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Lean software development

Michal Krajíček

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Agenda

1. Origins of Lean
2. Principles of Lean
3. From cars to software development
4. Lean software development – principles
5. Lean & agile
6. The Lean Startup

TOYOTA

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Lean production

- Waste
- Kaizen
- Jidoka
- Just in time
- Lean time & cycle time

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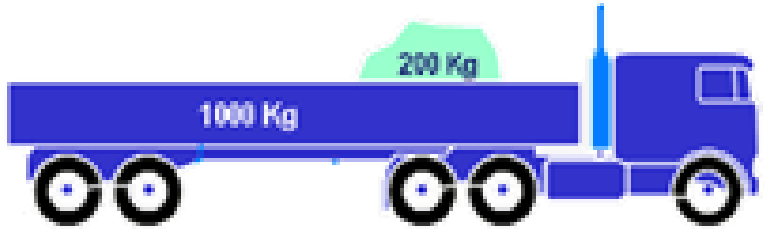
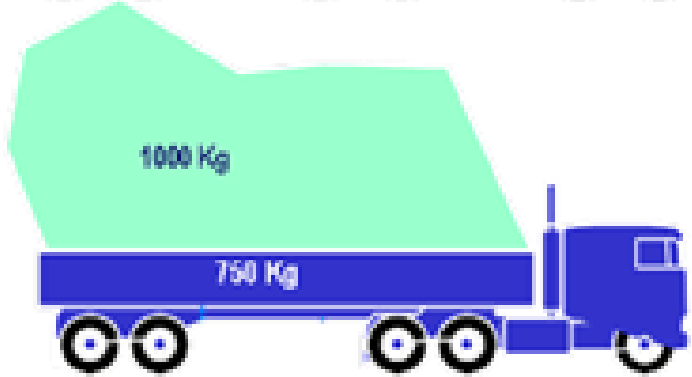
MUDA
Wastefulness



MURA
Imbalance

MURI
Overload



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+

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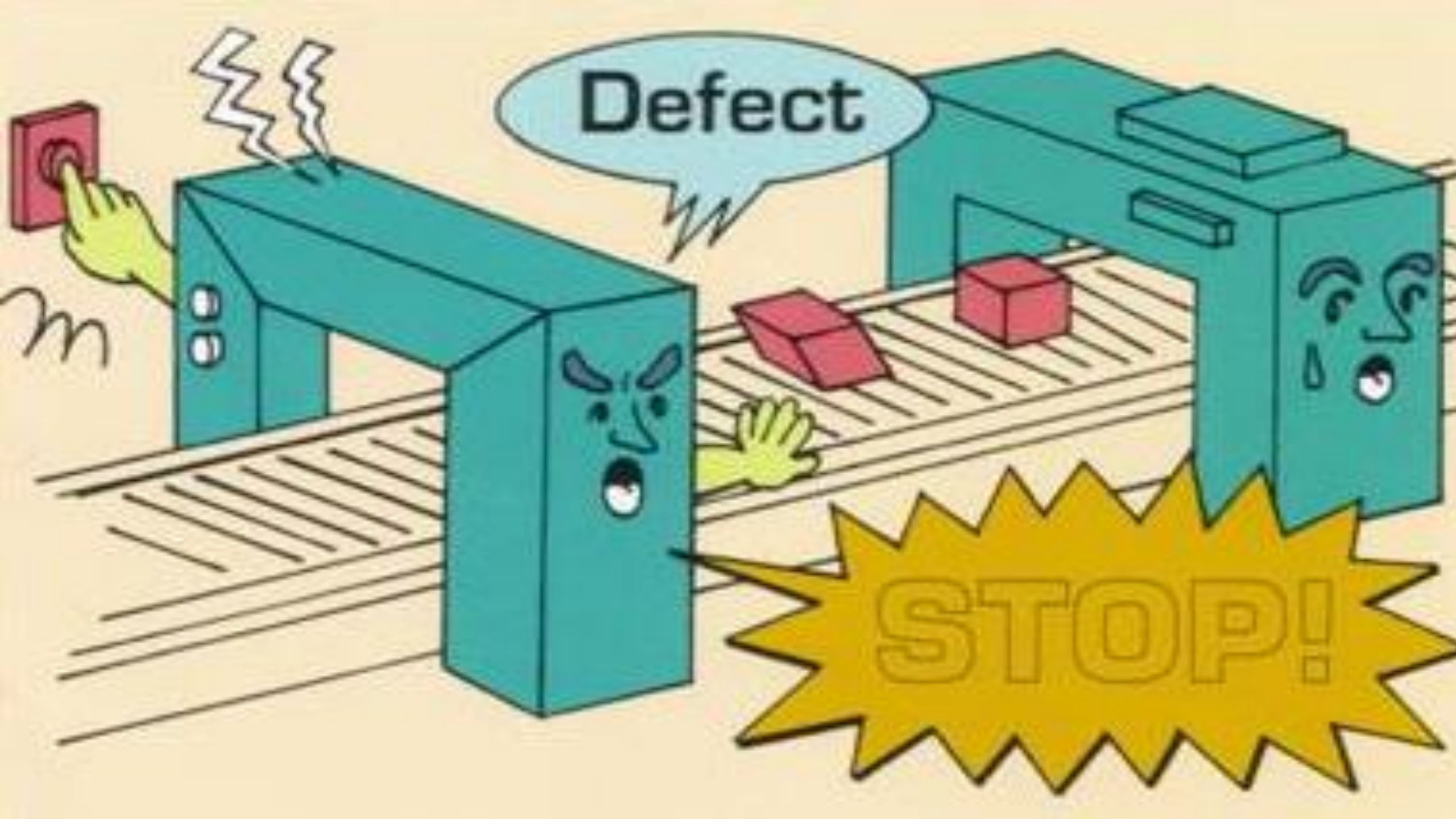
CHANGE

