

CS 208

Software Engineering



Agile Software Development

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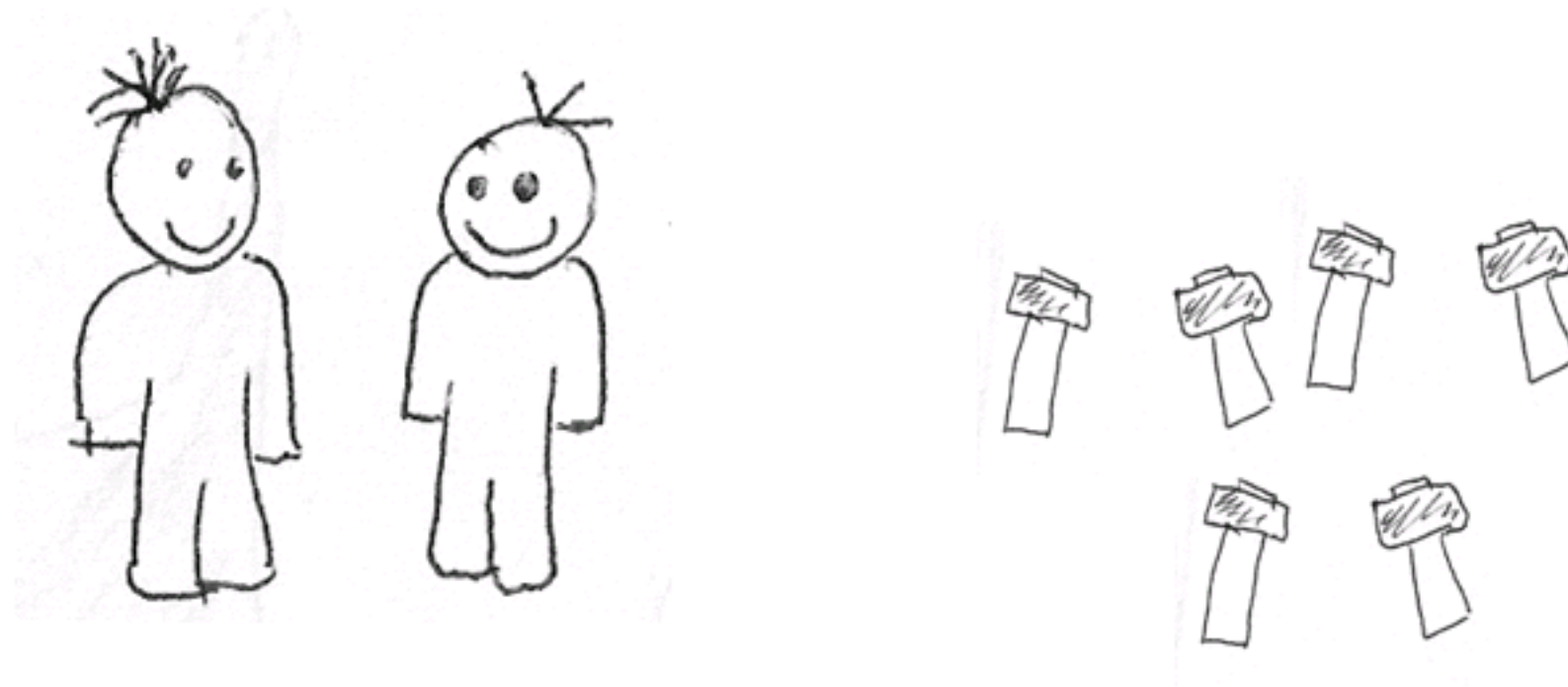
Agile Software Development - Brief History

- early attempts to improve software concentrated on improving methods to define requirements, designing architecture to support requirements, and developing software in a regimented manner
- there was a wave of criticism in the late 1990s for the 'heavyweight' software development methodologies
- a group of industry thought leaders felt the need for development methodologies that were able to quickly react to changing requirements
- these thought leaders met in Snowbird, UT in 2001 and the term Agile Software Development was coined. The 'Agile Manifesto' came into being at this meeting

