

| Activities: | Integrating User Experience Activities in Agile Environments |
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| <p>1. Idea & Purpose</p> | <p>Over the past 20 years software companies have increasingly applied agile processes to manage product development. Danish (as well as international) companies have emphasized using SCRUM. The essence of SCRUM is to develop product increments in iterations lasting 2-4 weeks. A product increment is then showed to the customer (at a demo session) and in some cases also to the users at the end of an iteration. In the SCRUM process there is limited focus on bootstrapping of requirements and design before actual implementation. This is particularly useful for managing projects with unclear requirements, or requirements that are likely to change over time. While being a strength in SCRUM, the limited initial analyses also poses critical challenges for User eXperience (UX) designers within SCRUM projects, e.g.:</p> <ul style="list-style-type: none"> • Within each iteration it is difficult to conduct user research and create user interface designs before actual implementation starts [2] • Ensuring design consistency from the beginning is difficult given the low focus on requirements bootstrapping, i.e. there is little to no time for UX designers to gain the necessary overview allowing design consistency across product increments [1] <p>The consequences of these challenges are that an already implemented product increment often has to be re-designed and re-implemented to accommodate customer and user feedback at the end of an iteration. However, making design changes after implementation is significantly more costly than making changes to e.g. design sketches and prototypes. In addition, an inconsistent design also leads to negative user experiences as users e.g. may find it difficult to understand how to interact with the product.</p> <p>The overall purpose of this project is to understand current practices and how the above challenges are currently handled within software development companies focusing on UX activities in agile development processes. This includes relating current practices to classical theoretical frameworks from the Information Systems (IS) research domain, e.g. Herbert's theory of coupling/cohesion [5] or Parnas' theory on decomposition [4]. Researchers within IS have a strong tradition in studying software process improvement efforts, which is highly relevant for our case companies, but also for researchers within UX. In their literature review Jurca et al. also call for more rigorous studies of UX-Agile integration practices [3]. In particular, we will:</p> <ol style="list-style-type: none"> 1. Study current practices within the case companies to understand how they perceive and deal with the challenges of conducting UX activities within agile environments 2. Create a novel strategy for further improving UX/Agile practices (based on IS and design frameworks), which in turn can lead to a refreshed perspective on the matter within the UX research community 3. Apply the novel strategy within case companies in order for these to further engage with the UX/Agile challenges leading to higher quality products <p>Items 2 and 3 above emphasize industry and research benefits in line with the purpose of InfinIT matchmaking activities. All items require substantial travelling to the case companies in order to complete systematic and rigorous data collection in situ.</p> |

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| | <p>For the project to succeed the partners below are participating. Note that we also include two foreign knowledge institutions as they are renowned for their research on integrating UX activities in agile environments. This collaboration is beneficial for the case companies as they get access to highly specialized knowledge within the problem domain. Coupled with the IS and UX design research knowledge from the domestic institutions, the companies will obtain a state-of-the-art strategy for overcoming the challenges of integrating UX activities in agile environments. Furthermore, collaboration between the foreign and domestic knowledge institutions enable these to apply for larger research grants based on experiences obtained within this project.</p> <p>Case companies (conducting UX activities in agile environments):</p> <ul style="list-style-type: none"> • Mjølnir Informatics A/S • Combine A/S • DFDS A/S <p>Knowledge institutions (having research expertise within areas of UX and IS):</p> <ul style="list-style-type: none"> • AAU (grant holder, project manager), Department of Computer Science • ITU (grant holder), Department of Business IT <p>Knowledge institutions (having research expertise within area of UX in agile process management):</p> <ul style="list-style-type: none"> • Reykjavik University, School of Computer Science • Northumbria University, School of Design | | | | | | | | | | | | | |
| <p>2. Activities</p> | <ol style="list-style-type: none"> 1. Data collection through interviews with development teams (UX designers, project managers and software developers) within case companies. Visit from foreign partners (Reykjavik University and Northumbria University). Aim: Understanding current practices and the need for support from UX/Agile strategy 2. Identification and adaptation of relevant IS and design frameworks suitable for addressing the UX/Agile challenges. Visit from foreign partners (Reykjavik University and Northumbria University). Aim: Creating a novel strategy for conducting UX practices in agile environments 3. Presentation of UX/Agile strategy for case companies. Aim: Discussing and assessing feasibility of UX/Agile strategy, making further adaptations of the strategy tailored to the needs of each company 4. Inducing UX/Agile strategy in projects within case companies and collecting data on its use. Visit from foreign partners (Reykjavik University and Northumbria University). Aim: Studying the potential effects on reducing the effect of existing UX/Agile challenges. 5. Presentation of study results within case companies and at an Infnit event with broader participation. Aim: Dissemination. | | | | | | | | | | | | | |
| <p>3. Milestones</p> | <table border="1"> <tr> <td>Project start</td> <td>Sep. 1st 2017</td> </tr> <tr> <td>Understanding current practices within case companies (data collection and analysis complete)</td> <td>Oct. 15th 2017</td> </tr> <tr> <td>UX/Agile strategy v.1 complete</td> <td>Nov. 30th 2017</td> </tr> <tr> <td>UX/Agile strategy v.2 complete (adaptations to case companies' needs)</td> <td>Dec. 20th 2017</td> </tr> <tr> <td>Assessment complete (UX/Agile strategy induced, data collected and analyzed)</td> <td>March 1st. 2018</td> </tr> <tr> <td>Dissemination complete (case company presentations and presentations at an Infnit event)</td> <td>April 1st 2018</td> </tr> </table> | Project start | Sep. 1st 2017 | Understanding current practices within case companies (data collection and analysis complete) | Oct. 15th 2017 | UX/Agile strategy v.1 complete | Nov. 30th 2017 | UX/Agile strategy v.2 complete (adaptations to case companies' needs) | Dec. 20th 2017 | Assessment complete (UX/Agile strategy induced, data collected and analyzed) | March 1st. 2018 | Dissemination complete (case company presentations and presentations at an Infnit event) | April 1st 2018 | |
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4. Participants

