Agile Development in Today’s Industry

Duke CS408 Session 2017
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](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
### 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>
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<tr>
<td></td>
<td>2) Planning Wall – add to back log</td>
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<tr>
<td>5</td>
<td>Briefing – details on Sprint</td>
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<tr>
<td></td>
<td>Separate into Teams</td>
</tr>
<tr>
<td>15</td>
<td>Sprint – 1 (plan, implement, review)</td>
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<tr>
<td>15</td>
<td>Sprint – 2 (plan, implement, review)</td>
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<tr>
<td>15</td>
<td>Sprint – 3 (plan, implement, review)</td>
</tr>
<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
  - Sprint
  - Review the sprint

- Post-game
  - Debrief
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
Tracks estimates and actuals

Business Analyst
Communicates with product owner

QA/Tester
Ensure build meets requirements

Technical Lead
Makes technical decisions concerning the build

2 Fetchers
Gets Legos for sprint

2 builders
Builds with Legos
# Planning Wall

<table>
<thead>
<tr>
<th>Backlog</th>
<th>Government</th>
<th>Commercial</th>
<th>Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skyscraper</td>
<td><img src="example" alt="High School (4)" /></td>
<td><img src="example" alt="Skyscraper (4)" /></td>
<td><img src="example" alt="House (2)" /></td>
</tr>
<tr>
<td>Bridge II</td>
<td><img src="example" alt="Bridge I (4)" /></td>
<td><img src="example" alt="Office Building (8)" /></td>
<td><img src="example" alt="Apartement (4)" /></td>
</tr>
<tr>
<td>Power Plant</td>
<td><img src="example" alt="Skyscraper (4)" /></td>
<td><img src="example" alt="Skyscraper (4)" /></td>
<td><img src="example" alt="Skyscraper (4)" /></td>
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<tr>
<td>Hospital</td>
<td><img src="example" alt="Skyscraper (4)" /></td>
<td><img src="example" alt="Skyscraper (4)" /></td>
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<tr>
<td>School</td>
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<td><img src="example" alt="Skyscraper (4)" /></td>
<td><img src="example" alt="Skyscraper (4)" /></td>
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<tr>
<td>Apartment</td>
<td><img src="example" alt="Skyscraper (4)" /></td>
<td><img src="example" alt="Skyscraper (4)" /></td>
<td><img src="example" alt="Skyscraper (4)" /></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Sprint</th>
<th>Government</th>
<th>Commercial</th>
<th>Residential</th>
</tr>
</thead>
</table>
| #1     | Planned: 10  
     | Actual: 8   | Planned: 18  
     | Actual: 12  | Planned: 10  
     | Actual: 6   |
| #2     | Planned:  | Actual:  | Planned:  | Actual:  |
| #3     | Planned:  | Actual:  | Planned:  | Actual:  |
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 LEGOs.
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...