How to Collect and Manage Requirements for Successful GIS Projects

Lana Tylka and Matt Harman
Requirements

Provide direction for program success
Let’s talk about people

- People have personalities
- Personalities can be tricky
Collect Requirements
A good user story uses the “INVEST” model:

**I**ndependent.  *Reduced dependencies = easier to plan*

**N**egotiable.  *Details added via collaboration*

**V**aluable.  *Provides value to the customer*

**E**stimate-able.  *Too big or too vague = not estimate-able*

**S**mall.  *Can be done in less than a week*

**T**estable.  *Good acceptance criteria*
Some things are **not about a [user]**

As a user interface, I need to look like the following image so that I can be intuitive to use.
Keep your stories visible
User stories facilitate a **conversation** with the team and with the users...

Hey! Something to look at, talk about, comment on, react to...
Progressively decompose your stories...

As a real estate manager, I need to interact with a map to explore new locations.

As a real estate manager, I need to receive information by clicking on potential sites to better understand the property.

As an analyst, I need the ability to create a map with pop-ups to build easy-use-maps for management.

As a real estate manager, I need to be able to see a pie chart of surrounding demographics so that I can match consumer demand with product.

As a real estate manager, I need interactive map capability on my iPad so that I can travel minimalistic during site visits.
How do we know when we are done?
Confirmation...the acceptance test

Given [PRECONDITION]
When [ACTION]
Expect [RESULT]
How do we know when we are done?

Confirmation…the acceptance test

- **Given** I have enabled offline access on my map
- **When** I click on the map to create a feature
- **Then** the feature will be stored locally until I sync with connectivity.
How do we know when we are done?

Couple of things to note...

- Define acceptance just in time...don't waste too much time
- Part of the conversation process
- Acceptance consistency (given...when...expect) is helpful, but not necessary
Definition of Done

Examples of practices that might be included in the definition of “done:”

- Acceptance criteria met
- Code is reviewed by another development team member
- Test cases are written
- Unit tests and UI automation tasks are written
- Feature is tested for accessibility

We don’t do strict...
Watch out for the ‘Gotchas’

Things to avoid

- Avoid long lists of acceptance criteria on a single user story
- Prepare for conflicting requirements
- Avoid requirements that are ambiguous
- Avoid requirements that describe HOW
- Requirements must have a “reason”
- Avoid moving forward on development until after the customer has reviewed the design
- Don’t forget to prioritize
Manage Requirements
Requirement Management Tools
Licensed and Open Source

Microsoft Team Foundation Server (TFS)

JIRA

Waffle.io
Using Trello

The pots and pans are piling up on the ground and I'm always tripping over them. I would say we should get rid of a few, but I love every single pot and pan we own! We need a pot rack. It would go great over the island in the kitchen.
Using GitHub
## Using TFS

### Backlog items to Features

<table>
<thead>
<tr>
<th>Title</th>
<th>State</th>
<th>Effort</th>
<th>Tags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition and core workflow</td>
<td>In Progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add, Edit, Remove from shopping cart</td>
<td>Approved</td>
<td>5</td>
<td>Mobile</td>
</tr>
<tr>
<td>Edit existing users</td>
<td>Committed</td>
<td>5</td>
<td>Web</td>
</tr>
<tr>
<td>Direct link to an item in the catalog</td>
<td>Committed</td>
<td>8</td>
<td>Mobile</td>
</tr>
<tr>
<td>Welcome mails that include a “Getting Started” v...</td>
<td>New</td>
<td>3</td>
<td>Mobile</td>
</tr>
</tbody>
</table>

### Tasks Needing Attention

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To Do</td>
<td>In Progress</td>
</tr>
<tr>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

### Backlog Distribution

- Committed: 12
- Approved: 5
- New: 11
- Done: 29

### Work By: Assigned To

- **Christina Kelly**
  - (8 of 14 h)
- **Lowell Steel**
  - (17 of 14 h)
- **Noah Munger**
  - (6 of 7 h)

### Type of query

- Flat list of work items
- Work items and direct links
- Tree of work items

### Example query setup:

- Or
- **Team Project** = "Project A"
- **Assigned To** = "Christina Kelly"
### Project Considerations

<table>
<thead>
<tr>
<th>Consideration</th>
<th>Trello</th>
<th>GitHub</th>
<th>TFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements are Proprietary</td>
<td>Red</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Mobile App</td>
<td>Green</td>
<td>Yellow</td>
<td>Red</td>
</tr>
<tr>
<td>Easy to setup</td>
<td>Green</td>
<td>Green</td>
<td>Red</td>
</tr>
<tr>
<td>Estimation tools</td>
<td>Red</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Scheduling tools</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Automated Burndown chart</td>
<td>Red</td>
<td>Red</td>
<td>Green</td>
</tr>
<tr>
<td>Easily integrated with Visual Studio for Code Repository</td>
<td>Red</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Capacity Planning</td>
<td>Green</td>
<td>Yellow</td>
<td>Green</td>
</tr>
<tr>
<td>Exports to MPP and Excel</td>
<td>Red</td>
<td>Yellow</td>
<td>Green</td>
</tr>
</tbody>
</table>
What does this look like?

Scenario!
There is a lot of info out there to help

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**PROJECT MANAGEMENT ZONE**

|----------------------------------------------------|--|

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**http://assets.cdnma.com/13314/assets/Website Downloads/2016-Seilevel-RequirementsTool-Evaluation-Report-FINAL.pdf**

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**http://project-management.zone/system/jira,pivotal-tracker,team-foundation-server,trello**
Last year, Business Analyst Learnings published an article comparing 3 free requirements management tools. Go check them out!

https://businessanalystlearnings.com/technology-matters/2017/7/4/a-list-of-free-requirements-management-rm-software
Requirements

THE most important part of a project

- Involve the right people in the process
- Solid requirements gathering leads to successful projects
- Consider solution, COTS capabilities before collecting additional requirements
- Pick a methodology that fits your project
- Focus on the level of detail that is appropriate
- Important to prioritize and allocate
- Invest plenty of time to secure customer approval
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Select the session you attended

Select the Feedback tab

Complete answers and select “Submit”
See Us Here

<table>
<thead>
<tr>
<th>WORKSHOP</th>
<th>LOCATION</th>
<th>TIME FRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Esri Best Practices: Utilizing AGILE Project Management</td>
<td>• Room 14 B</td>
<td>• 4pm</td>
</tr>
</tbody>
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