Agile Manifesto



Agile Manifesto



Individuals and interactions over processes and tools

Agile Manifesto



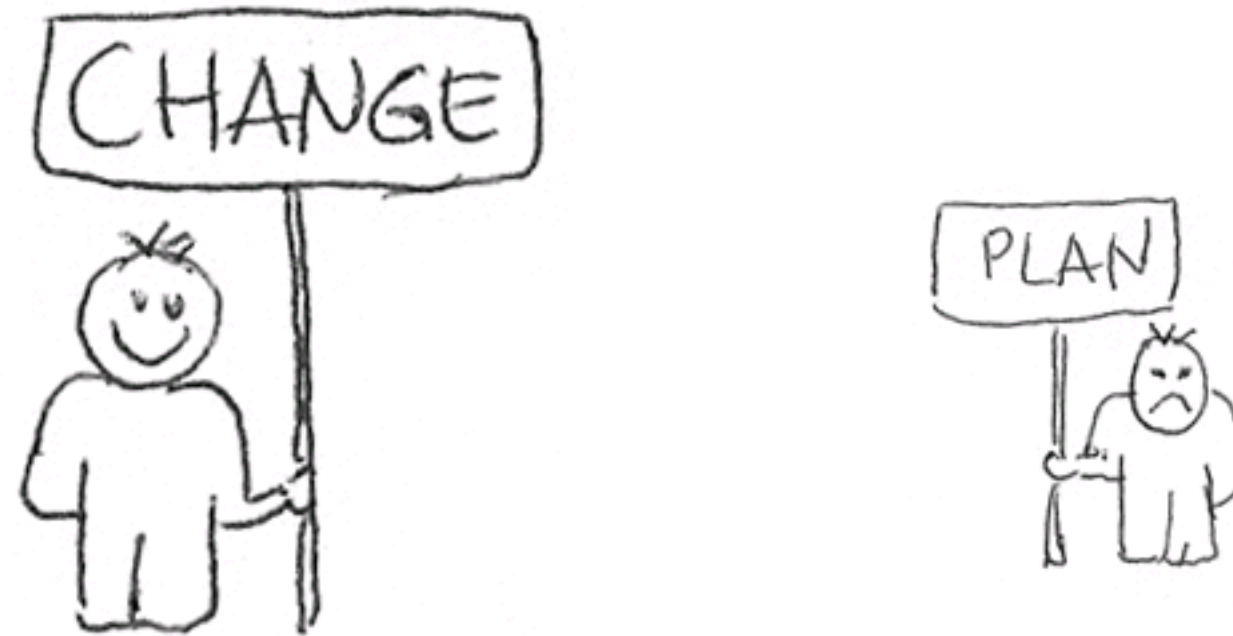
Working software over comprehensive documentation

Agile Manifesto



Customer collaboration over contract negotiation

Agile Manifesto



Responding to change over following a plan

working software should be delivered frequently ...

Balance risk reduction with feature accomplishment

- Two-week iterations have been proven
- About three iterations make a releases

Time-boxed development

- Knowledge about velocity
- Improvement of overall project plan

valuable software should be delivered ...

Focus on completing valuable features

- ✧ Often unusual for large teams
- ✧ completing means integration, test and documentation

Structure the teams along features

- ✧ For ensuring the business value and the customer's advantage

customer involvement ...

Defined single customer is rare, more typical are:

- 🌀 Large invisible customer base (typical for standard software)
- 🌀 Community of customers (often not homogenous)

Therefore: Customer surrogate

- 🌀 Product Owner
- 🌀 One product owner might not be enough
 - Team of product owners with one chief product owner
 - One product owner might steer 2-3 feature teams

change ...

Change in features and in priorities

- ✧ Clear sign that the customer gets a better understanding of the system.
- ✧ Most often this can be addressed with iterations

But a change means:

- ✧ Time delay
- ✧ Elimination of another feature

development should be sustainable ...

Determine each teams velocity

- Realistic planning
- Note: velocities are not comparable

Reviews and code inspection

- External
- Internal
 - Review team
 - Continuously: pair programming

trust ...

Trust is based on:

- . Communication
- . Transparency
- . Honesty
- . Touch

Trust regards all:

- . Developers
- . Customers
- . Managers

face-to-face ...

Face-to-face communication is always preferred

Daily Synchronization is a must

- to have a common understanding
- to deal with roles
- to deal with problems
- to get feedback

continuous attention to technical excellence ...

A good (and simple) design is never easy

- ✧ And: Make it right the first time never works
- ✧ The best architecture evolves

Tests ensure the existing functionality

- ✧ Provide the safety net for refactoring
- ✧ Automated and synchronized with development

integration ...

Changes should be integrated as often as possible

- ✧• Makes progress visible and measurable
- ✧• Conflicts are easier to solve

Each integration results in a running system

- ✧• Provides immediate feedback

self organizing teams ...

Let teams decide

- 🌀• Each team defines its own process
- 🌀• Retrospectives help to shape the process

Don't over specify and overrule

- 🌀• Use a starting line and adjust from there
e.g. the experience of the project members is a good start



Agile Alliance

“A nonprofit organization with global membership, committed to advancing Agile development principles and practices. Agile Alliance supports those who explore and apply agile principles and practices in order to make the software industry more productive, humane, and sustainable. We share our passion to deliver software better everyday.”



Agile Alliance

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