InnoDev Workshop: A One Day Introduction to Combining Design Thinking, Lean Startup and Agile Software Development

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CSEE&T 2020
Agenda

1. Introduction
2. InnoDev
3. Research Setup
4. InnoDev Workshop
5. Workshop Experiences
6. Discussion and Limitations
7. Summary
How can we improve the software development process?
Conceptualizing the Product

Building an initial Product and Business

Scaling the Product and the Business

Start

Observe (O)

Understand (U)

Synthesis (S)

Ideate (I)

Prototype (P)

Test (T)

Pivot

Pivot

Learn

Build

Scaling

Measure

DT Break Out

Lean Startup

Agile

Design Thinking

Chart 4
Goal: Support IT professionals in learning how to intertwine Design Thinking, Scrum and Lean Startup and integrate them into their existing software development processes.

2-Parts:
- Workshop Development
- Workshop Evaluation
Research Setup - Workshop Development

- Training format should introduce the basics of Design Thinking, Scrum and Lean Startup and provide guidance on how to combine these approaches.

- The training was developed based on literature reviews of:
  - existing combined approaches to Design Thinking, agile software development and Lean Startup;
  - suggested important methods from each of the approaches;
  - and of existing research on training for software development practitioners.
Research Setup - Workshop Evaluation

- 3 Workshops with a total of 31 participants from 22 different companies.

- Mixed method research:
  - Observations
  - Collection of Artefacts
  - Group Interviews
  - Surveys
One-day Workshop split into three “sprints”:

- Sprint 1 represents the Conceptualize the Product Phase of the InnoDev Model.
- Sprint 2 represents the Building an Initial Product and Business Phase of the InnoDev Model.
- Sprint 3 represents the Scaling the Product and the Business Phase of the InnoDev Model.
## TABLE III
**Overview of Activities, Techniques and Outcomes for Sprint 1**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Tools &amp; Techniques</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Project and Sprint plan</td>
<td>Overview of what to do</td>
</tr>
<tr>
<td>Understand / Observe</td>
<td>Team Discussion</td>
<td>Collection of experiences from different team members</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Needs, Insights, PoV, Persona</td>
<td>Defined Problem and user for which to find a solutions</td>
</tr>
<tr>
<td>Ideate</td>
<td>Silent Brainstorming with Mind map, followed by sharing and group brainstorming</td>
<td>One or more solution ideas</td>
</tr>
<tr>
<td>Prototype</td>
<td>low-fidelity prototype, e.g. paper UI, Storyboards</td>
<td>Tangible Idea and testable prototype</td>
</tr>
<tr>
<td>Test</td>
<td>Cross testing with other teams, Feedback Capture Grid</td>
<td>initial Feedback from “Users”</td>
</tr>
<tr>
<td>Review and Retro</td>
<td>Start, Stop Continue</td>
<td>experiment design for a quantitative test of the idea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>feedback on sprint, team and techniques</td>
</tr>
</tbody>
</table>
## InnoDev Workshop – Sprint 2

### TABLE IV
**Overview of Activities, Techniques and Outcomes for Sprint 2**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Tools &amp; Techniques</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Project and Sprint plan</td>
<td>Overview of what to do</td>
</tr>
<tr>
<td>Transition to development</td>
<td>User Story Mapping</td>
<td>most essential features as user stories ready for development</td>
</tr>
<tr>
<td>Business Model Creation</td>
<td>Lean Canvas</td>
<td>initial ideas how to market and sell the product</td>
</tr>
<tr>
<td>Business Model Validation</td>
<td>Test Card</td>
<td>experiment design how to validate business model assumptions</td>
</tr>
<tr>
<td>MVP Development</td>
<td>Team discussion</td>
<td>decision on must have functionalities</td>
</tr>
<tr>
<td></td>
<td>High Fidelity Prototyping</td>
<td>MVP prototype</td>
</tr>
<tr>
<td>MVP release</td>
<td>Cross test with another team, Feedback Capture Grid</td>
<td>feedback to MVP</td>
</tr>
<tr>
<td>Establish metrics</td>
<td>AARRR</td>
<td>decision on what to measure and track after MVP release</td>
</tr>
<tr>
<td>Review and Retro</td>
<td>Speedboat metaphor</td>
<td>feedback on sprint, team and techniques</td>
</tr>
</tbody>
</table>
## InnoDev Workshop – Sprint 3

### TABLE V

**Overview of Activities, Techniques and Outcomes for Sprint 3**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Tools &amp; Techniques</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Project and Sprint plan</td>
<td>Overview of what to do</td>
</tr>
<tr>
<td>Improve existing features</td>
<td>team discussion</td>
<td>what to change in the next release based on feedback</td>
</tr>
<tr>
<td>Increment the product</td>
<td>high-fidelity prototype</td>
<td>testable prototype of a new feature</td>
</tr>
<tr>
<td>Validate product increment</td>
<td>cross-test with another team, Feedback Capture Grid</td>
<td>Feedback on the new feature</td>
</tr>
<tr>
<td>Review and Retro</td>
<td>Peaks and Valleys Timeline</td>
<td>experiment design for a quantitative test of the new feature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>feedback on sprint, team and techniques</td>
</tr>
</tbody>
</table>
Workshop Experiences – Qualitative Results

Fig. 1. Journey Map for Workshop Participants (based on a free template from https://kerrybodine.com/product/journey-map-template/)
Workshop Experiences – Survey Results

Evaluation of final Workshop
4 - Strongly Agree, 3 - Agree, 2 - Needs Improvement, 1 Disagree

- Utility: [InnoDev could be of value for software innovation in my company]
- Consistence: [The phases described throughout InnoDev provide a clear guideline for my company.]
- Completeness: [InnoDev address all of the key appropriate parts in software innovation for my company.]
- Simplicity: [InnoDev is easy to understand]
- Clarity: [It is clear how I could adopt InnoDev in my company]
- Coherence: [InnoDev brings about focus on quality of being logical and consistent in software innovation.]
- Instrumental: [The tools and techniques presented for each phase of the InnoDev Model could add value to our process]
- Forecast: [InnoDev provides an approach to better calculate or estimate for future events in software innovation.]
Discussion and Limitations

- The materials and knowledge from this study provide researchers and practitioners with the opportunity to replicate the workshop in other companies.
- The techniques were easy to understand, pitched at the right level for the workshop format, and participants felt that they could contribute to the software development process within their companies.
- The presentation and the materials were mentioned positively as practical resources.
Discussion and Limitations II

- Only 3 Workshops with a total of 31 participants from western culture.
  - Cultural and gender differences might have affected some of the findings of our study
  - Follow-up study to understand how participants use the new knowledge and the provided materials back at work

- One-day workshop
  - Time pressure was repeatedly mentioned (+ and -)
  - None of the participants suggested a longer running workshop.
  - One-day workshop seems sufficient to introduce the basic contents we aimed for.
Summary

- We presented a one-day training workshop, that introduces the basics of Design Thinking, Scrum and Lean Startup and how these three approaches can be intertwined.

- Our results indicate:
  - a one-day training is a good means to introduce multidisciplinary and complex innovation approaches to software engineers, even though it is short and can only communicate basics.

- Overall, our research demonstrates how a one-day InnoDev training workshop can successfully spark interest in software innovation and train key concepts of different innovation approaches.
Thank you for your attention!