Knowledge institutions:

- AAU, Department of Computer Science
Anders Bruun (project manager), bruun@cs.aau.dk
Contribution: State-of-the-Art knowledge in UX+IS
Deliverables: Data collection from relevant case project(s) and analysis in relation to UX and IS frameworks, strategy proposals
Outcome: Proof-of-concept to be used for future funding opportunities, extended international research collaboration, publication(s)

- ITU, Department of Business IT
Lene Nielsen, lene@itu.dk
Contribution: State-of-the-Art knowledge in UX+IS
Deliverables: Data collection from relevant case project(s) and analysis in relation to UX and IS frameworks, strategy proposals
Outcome: Proof-of-concept to be used for future funding opportunities, extended international research collaboration, publication(s)

- Reykjavik University, School of Computer Science
Marta Larusdottir, marta@ru.is
Contribution: State-of-the-Art knowledge in UX+Agile process management
Deliverables: Data analysis in relation to state-of-the-art of UX in Agile environments, strategy proposals
Outcome: Extended international research collaboration, publication(s)

- Northumbria University, School of Design
Gilbert Cockton, gilbert.cockton@northumbria.ac.uk
Contribution: State-of-the-Art knowledge in UX design frameworks
Deliverables: Data analysis in relation to state-of-the-art of UX design frameworks, strategy proposals
Outcome: Extended international research collaboration, publication(s)

Case companies:

- Mjølner Informatics A/S
Christina Kjærgaard, cdk@mjolner.dk
CVR: 12578970
Contribution: Access to minimum one agile project with UX emphasis
Deliverables: Data sources in relation to relevant case project(s)
Outcome: Obtain state-of-the-art UX/Agile strategy

- Combine A/S
Lars Kanstrup, lk@combine.dk
CVR: 37342084

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| | <p>Contribution: Access to minimum one agile project with UX emphasis</p> <p>Deliverables: Data sources in relation to relevant case project(s)</p> <p>Outcome: Obtain state-of-the-art UX/Agile strategy</p> <ul style="list-style-type: none"> - DFDS A/S Nicky Nielsson, NickyAlsted.Nielsson@dfds.com <p>CVR: 14194711</p> <p>Contribution: Access to minimum one agile project with UX emphasis</p> <p>Deliverables: Data sources in relation to relevant case project(s)</p> <p>Outcome: Obtain state-of-the-art UX/Agile strategy</p> |
| <p>5. Effects and Results</p> | <p>The studies conducted through this project are considered pilots. They give us critical knowledge of the extent to which the novel process strategy overcomes the challenges related to UX design in Agile development environments. The case companies benefit by obtaining a state-of-the-art strategy for overcoming these challenges. As a result of using the UX/Agile strategy, the partnering companies will experience more consistent UX designs across product increments, which in turn improve product quality. Also, being able to present a proof-of-concept is highly beneficial in applying funds for a larger international research project within the same topic.</p> <p>The results of the pilot will be disseminated within the three case companies and to a broader industry audience in planned presentations, which includes the following venues:</p> <ul style="list-style-type: none"> - SummIT event, 2018 - Case to be presented at Infnit event within the area of Usability and Interaction Design, 2018 <p>We also aim to make at least one joint research publication to be submitted to a journal or conference.</p> |

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| 6. Period for the activities | Sep. 1st 2017 – April 1st 2018 | |
| 7.A. Budget and co-financing | | Kr. |
| | Ansøgt InfinIT-finansiering (max. kr. 100.000) | 90.000 |
| | Konsortieparternes egenfinansiering | |
| | Anden offentlig medfinansiering | |
| | Privat medfinansiering (min. 125% af ansøgt finansiering): <ul style="list-style-type: none"> • Mjølner Informatics A/S (37.500) • Combine A/S (37.500) • DFDS A/S (37.500) | 112.500 |
| | Total | 202.500 |
| 7.B. Distribution of InfinIT means between partners | | Kr. |
| | AAU (Travels: 25.000) | 25.000 |
| | ITU (Travels: 25.000) | 25.000 |
| | Reykjavik University (Travels: 20.000) | 20.000 |
| | Northumbria University (Travels: 20.000) | 20.000 |
| | Ansøgt InfinIT-finansiering | 90.000 |

References

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2. Budwig, M., Jeong, S., and Kelkar, K. When User Experience Met Agile: A Case Study. In *CHI '09 Extended Abstracts on Human Factors in Computing Systems*. ACM, New York, NY, USA, 2009, pp. 3075–3084.
3. Jurca, G., Hellmann, T.D., and Maurer, F. Integrating Agile and User-Centered Design: A Systematic Mapping and Review of Evaluation and Validation Studies of Agile-UX. In *2014 Agile Conference*. 2014, pp. 24–32.
4. Parnas, D.L. On the criteria to be used in decomposing systems into modules. *Comm. of the ACM*, 15, 12 (1972), 1053–1058.
5. Simon, H.A. *The sciences of the artificial*. MIT Press, Cambridge, 1996.