A Lean Approach to Requirements Validation

11/23/2015
## Top 5 Reasons for Product Delays

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Unclear or changing requirements</td>
<td>23%</td>
</tr>
<tr>
<td>Quality issues</td>
<td>15%</td>
</tr>
<tr>
<td>Lack of resources</td>
<td>12%</td>
</tr>
<tr>
<td>Delayed decisions</td>
<td>9%</td>
</tr>
<tr>
<td>Resource coordination problems</td>
<td>8%</td>
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64% say improved customer satisfaction is the no. 1 measure of a successful product.

## Top Problems Bringing Products to Market

<table>
<thead>
<tr>
<th>Problem</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Expected value and actual value do not match</td>
<td>30%</td>
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<tr>
<td>Value is not communicated to the organization</td>
<td>29%</td>
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We know…

Requirements Validation

• Concerned with demonstrating that the requirements define the system that the customer really wants.

• Requirements error costs are high so validation is very important
  – Fixing a requirements error after delivery may cost up to 100 times the cost of fixing an implementation error.
Our Global Quality Understanding

› Customer Satisfaction
  We know that quality is crucial to our customers’ satisfaction and therefore to our business success. We are committed to a target of zero defects.

› Together
  We all influence the quality of our products and services.

› From the Beginning
  We do things the right way from the very beginning and set new quality standards together.

› Structured
  We agree on binding rules for our work and collaboration. At the same time, we encourage personal commitment and autonomy to move quality forward.

› Holistic
  We understand quality as the continuous and holistic effort to optimize our company’s performance.

Executive Board
April 2018
You won’t learn how to write good requirements from reading a book on software requirements engineering or a book on technical writing. You need practice. Write requirements to the best of your ability, and then enlist some of your colleagues to review them. Constructive feedback from reviewers can help anyone become a better writer. In fact, it’s essential. Requirements quality is in the eye of the reader of the requirements, not the author. No matter how fine the author thinks the requirements are, the ultimate arbiters are those who must base their own work on those requirements. - Karl E. Wiegers
Typical today:

- Requirements validation is ensuring requirements are fully met – a typical quality measure.
- Validation Tests of the requirements is performed nearly at the end of the process.
- Teams writing tests are not involved during requirements elicitation.
- Quality teams are not asked to provide early feedback during concept and design phases.
Instead

- Quality is ensuring the customer is pleased
- Build Quality In at the beginning by performing tests with the customer
- Let quality and test members partner during requirements elicitation
  - Write UAT tests before any system or product is developed
- Let the results of early testing drive the system or product strategy – Plan and Agree on this early
Lean Principles

• Eliminate Waste
• Build Quality In
• Create Knowledge
• Defer Commitment
• Deliver Fast
• Respect People
• Optimize the Whole
Eliminate requirements waste

- Only retain requirements that are necessary
- Requirements Analysts/Engineers should partner with architecture and test teams at the beginning
- Reduce the number of non functional requirements to only those that are critically necessary to produce a viable product/system (MVP)
- Find redundancies in requirements
- Do not develop features that are not going to be used – test early to discover these
Requirements validation techniques

Requirements validation is the process of checking the requirements for validity, consistency, completeness, realism and verifiability.

- Requirements reviews
  - Systematic manual analysis of the requirements.
- Prototyping
  - Create executable models of the system to check requirements.
- Test-case generation
  - Developing tests for requirements to check customer satisfaction.
Eliminate Test Waste

- Test all assumptions
- Plan to let testing drive validation
- Let testing be the mechanism that tells you whether the product strategy is correct
- Don’t re-run validation tests
- If you agree that the two main objectives of testing are to 1) verify and find errors and 2) validate that the client benefits from the system, you can draw the following conclusion regarding Lean: **Validation is far more important than verification**. Obviously, you do still have to verify the software and find defects, but if the function you’re testing doesn’t provide direct value to the client, all the time you put into it is just waste. So your top priority in requirements management and testing work has to be customer value!* 

* [http://reqtest.com/testing-blog/lean-and-requirements-management-and-testing/]
Requirements reviews

- Regular reviews should be held while the requirements definition is being formulated.
- Both client and contractor staff should be involved in reviews.
- Reviews may be formal (with completed documents) or informal. Good communications between developers, customers and users can resolve problems at an early stage.
- Leverage modern business collaboration technologies.
Lean Testing

• Automate as much as possible
• Involve the customer as early as possible
• Quality at the source recommends the use of:
  – Visual Aids – make use of models as much as possible: Use case, system models, wireframe, mockups, behavioral models, simulations… use models to validate requirements early
  – Employee Training
  – Employee Documentation

Fail Fast

- Do not be fearful of failure
- Test as early as possible to validate the highest level requirements – The Customer Requirements
- Create models of the customer requirements
- Involve the customer themselves in the requirements validation testing process
- If taking an agile approach, write test cases before user stories
Engage Design & Development Early

• When doing customer interviews, include a member of the design and development teams so they can hear from a customer directly instead of relying on the product owner's notes. It will also give them the chance to probe deeper while the topic is fresh in the customer's mind.

• SW engineers can play a key role in successful requirements validation

• By engaging SW engineers from the beginning of requirements analysis, requirements are more quickly validated, and the fidelity and quality of requirements is better – (Lean! Build Quality In)

• SW engineers get the opportunity to help weed out trivial requirements and help prioritize only those that are relevant to a MVP (minimum viable product)

• MVP = minimum viable product
Extras

- Customers, business, organizational and technical changes inevitably lead to changes to the requirements for systems. Good requirements management anticipates and these changes and can pinpoint impacts.
- Don’t force un-adoptable tools onto the teams
Collaboration

• Use modern tools that leverage Collaboration
Quality Teams – The Heroes

Quality organizations have the unique capability to guide product and program managers early in lifecycle and provide true value. Lean principles applied to requirements at the very beginning of a product or systems inception will reduce costly assumptions that might later cause development rework.