Agile Development in Today’s Industry

Duke CS408 Session 2016
Agenda

- Introductions
- Agile Development Process
- Agile Development Exercise
- Informal Discussions
- Questions
Agile Methodologies

Agile software development is a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration.

(because so many have suffered before you)

Agile Methods

- Scrum
- Rational Unified Process
- Crystal Clear
- Extreme Programming
- Adaptive Software Development
- Feature Driven Development
- Dynamic Systems Development Method (DSDM)
Agile Manifesto

A Statement of Values

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

http://www.agilemanifesto.org

Agilists value the things on the right, but value the things on the left more.

Agilists assume you cannot have all the requirements and a complete design up-front.
Scrum Development Process

- Daily Scrum Meeting
- 24 Hours
- 2-4 Weeks
- Potentially Shippable Product Increment

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Roles, Artifacts, Meetings

**Roles**

- **Product Owner**
  - Sets priorities

- **Scrum Master**
  - Manages process
  - Removes blocks

- **Team**
  - Develops product

- **Sponsors**
  - Observe
  - Advise

**Key Artifacts**

- **Product Backlog**
  - List of requirements & issues
  - Owned by Product Owner
  - Anybody can add to it.

- **Sprint Goal**
  - One sentence summary
  - Declared by Product Owner

- **Sprint Backlog**
  - List of tasks
  - Owned by team

- **Blocks List**
  - List of blocks and unmade decisions
  - Owned by Scrum Master

- **Increment**
  - Version of product
  - Shippable, functional and tested

**Key Meetings**

- **Sprint Planning Meeting**
  - Hosted by Scrum Master
  - Select highest priority items in backlog for the sprint backlog and declare sprint goal.

- **Daily Scrum**
  - Attend by all, but Stakeholder do not speak
  - Same time each day
  - Answer just three question
    1. What I accomplished yesterday
    2. What I plan to do today?
    3. What’s blocking me?

- **Sprint Review**
  - Hosted by Scrum Master
  - Attended by all
  - Team demos increment
  - Hold retrospective
## Agile Scrum Development Exercise

<table>
<thead>
<tr>
<th>Duration</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Overview</td>
</tr>
<tr>
<td>10</td>
<td>Requirements</td>
</tr>
<tr>
<td>15</td>
<td>Sprint Planning for all 3 sprints</td>
</tr>
<tr>
<td></td>
<td>1) Estimation</td>
</tr>
<tr>
<td></td>
<td>2) Planning Wall – add to back log</td>
</tr>
<tr>
<td>5</td>
<td>Briefing – details on Sprint</td>
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<tr>
<td></td>
<td>Separate into Teams</td>
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<tr>
<td>15</td>
<td>Sprint – 1 (planning, implementation, review)</td>
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<tr>
<td>15</td>
<td>Sprint – 2 (planning, implementation, review)</td>
</tr>
<tr>
<td>15</td>
<td>Sprint – 3 (planning, implementation, review)</td>
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<tr>
<td>10</td>
<td>Debrief</td>
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Game Process

- Pre-game
  - Organize into teams
  - Review the process
  - Describe the project chartering
  - Build the backlog
  - Estimating

- Game
  - Plan the sprint
  - Sprinting
  - Review the sprint

- Post-game
  - Debriefing
Three Teams build one city

Commercial
- office buildings
- restaurants
- Gas stations

Government
- Power plant
- Clock tower
- Water tower

Residential
- Apartments
- Houses
- Parks
- Schools

One City
Team Roles

- PM/Team Lead
- Business Analyst
- 2 Fetchers
- QA/Tester
- Technical Lead
- 2 builders
<table>
<thead>
<tr>
<th>BACKLOG</th>
<th>PLANNING WALL</th>
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<tbody>
<tr>
<td>river</td>
<td>Team A</td>
</tr>
<tr>
<td>park</td>
<td>planned: 4</td>
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<tr>
<td></td>
<td>actual: 4</td>
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<tr>
<td>intersection</td>
<td>1-storey building</td>
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<tr>
<td>church</td>
<td>Team B</td>
</tr>
<tr>
<td></td>
<td>planned: 5</td>
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<tr>
<td></td>
<td>actual: 5</td>
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<tr>
<td></td>
<td>2-storey building</td>
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<td></td>
<td>Team C</td>
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<td></td>
<td>planned: 5</td>
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<tr>
<td></td>
<td>actual: 5</td>
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<td></td>
<td>2-storey building</td>
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<td></td>
<td>sprint #1</td>
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<td>planned: 5</td>
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<tr>
<td></td>
<td>actual:</td>
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<td>1-storey building</td>
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<tr>
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<td>sprint #2</td>
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<td>actual:</td>
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<td>school</td>
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<td>sprint #3</td>
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<td>planned:</td>
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<tr>
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<td>actual:</td>
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Client is the Product Owner

1. All teams will be building a single product – you are not competing, All working for the same vendor.
2. The product is a CITY with the features already listed.
3. The main building elements are LEGOIs, though any other material can be used in addition for roads and landscapes.
4. The client/product owner is the main decision maker of the product – it is their city.
5. The client will be involved in the development process by being available to answer questions and provide feedback.
A Few Rules

- Building materials are in separate room
- Only take enough materials to complete the current sprint
- Only 2 members from each team to collect materials at a time
- Only 2 members from each team to place pieces on the game board after product owner approval
- Team identifies which members are collecting materials and which are modifying the game board during planning.
- There will be a single landscape for both teams to build upon
- Teams will be evaluated based on customer satisfaction
Best Practice

- Many teams ONE city.
- Do the simplest thing that works.
- Don’t worry about the details until you have something built.
Questions
Backup slides
Kanban Board
Agile is...