Exploring Lean Principles

UNDERSTANDING WHAT LEAN IS

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Lean and Agile

Agile Manifesto, 2001

Sakichi Toyoda

Taichi Ohno

Strategy and Tactics
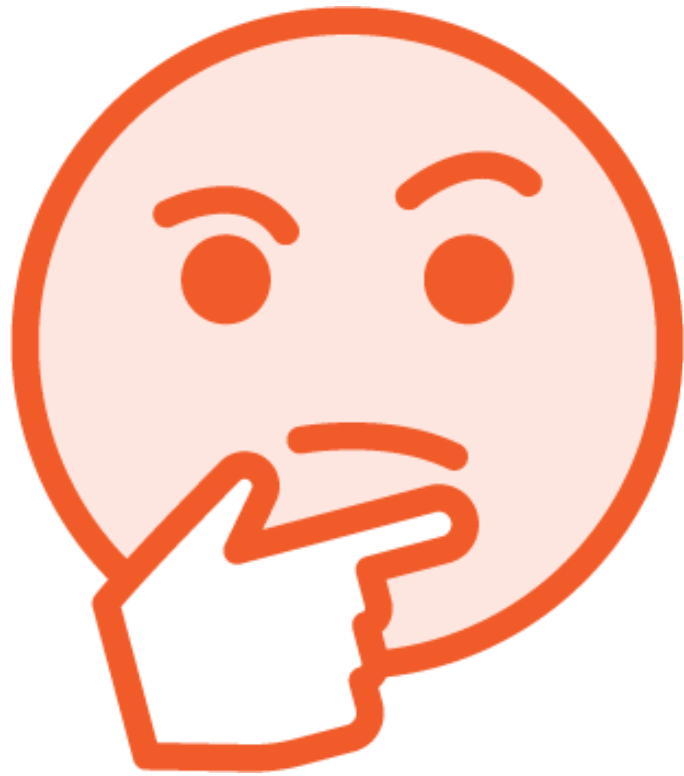
Lean is strategy, Agile is tactics

Agile does things right, Lean helps you do the right things

Agile and Lean work together

Antithesis – define something by defining its opposite

What's the opposite of Lean processes?

FAT processes

– Loads of waste…

– And other value-subtractors
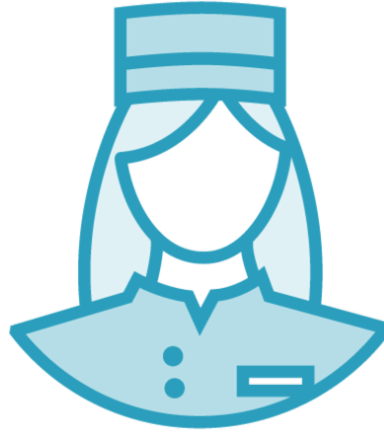
FatManufacturing.com

– Six Stigma

An IoT Project Story

An IoT Project Story

The Image Search Library

Deploying My Work

My Work Was Waste

You Can Master Agile and Still Fail

Lean processes rely on demand signals

Just-in-case, not Just-in-time

It's easy to lose faith in Agile

Agile is not the problem

LINA – Lean is Not an Acronym

And neither is Agile or Scrum

So don't capitalize all the letters

Triumph of the Lean Production System

"Toyota Production System", or "TPS"

Waymo CEO John Krafcik

Published in the Sloan Management Review

https://www.lean.org/downloads/MITSloan.pdf

The Toyota Production System

What is it?

The story starts with textiles

The journey from textiles to automobiles to software may not be clear at first
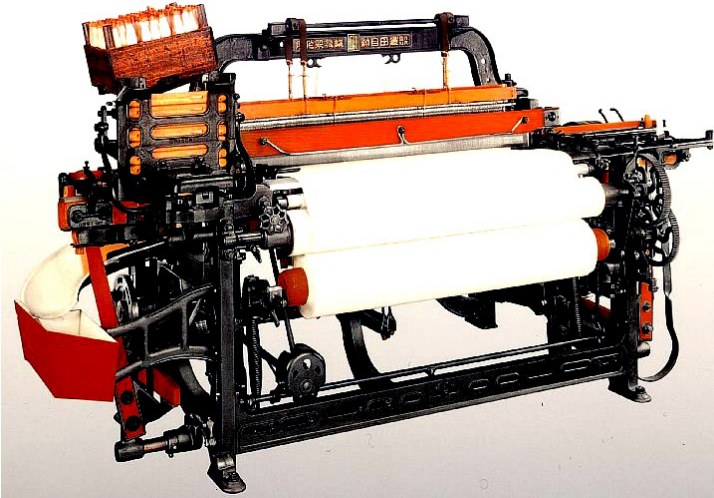
But Lean ties it all together