BETTER

CONTINUOUS IMPROVEMENT

Everybody!
Everyday!
Everywhere!


Defect
STOP!

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Zero
inventory
Zero
failures
JIT
Just in TIme
Zero
lead time

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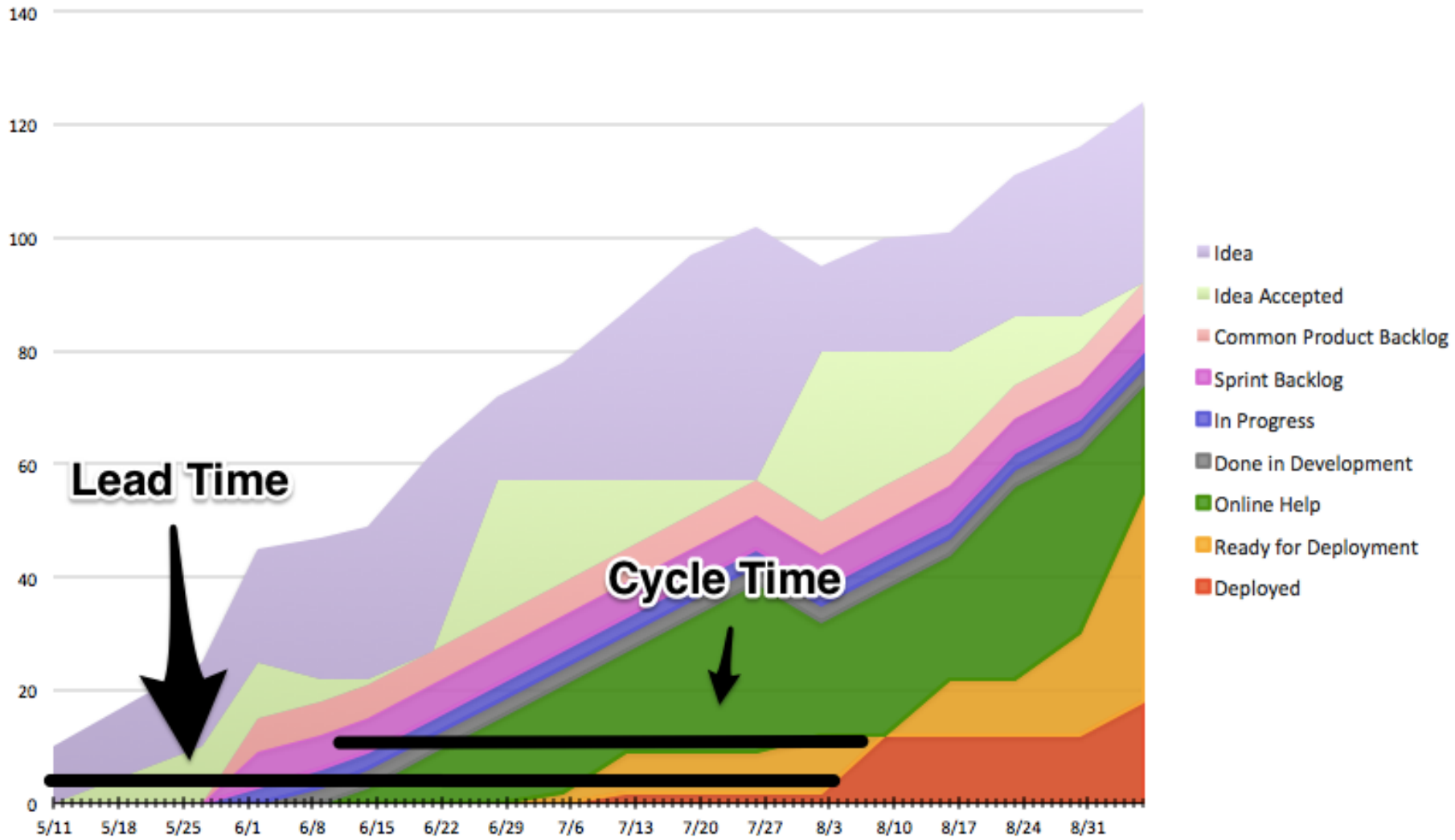
140
120
100
80
60
40
20
0
5/11
5/18
5/25
6/1
6/8
6/15
6/22
6/29
7/6
7/13
7/20
7/27
8/3
8/10
8/17
8/24
8/31
Lead Time
Cycle Time
Idea
Idea Accepted
Common Product Backlog
Sprint Backlog
In Progress
Done in Development
Online Help
Ready for Deployment
Deployed

