THE PREVALENCE OF UX DESIGN IN AGILE DEVELOPMENT PROCESSES IN INDUSTRY

BY TINA ØVAD
MSC. ENGINEERING PSYCHOLOGY, PHD STUD.
RADIOMETER MEDICAL & AALBORG UNIVERSITY, DENMARK
INTRODUCTION

Tina Øvad
Engineering Psychologist
Industrial PhD student at Radiometer Medical & Aalborg University

Lars Bo Larsen
Associate Professor at Aalborg University
MOTIVATION

“The literature evaluating usability methods is fundamentally flawed by its lack of relevance to applied usability work” (Wixon, 2003)

“...the integration of usability engineering for software development is seldom realized in industrial settings.” (Moreno, 2013)
RELATED WORK

- Several studies and surveys on how industry conducts usability and UX work can be found in the literature.
- Many papers discuss the benefits and challenges of conducting usability and/or UX work in industry.
- However, fewer have studied specific industrial organizations in order to understand the different reasons of the limited role of usability and UX processes.

These studies

- Indicate that industry indeed perform usability and UX work of various complexity and extent.
- Reveal that methods often diverge from those developed and used in academia, and are adapted towards more informal use.
OUR AIM

Identify and map the changes to these research questions:

- How is UX oriented work initiated and matured within the companies?
- Are the companies working agile – if so how?
- How do the companies work with UX in an agile development environment?
- How do the companies make decisions within the UX design field?
- Do the companies embrace agile UX?
METHOD

Interviews with the same Danish companies in 2013 (8) and 2015 (7).

How they work with UX in an agile environment and if something has changed during this time span.

In-depth, semi-structured interviews.

Empirical data was collected.
SELECTION CRITERIA

- Companies that develop pure software products and companies developing physical products with embedded software.
- Different size companies
- Companies already doing usability and UX work and companies who had expressed an interest in starting doing UX work.
THE COMPANIES

Radiometer

FOSS

Netcom

tc electronic

Atosho

BAE Systems

Detica

Brüel & Kjær
DATA ANALYSIS

All interviews were recorded and afterwards transcribed. Meaning condensation of the data and analyzed them by performing Yin’s five phase cycle. This iterative process resulted in eight overall themes. After the follow up interviews one more theme emerged.

So let’s move on to the interesting part…
Themes
THEME 1: THE INTERVIEWEES DESCRIPTION OF UX

2013

- Very pragmatic
- Two of the interviewees did not use the terms usability and UX design

2015

- Much awareness of the concept of UX - especially the experience part of it
2013
The start of the UX movement had either been in the mechanics or the software department.

2015
The companies have kept an interest in UX design and furthermore the UX design has matured:

- Almost all companies now have described processes for UX
- Employed serval more UX practitioners
- Four of the companies now have a specific strategy for UX work
- Two of the companies now consider UX as a key competitive factor
### Theme 3: Agile Development within the Companies

Scrum was the primary development framework

<table>
<thead>
<tr>
<th>Development framework</th>
<th>% of companies 2013</th>
<th>% of companies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrum</td>
<td>63%</td>
<td>71%</td>
</tr>
<tr>
<td>Scrum + waterfall approach</td>
<td>12%</td>
<td>15%</td>
</tr>
<tr>
<td>Scrum + Lean</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Ad hoc</td>
<td>0%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Development frameworks in the companies
THEME 4: DECISION MAKING WITHIN THE UX FIELD AND RESOURCES

<table>
<thead>
<tr>
<th>Strategy</th>
<th>% of companies 2013</th>
<th>% of companies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience</td>
<td>38%</td>
<td>15%</td>
</tr>
<tr>
<td>Experience + test</td>
<td>50%</td>
<td>43%</td>
</tr>
<tr>
<td>Experience + test + theory</td>
<td></td>
<td>29%</td>
</tr>
<tr>
<td>Experience + theory</td>
<td>0%</td>
<td>15%</td>
</tr>
</tbody>
</table>

“Anyone can comment on something being easy to use […] this also means that everyone has an opinion about usability and user experience.”

[8, 2013]

“UX employees have a certain background within the field of UX, so we rely on their background and experience.”

