

Lean Software Development. Week 8

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January 12, 2023

Lean Software Development

Toward Lean Software Development

- **Existing Proposals to Create “Lean Software Development”**
- Share a Common Vision
- Deprive Gurus of Their Power
- Agile extremists

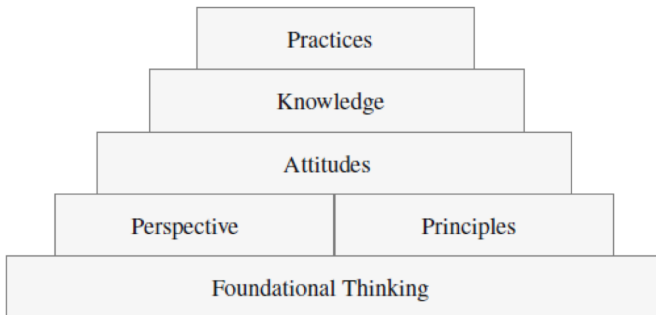
Seven principles of Lean software development (Mary and Tom Poppendieck):

- Eliminate waste;
- Build quality - we used the terms “autonomation” and “standardization”;
- Create knowledge;
- Defer commitment - we used the term “just-in-time”;
- Deliver fast - get frequent feedback from the customer and increase learning through frequent deployments;
- Respect people - we used the term “worker involvement”;
- Optimize the whole - we used the term “constant improvement.”

Curt Hibbs propose the following practices:

- Source Code Management and Scripted Builds;
- Automated Testing;
- Continuous Integration;
- Less Code;
- Short Iterations; and
- Customer Participation.

(Alan Shalloway et al.) approach organizes the transition of Lean Thinking to Lean Software Development into the following layered model:



- **Foundational Thinking.** The underlying belief system of Lean Thinking, based on the work of Deming.
- **Perspective and Principles.** The Perspective is the choice of what is considered important to observe in the process. The Principles are the rules of behavior that adhere to the Foundational Thinking and are taken from the work of Mary and Tom Poppendieck.

- **Attitudes.** The choice of what is considered important and what is not.
- **Knowledge.** “Know-how” based on experience or, in other words, “lessons learned.”
- **Practices.** Recommendations on what to do, based on the knowledge acquired.

The three examples presented above show that Lean Thinking can be translated in different ways into software engineering.

However, all these three approaches lack an essential component of Lean Management, its concrete use of real measurements supporting the process.

They are more faith-based, while Lean advocates a constant and concrete analysis of the process to produce value and eliminate waste.

Our approach is to develop a Lean software development process that avoids the three issues:

- the problem of communicating the goals and methods of Agile methods to stakeholders, which generates skepticism since Agile methods seem to ignore “well-known” best practices;
- the guru approach that has dominated the way Agile ideas became known among practitioners; and
- agile extremists that promote the dark side of Agile.

Outline

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Share a Common Vision

Agile methods heavily rely on the collaboration with the customers. But it is hard!!! Van Deursen has identified three major causes why it is hard:

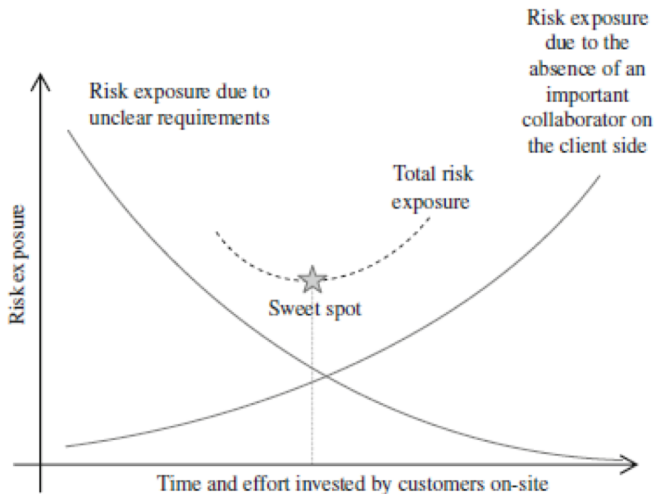
- customers have to do their regular work and be on-site, which is not always possible;
- the customer usually wants to buy a “whole solution,” and not to run a customization project requiring his involvement; and
- the best customers from a programmer’s perspective are also often best in other aspects, which makes them busy, and it is unlikely to allocate to the project all the required time.

Share a Common Vision

Establishing a fruitful communication with the customer is also challenging because:

- Technologists and end users have a high “semantic gap,” which makes communication complicated.
- Neither developers nor customers consider talking to each other a useful task, but rather a waste of time.
- End users may resist changes in their way of working, making it very hard to involve them in a constructive way in the customization of the product.
- Developers might be against an on-site customer.

Share a Common Vision



Trade-off between an on-site and off-site customer

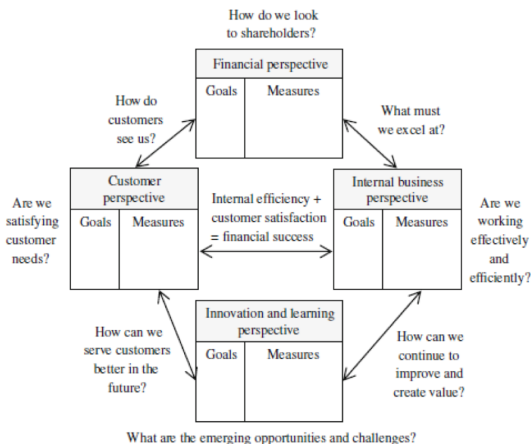
Share a Common Vision

There are several approaches to communicating a strategy to a client. One possibility is a “mission statement”: it states the vision and describes the chosen means to achieve it.

An example of a “mission statement” with measurements is the Balanced Scorecard

Share a Common Vision

The Balanced Scorecard(BSC) is a strategy performance management tool. The goal of the BSC is to provide a balanced view of the performance of the company.



Share a Common Vision

- **Customer perspective:** measures the ability of the company to provide value to the customers. This perspective includes performance, quality, and service measurements.
- **Internal business perspective:** measures the ability of the company to adapt the internal processes to satisfy customer needs.
- **Innovation and learning perspective:** the customer and internal business perspective define what the company considers important for competitive success.
- **Financial perspective:** measures if the company's strategy, implementation, and execution are contributing to bottom-line improvement.

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Deprive Gurus of Their Power

If we need to find out how good a certain technology can work for us and cannot find anyone that can tell us, we have to develop the experience ourselves.

We need to use the scientific method to systematically find the knowledge we seek continued

Deprive Gurus of Their Power

We need to:

- formulate a problem in form of hypotheses;
- identify what we want to study;
- apply research methods to obtain data;
- analyze the data; and
- use the results to confirm or falsify the hypotheses;

Building a scientific argument:



Idea

Expectations

Actual observations

¹<http://www.understandingscience.org>

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Agile extremists

- They are risk neutral, optimistic, and idealistic people.
- They are willing to accept risk to introduce radical changes.
- Their idealism makes them see the whole world as Agile, Lean, etc.
- Every problem is framed in their “believe system,” in their view of the world.

¹<http://baymard.com/blog/ab-testing-problem-and-hypothesis>