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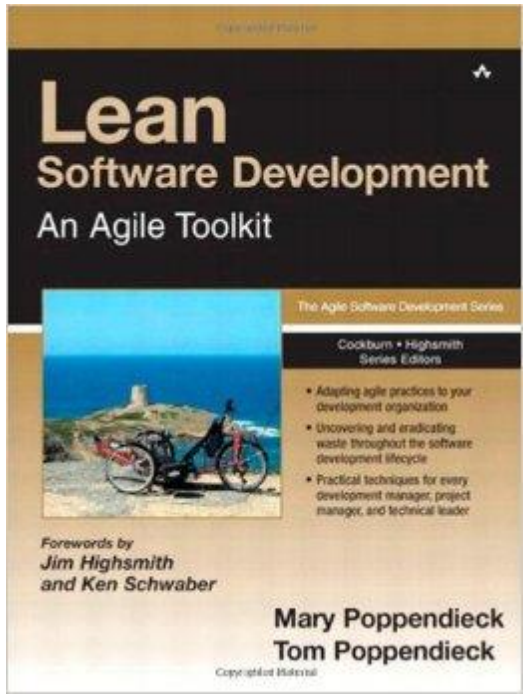
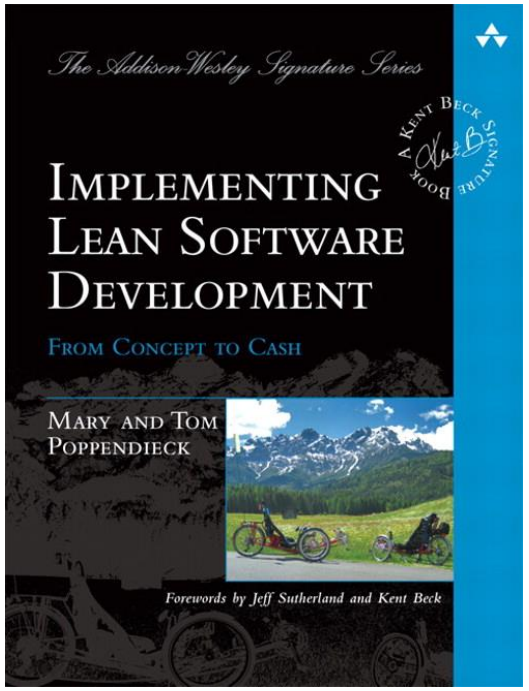
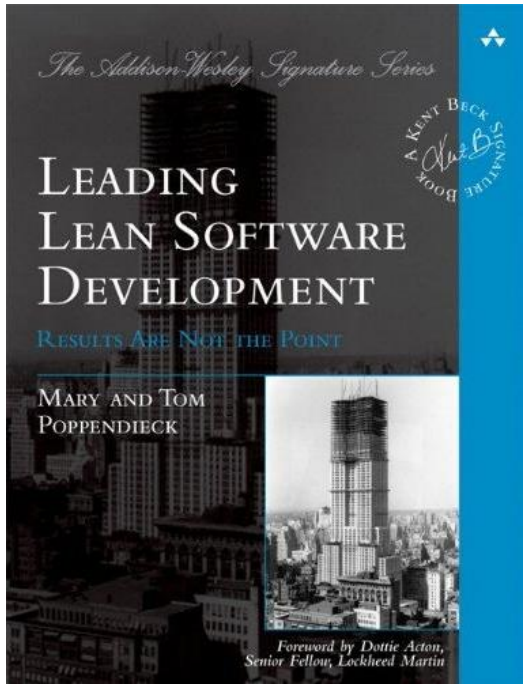
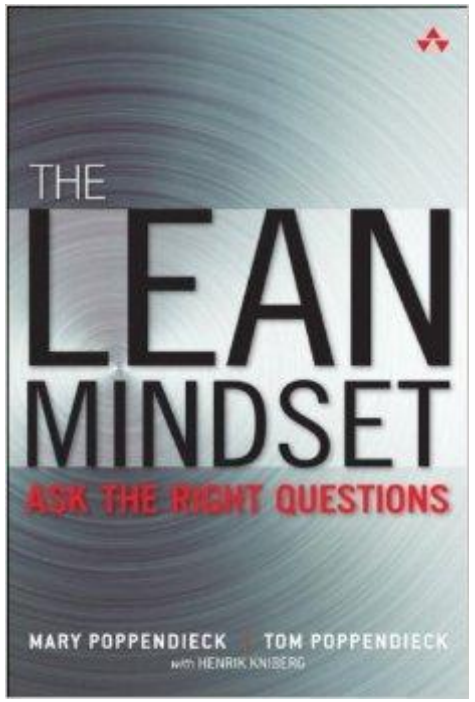

