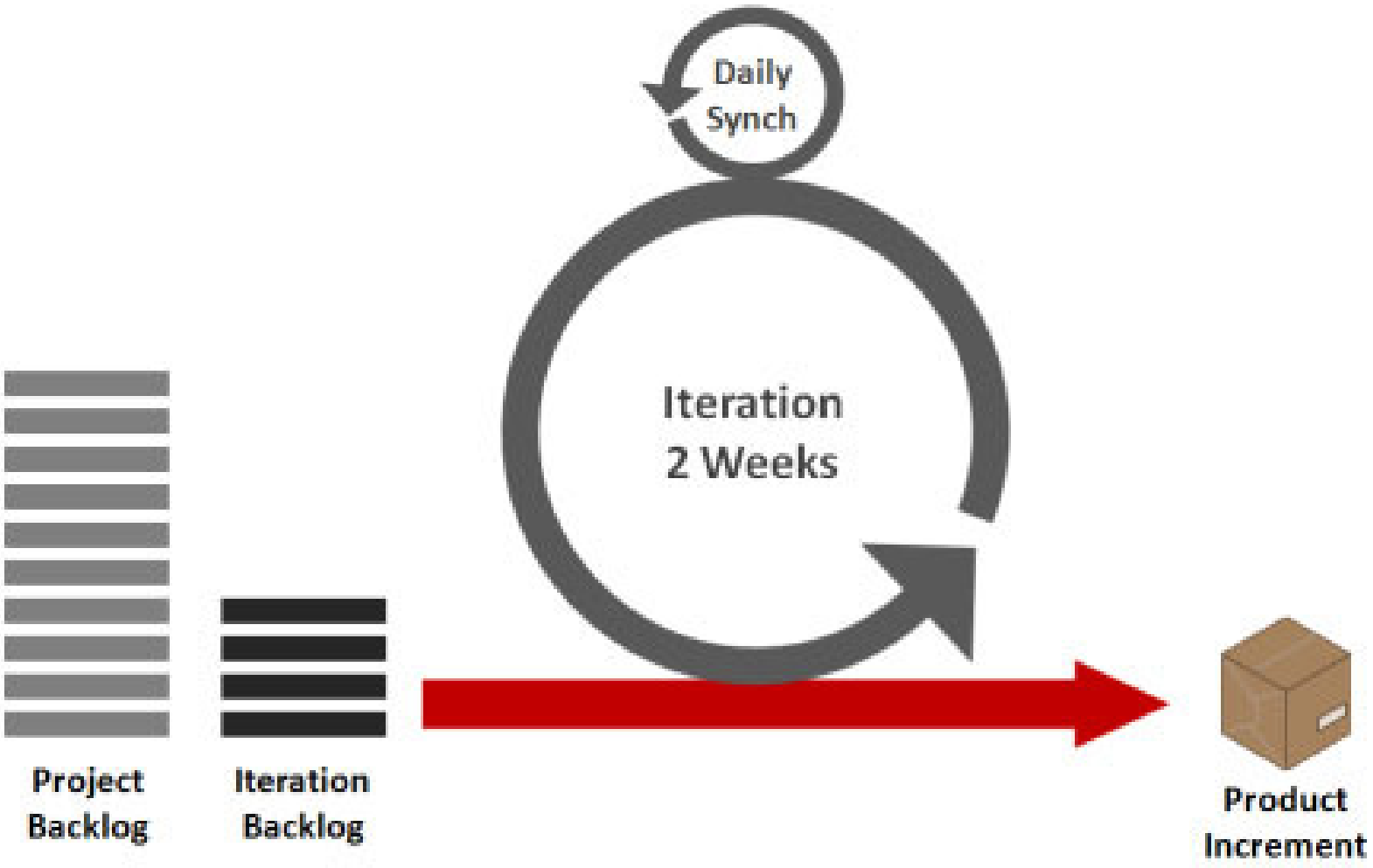
Some of the principles behind the Agile Manifesto are:

- **Customer satisfaction** by rapid, continuous delivery of useful software
- **Working software** is delivered frequently (weeks rather than months)
- Working software is the principal **measure of progress**
- Even **late changes in requirements** are welcomed
- Close, daily cooperation between business people and developers
- **Face-to-face** conversation is the best form of communication (Co-location)
- Projects are built around motivated **individuals**, who should be trusted
- Continuous attention to **technical excellence** and good design
- **Simplicity**
- **Self-organizing** teams
- Regular **adaptation** to changing circumstances