[I6, 2015]

How the UX decisions are made within the companies
## THEME 5: UX PROCESSES

<table>
<thead>
<tr>
<th>UX Process</th>
<th>Percent of companies 2013</th>
<th>Percent of companies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad hoc</td>
<td>63%</td>
<td>42%</td>
</tr>
<tr>
<td>Are developing a process</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>Have a process</td>
<td>12%</td>
<td>29%</td>
</tr>
</tbody>
</table>

Overview of the UX processes in the companies

**2015**

42% of the companies now have UX as a part of their overall development process.

57% of the companies have or are planning to have UX matrices.
# Theme 6: Usability and UX Methods Used within the Companies

Overview over the used usability methods within the companies:

<table>
<thead>
<tr>
<th>Method</th>
<th>% of companies 2013</th>
<th>% of companies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-fi prototyping (incl. sketching &amp; mock ups)</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Usability testing</td>
<td>75%</td>
<td>71%</td>
</tr>
<tr>
<td>Workshop</td>
<td>25%</td>
<td>43%</td>
</tr>
<tr>
<td>Personas</td>
<td>37%</td>
<td>29%</td>
</tr>
<tr>
<td>Expert evaluation</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>User or customer journey</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>Customer visits</td>
<td>25%</td>
<td>14%</td>
</tr>
<tr>
<td>User task analysis</td>
<td>12%</td>
<td>29%</td>
</tr>
</tbody>
</table>
THEME 7: DEVELOPERS AS A UX RESOURCE

2013

- 37% of the companies had developers observe user tests
- 62% of the companies were keen on the idea of either having the developers make small, internal UX tests themselves or participate in user testing

2015

- In 71% of the companies the developers participate as observers in UX work
- 86% of the companies were keen on having the developers performing minor usability and UX work
- - and two companies are already experimenting with this approach
"As something new, we are trying to have them (the software developers) execute minor tests or observing the users on their own. So they can perform minor UX tasks."
[I6, 2015]

"Five of us (developers) have participated in a mini-project concerning usability and UX. So half of the team has been taught and gained insights in the different (usability and UX) methods."
[I2, 2015]
## Theme 8: UX Work Conducted Within an Agile Framework

<table>
<thead>
<tr>
<th>Type of team</th>
<th>% of companies 2013</th>
<th>% of companies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>UX work with UX employees</td>
<td>12%</td>
<td>43%</td>
</tr>
<tr>
<td>UX work without UX employees</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>UX work performed in a non-agile framework</td>
<td>63%</td>
<td>57%</td>
</tr>
</tbody>
</table>

Overview over UX work conducted in an agile framework
### Theme 8: UX Work Conducted Within an Agile Framework

<table>
<thead>
<tr>
<th>Agile UX</th>
<th>Percentage of companies 2013</th>
<th>Percentage of companies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support the idea</td>
<td>50%</td>
<td>71%</td>
</tr>
<tr>
<td>UX in separate teams</td>
<td>38%</td>
<td>29%</td>
</tr>
<tr>
<td>Do not support the idea</td>
<td>12%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Support of the idea of agile UX
### THEME 8: UX WORK CONDUCTED WITHIN AN AGILE FRAMEWORK

<table>
<thead>
<tr>
<th>UX approach</th>
<th>% of companies 2013</th>
<th>% of companies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel</td>
<td>38%</td>
<td>57%</td>
</tr>
<tr>
<td>Satellite</td>
<td>38%</td>
<td>43%</td>
</tr>
<tr>
<td>Other</td>
<td>25%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Overview over UX approaches
THEME 9: THE COMPANIES’ VIEW ON UX

“Previously we built the architecture first and then we built the user experience on top. Now we start by designing the user experience and then we find the architecture that can support that. So we have swapped the architecture and user experience around.”

[I8]

"It (UX) is indeed recognized as a key competitive factor in our organization." [I6]
CONCLUSIONS

• UX has matured within the companies
• UX has become part of the development process
• Collaboration between industry and academia
• Scrum is widely used
• How to bridge the gap - Agile UX, use developers as UX work resource and modifying existing usability methods
TIPS FOR PRACTITIONERS/
POINTS FOR DISCUSSION

• Consider to use the Scrum framework as a lever for the usability and UX work
• Consider to modify usability and UX methods so they suit within the agile development framework used within the company
• Consider to use the software developers as a UX work resource
CATCH ME @

Mail:

tinap@radiometer.dk

LinkedIn:

https://www.linkedin.com/in/tinaoevad