Lean
Software Development
An Agile Toolkit
The Agile Software Development Series
Cockburn • Highsmith
Series Editors
• Adapting agile practices to your development organization
• Uncovering and eradicating waste throughout the software development lifecycle
• Practical techniques for every development manager, project manager, and technical leader
Forewords by
Jim Highsmith
and Ken Schwaber
Mary Poppendieck
Tom Poppendieck


The Addison-Wesley Signature Series
A Kent Beck Signature Book
Implementing Lean Software Development
From Concept to Cash
Mary and Tom Poppendieck
Forewords by Jeff Sutherland and Kent Beck


The Addison-Wesley Signature Series
A Kent Beck Signature Book
Leading Lean Software Development
Results Are Not the Point
Mary and Tom Poppendieck
Foreword by Dottie Acton, Senior Fellow, Lockheed Martin


THE
LEAN
MINDSET
ASK THE RIGHT QUESTIONS
MARY POPPENDIECK
TOM POPPENDIECK
with HENRIK KNIBERG

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7 principles

- Eliminate waste
- Build quality in
- Create knowledge
- Defer commitment
- Deliver fast
- Respect people
- Optimize the whole

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Eliminate waste

„All we are doing is looking at the timeline from the moment a customer gives us an order to the point when we collect the cash. And we are reducing that timeline by removing the nonvalue-added wastes.“

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Home > Product > All Features

All Features

Features by Category

Content Management

Files, Images and Video
WYSIWYG Editor
Visual Workflow Designer
Versioning and Archiving
Widgets
Search Engine Optimization (SEO)
Multilingual Content
Image Editor
Document Management
Taxonomy
Media Libraries
Custom Document Types
Content-design separation
Linked Documents
Spell-Checker
Content Locking
Multiple languages
Microsoft Office integration
WebDAV Support
Tags
Categories
Page templates
Standard Workflow
Translation Management
Banner Management

E-Commerce

On-line payments
Shipping providers
Taxes calculation
Product options
Downloadable products (e-products)
Bundled products
Paid membership
Custom product types
Reports
Multiple currencies
Shopping cart
Donations
Discounts
Product Variants
Checkout Process
Buy X, get Y discounts
Shipping calculation

Social Networking

Blogs
Message Boards
Forums
Groups
Friends
Private Messaging
User Generated Content
Abuse Reporting
Avatars
Bad Words
On-line communities
Wiki
MetaWeblogAPI
User Profiles
Social Media Integration