Waterfall


Requirements
Design
Implementation
Verification
Maintenance

Agile


Daily
Synch
Iteration
2 Weeks
Project
Backlog
Iteration
Backlog
Product
Increment

Introduction to Agile Methodologies

- SCRUM (most popular) is an iterative process of development used with agile software development. The roles in Scrum are the ScrumMaster, the Product Owner and the Team. During each sprint the team creates an increment of potential shippable software. The set of features that go into each sprint come from the product backlog. Which backlog items go into the sprint is determined during the sprint planning meeting. The team then determines how much of this they can commit to complete during the next sprint. During the sprint, no one is able to change the sprint backlog.
- Extreme Programming (XP) (third) is a traditional software engineering practices (daily interactions, working software, testing, etc.) taken to so-called "extreme" levels, leads to a process that is more responsive to customer needs ("agile"), while creating software of better quality.
- SCRUM/XP (2nd)

Introduction to Agile Methodologies (cont'd)

- Feature-driven Development (rare) an iterative development process. This practice is driven from a client-valued functionality (feature) perspective.

- Test-driven Development (rare) is a software development technique that uses short development iterations based on pre-written test cases that define desired improvements or new functions. Each iteration produces code necessary to pass that iteration's tests.

- Lean (rare) is a process designed to eliminate waste, amplify learning, make decisions late, fast delivery, empowered teams, product integrity and an fully understood system.

- Custom (rare)

Why They Move

- Projects too long to estimate accurately
- Increase short-term predictability
- Transparency
- Flexibility
- Agile builds empowered, motivated and self organizing teams
- Clear expectations are set and communicated
- Customers communicate directly with the team and provide timely feedback
- Teams feel a sense of accomplishment and recognition

The People Involved

- Pigs and Chickens

The People Involved (cont'd)

- The Agile Team
  - Architects
  - Developers, Analysts, Designers
  - Quality Assurance, Testers
  - Tech Writers
- Product Owners / Customer Representatives
- Project Managers / ScrumMasters

- Note: Teams are small (~7), preferably co-located, cross functional. Scale by adding teams, not more people

The **"Other"** People Involved

- Product Marketing
- Marketing Communications
- Directors
- Executives

- Note: Can attend dailies but cannot speak. Can participate in planning. Interact with team through Project Manager / ScrumMaster

Product Manager vs. Product Owner

- Product Owner owns the message to the Agile team and the Sprint/Iteration Backlog
- Product Manager owns the Roadmap / Strategy / Vision / Product Backlog
- Often they are the same person and the problems with this are well documented

Note: Only SCRUM calls them Product Owners, other flavours reference customer representative, visionary, business/domain experts

Resource: Scaling Software Agility (blog) by Dean Leffingwell

http://scalingsoftwareagility.wordpress.com/category/product-ownerproduct-manager/

What is a backlog?

- A backlog is the master list of all functionality
  - Features
  - Epics
  - Stories
  - Requirements
  - Bugs

- Item Attributes:
  - Description
  - Cost estimate (points or size)
  - Business Value
  - Priority

Product Backlogs vs. Sprint Backlogs

- A **Product Backlog** is the master list of all functionality for the product
  - Features
  - Epics
  - Bugs

- The **Sprint Backlog** is the list of functionality that the team is committing that they will complete in the current iteration
  - Storied
  - Requirements
  - Bugs

- Product Management / Owner owns the backlogs

Agile Planning

- Beginning of iteration
- Review vision and roadmap
- Review development status, architecture and previous iterations
- Determine velocity
- Review team availability & capacity
- Review definition of done
- **Review product backlog & select items for iteration / sprint**
- **Identify tasks & estimates**
- **Identify challenges & risks**
- Review capacity required

- **COMMIT** (planning not over until entire team commits to sprint plan)

Agile Retrospectives

- Meeting after an increment of work to inspect and adapt their methods and teamwork
  - What went well
  - What could be improved
- Team learning
- Catalyst for change
- Generate action
- Sample Agenda
  - Overview
  - Gather data
  - Prioritize
  - Discuss
  - Action Items

Agile Estimating

- Typically stories estimated twice
  1. High level estimate provided by team (for the product backlog)
  2. Iteration estimate provided by team (for the sprint)
- Story Points
  - Used to quantify the difficulty, not to identify time
  - Typically done in powers of 2 (1,2,4,8, 16…) or Fibonacci (1,2,3,5,8…)
- Everyone estimates often: at the beginning of the iteration, daily during the iteration to estimate the remaining effort
- The effort remaining (and not the effort already spent) is displayed publicly to enable collaborating teams that work together to meet the target of the iteration