Automation Looms

Sakichi Toyoda, b. 1867

His mother, a weaver

"Cut the apron strings"

Jidoka

"Intelligent automation"

The Model G – a landmark in machine automation

An operator could supervise thirty Model Gs

And stopped automatically with a warp break

- https://www.youtube.com/watch?v=PdGcfHucmKc

The Move to Automobiles

Kiichiro Toyoda, son of Sakichi Toyoda

In Post-World War II Japan
- The company struggled to survive

"Catching up with America"

Taichi Ohno

Taichi Ohno

Designer of the Toyota Production System

Coiner of the term "Just In Time"

Despiser of waste in manufacturing and processes

Kanban

"Billboard"

"Signal card"

The Three Bins

The one on the assembly floor

The one in the factory store

The one down the street at the other manufacturer

Kanban in Software

As physical notecards

In an electronic issue tracker

Tracking the issue through the process lifecycle

Kaizen

| "Continuous improvement" | Small steps with smaller benefits | Accrue to large benefits later |

Kaizen with a Build Server

Code branches were mostly linear

The payout was long
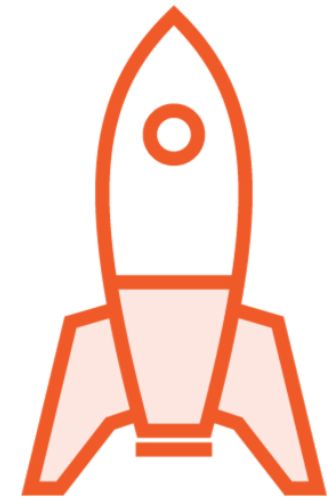
And only automated a single step

The Dripping Water Wears Away the Stone

Jenkins, brand new in 2011

Deployment were still manual at first

But eventually, we were able to do things we couldn't imagine before

Teian Kaizen

"The continuous improvement proposal"

If you don't know what's improving…

The answer is "nothing"

The Answer Can Come from Anywhere

All kinds of fancy, complicated stuff...

When developers couldn't debug locally

Andon – the Paper Lantern

Or the cord to light it

"Stop everything, there's a problem"
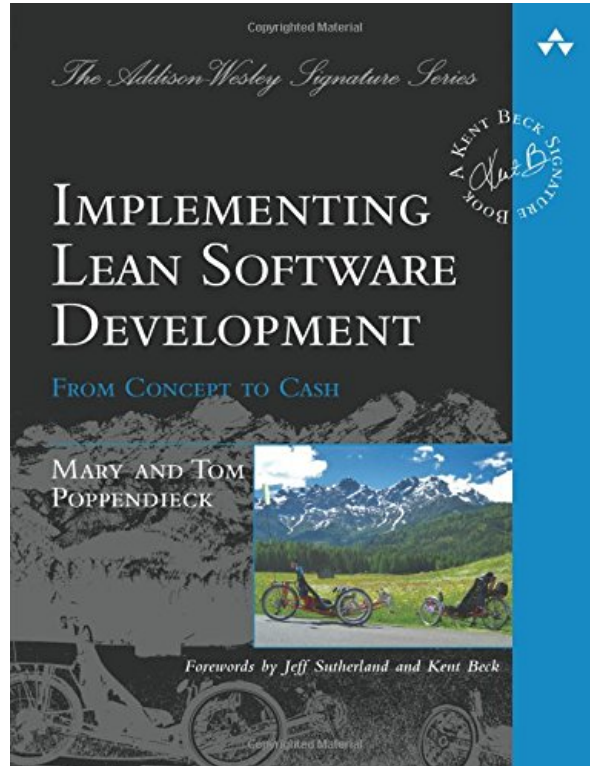
ANYONE is allowed to pull it

"Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done."

Principles behind the Agile Manifesto

Mary and Tom Poppendieck

Mother and Father of Lean in Software Processes

Lean Software Development: An Agile Toolkit

Implementing Lean Software: From Concept to Cash

READ IT

How Lean Happened at Toyota

A company culture of improvement and automation

Driven by adversity and competition

The foundation laid by Sakichi Toyoda

And completed by Taichi Ohno

Summary

What Lean is at the core

The history of the Toyota system

Kanban and Kaizen
- Two concepts which arise naturally from Lean principles

Some notes about the Poppendiecks
- Acknowledged parents of Lean Software Development