Features A-Z

search feature by name

A
A/B and Multivariate testing
Abuse Reporting
Authentication
Avatars

B
Bad Words
Banner Management
Bing maps
Blogs
Booking System
Bundled products
Buy X, get Y discounts

C
Categories
Checkout Process
Cloud Support - Azure, Amazon
Contact management
Content Locking
Content Personalization
Content rating
Content-design separation
Custom Document Types
Custom product types
Custom Tables
Customizable roles

D
Data.com Connector
Departmental Sites
Detailed Documentation
Development productivity
Discounts
Document Management
Donations
Downloadable products (e-products)

E

N
Newsletters

O
On-line communities
Online Forms
On-line payments
Open API
OpenID

P
Page templates
Paid membership
Permissions
Personas
Polls
Portal engine
Private Messaging
Product options
Product Variants
Project Management

R
Rapid Browser-Based Development
Reporting
Reports
RSS/Atom/XML Syndication

S
Salesforce.com Connector
Scalability and performance
Search Engine Optimization (SEO)
Security and Membership
Segmentation
SharePoint integration
Shipping calculation
Shipping providers
Shopping cart
Social Marketing

37signals

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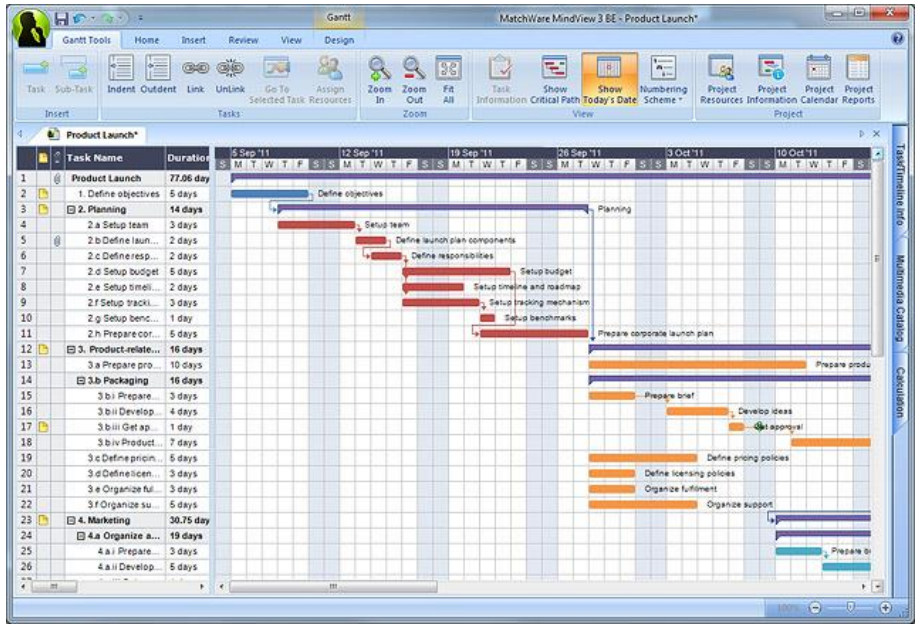
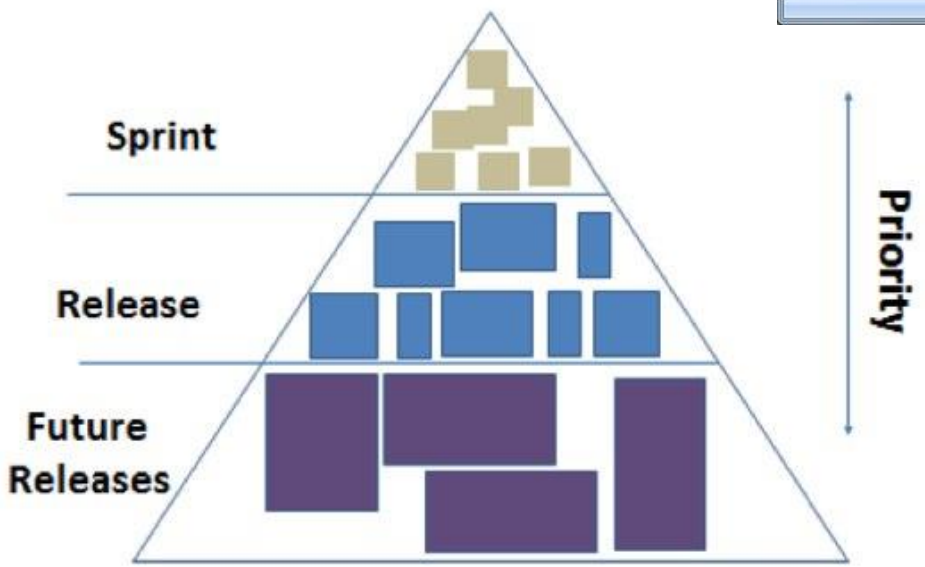
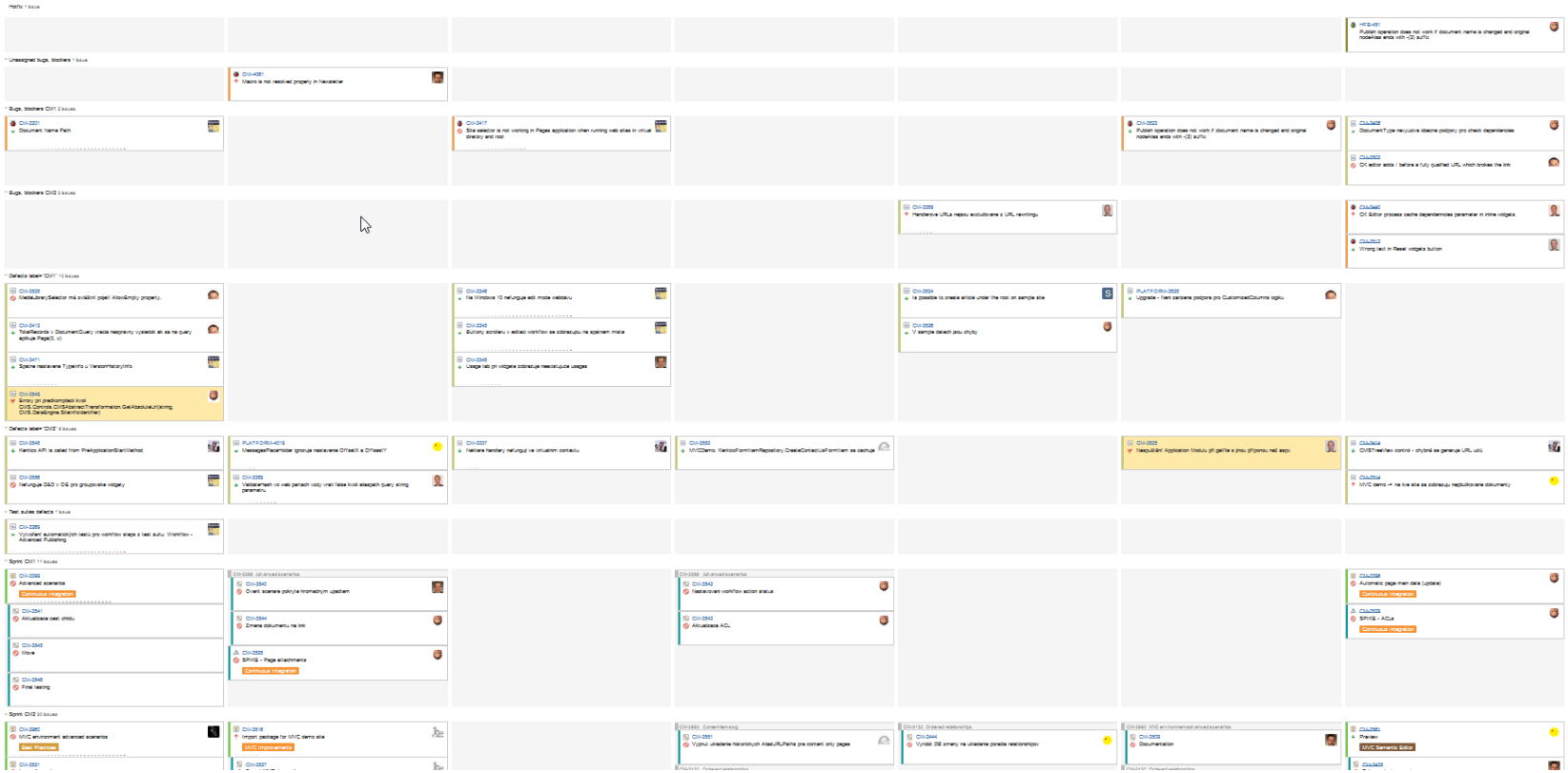

