Aalto University
School of Science
Degree Programme in Computer Science and Engineering

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Lean software development and the effects of working with unfamiliar technology

A case study

Master's Thesis
Espoo, December 1, 2015

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Supervisor: Professor Marjo Kauppinen, Aalto University
Advisor: Eeva
Suvi

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ABSTRACT OF
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A case study

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!Fixme **Abstract text goes here (and this is an example how to use fixme).** Fixme! Fixme is a command that helps you identify parts of your thesis that still require some work. When compiled in the custom `mydraft` mode, text parts tagged with fixmes are shown in bold and with fixme tags around them. When compiled in normal mode, the fixme-tagged text is shown normally (without special formatting). The draft mode also causes the "Draft" text to appear on the front page, alongside with the document compilation date. The custom `mydraft` mode is selected by the `mydraft` option given for the package `aalto-thesis`, near the top of the `thesis-example.tex` file.

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Language: English

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Asiasanat:	innovaatio, palvelut, palvelusuunnittelu
Kieli:	Englanti

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Nyckelord:	innovation, tjänster, service design
Språk:	Engelska

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TODO: Thank people here

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Oskar Ehnström

Contents

Chapter 1

Introduction

1.1 Background

Aim to reduce waste...

1.2 Scope

1.3 Structure of the Thesis

The thesis is split into two distinct sections. First, chapter 2 covers service design and new service creation frameworks. Second, chapter 4 covers the findings of a project involving new service creation using new and untested technology for end-users.

Chapter 2

Litterature review

In this section I will present the existing litterature and what general guidelines or conclusions it presents. I will refer to the main concepts presented in books and compare those findings to case studies that have implemented the relevant concepts in order to find some commonalities if there are any.

I will also present the process for finding and analyzing the material I have chosen.

- How was the litterature review conducted?
  - Scholar
  - Scholar through related articles of known good articles
  - Key articles then their sources
  - Same author, look for more
  - Same conference/journal, look for more

Keywords: *new service creation, digital service creation, service-dominant, design thinking, new service development*

2.1 The origin of lean thinking

Even though the traditional wisdom is that the Japanese car manufacturers had a significant advantage over western competitors due to the lean methodologies they implemented there is some controcersy over wether this was in fact the case. Dybá & Sharp argue that by examining the facts and taking automation into account the Japanese did not have a superior organizational advantage. [1]

2.2 Lean versus Agile

!FIXME **Lean should be thought of a set of principles rather than practices. This article has some excellent points and trends to talk about.[5]** FIXME!

End with something about everything being services nowdays and lean/agile being developer focused. The continue to...

2.3 Lean Service Creation

!FIXME **Lean Service Creation is about build measure learn and create somehing new. Tie this into the problem and focus on the new part. Using news devices maybe?** FIXME!

Lean Service Creation is based on the ideas of "The Lean Startup" as described by Eric Reis in his 2011 book.[6]

!FIXME **How do I get a source for this? Interview?** FIXME!

2.4 Comparison of existing litterature

In this section I will compare articles regarding case studies focusing on lean software development/management.

Two case studies. This is an early attempt to test lean software development. The article covers an experiment set up to test the validity of using lean principles in software development. [2]

Timberline Inc. case study. Probably the first case of adopting lean principles to software development.[3]

BBC Worldwide case study. The gist of it is that the performance of the team improved when adopting lean practices, but there were some challenges in fitting the the lean principles with the rest of the company.[4]

2.5 Research problem and question

This chapter will end with the research problem and questions.

The research problem is defined as follows:

What are the commonly accepted and used lean software development practices and how do they change when working with new and unfamiliar

Question	Litterature review	Empirical study
What are the currently available best practices for lean software projects?	x	
Which of these best practices need to be adapted when working with new technology?		x
How do these best practices need to adapted?		x
Which best practices remain valid?		x

Table 2.1: Research questions and their respective sections

technology?

To investigare this problem three research questions have been set up in table 2.1.

Chapter 3

Methods

In this section I will describe how I conducted the empirical study.

- Interviews
  - 2-3 project members
  - 2-3 customers
  - 2-3 end-users
  - 1-1.5 hours each (5-10min for end-users)
- Semi-structured interviews

Chapter 4

Results

In this section I will present the results of the empirical study. This section contains the raw data of the conducted interviews. This section does not analyze or compare the results with the litterature.

Chapter 5

Discussion

Here I will discuss how the findigs from my empirical work relate to the litterary review. What are the similarities and differences when comparing what the litterature says and what the interviews showed.

Chapter 6

Conclusions

Here I mention the most important findings of the discussion section and the litterary review section.

I also point out how this research can be used in the future and what it's limitations are. (e.g. only one case study)

2 pages

Bibliography

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[5] Poppendieck, M., and Cusumano, M. a. Lean software development: A tutorial. *IEEE Software 29*, 5 (2012), 26–32.

[6] Ries, E. *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Random House LLC, 2011.

Appendix A

Interview questions

Here goes the questions from the interviews.