Gantt
MatchWare MindView 3 BE - Product Launch*
Gantt Tools
Home
Insert
Review
View
Design
Product Launch*
Task Name
Duration
Product Launch
1. Define objectives
2. Planning
2.a Setup team
2.b Define laun...
2.c Define resp...
2.d Setup budget
2.e Setup timeli...
2.f Setup tracki...
2.g Setup benc...
2.h Prepare cor...
3. Product-relate...
3.a Prepare pro...
3.b Packaging
3.b.i Prepare...
3.b.ii Develop...
3.b.iii Get ap...
3.b.iv Product...
3.c Define pricin...
3.d Define licen...
3.e Organize ful...
3.f Organize su...
4. Marketing
4.a Organize a...
4.a.i Prepare...
4.a.ii Develop...
Define objectives
Planning
Setup team
Define launch plan components
Define responsibilities
Setup budget
Setup timeline and roadmap
Setup tracking mechanism
Setup benchmarks
Prepare corporate launch plan
Prepare brief
Develop ideas
Get approval
Define pricing policies
Define licensing policies
Organize fulfilment
Organize support


Sprint
Release
Future Releases
Priority



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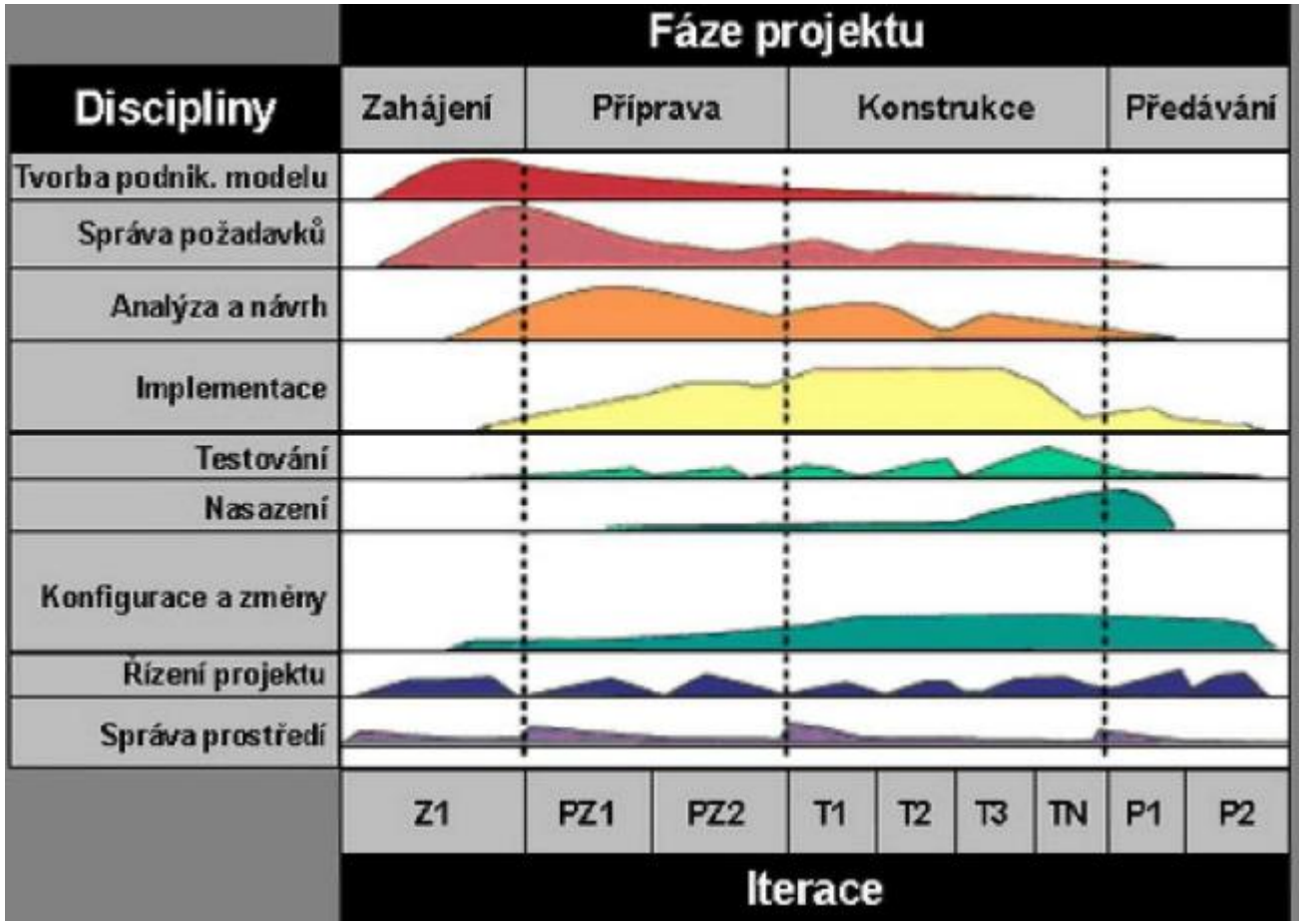
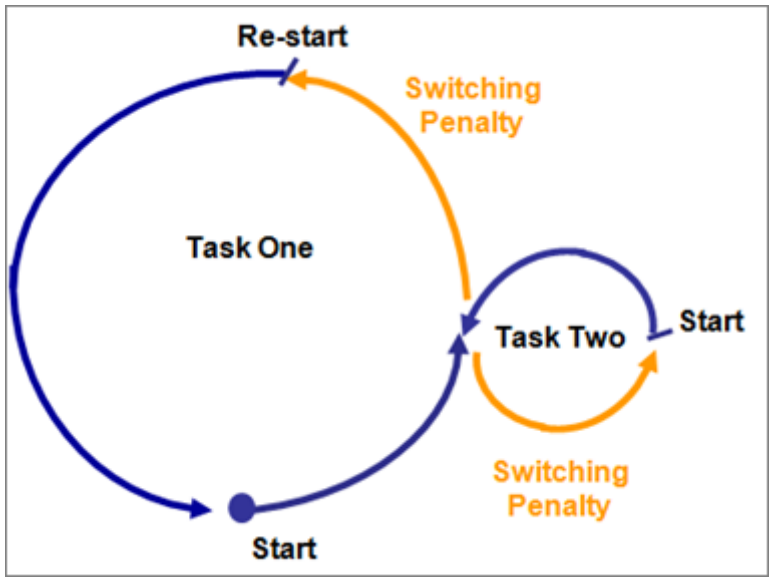
Customer Bugs 21 issues

PLATFORM-3210 YSOD pri clear cache v SQL debugu	EC-3536 Anonymous customers do not save fields after checkout	PLATFORM-3276 Strongly typed query in LINQ not being filtered	OM-3391 Strands Recommender not mapping properly	EC-3547 MultiBuyDiscountsApplicator is not customizable	~~OM-3406~~ Form notification does not create valid HTML email
CM-2600 Culture disappears from Translate from dropdown if culture code is changed to		PLATFORM-3309 Addition/subtraction in macro incorrectly evaluated	OM-3394 crawlers causing lot of errors in the Event log		~~PLATFORM-3327~~ Hotfixovatko rozbije sln soubor pri prenastavovani visual studio verze.
CM-2637 Strongly typed document query creates incorrect SQL query		CM-2703 Universal Viewer with custom query web part always show edit|delete	OM-3421 Dashboard tiles when impersonating using windows authentication		~~CM-2698~~ Category List - error in showing last items in a list
EC-3550 Global shipping option conversion during upgrade fails if exchange rate table			OM-3425 Deadlock on dashboard when using Active directory		~~PLATFORM-3335~~ CMS.MacroEngine.EvaluationResult.Result has incorrect Sumary
EC-3562 Free Shipping Offer is not saved with the Order			OM-3434 Forms paging when security is used		
OM-3442 HitLogProvider.LogHit does not log custom StatisticsCode					
EC-3564 RegisterAndNotifyInternal always returns false					


Fáze projektu
Disciplíny
Zahájení
Příprava
Konstrukce
Předávání
Tvorba podnik. modelu
Správa požadavků
Analýza a návrh
Implementace
Testování
Nasazení
Konfigurace a změny
Řízení projektu
Správa prostředí
Z1
PZ1
PZ2
T1
T2
T3
TN
P1
P2
Iterace


Re-start
Switching
Penalty
Task One
Task Two
Start
Switching
Penalty
Start

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Build quality in

Build quality into the code from the start – the ultimate goal is to eliminate the defect tracking system altogether.

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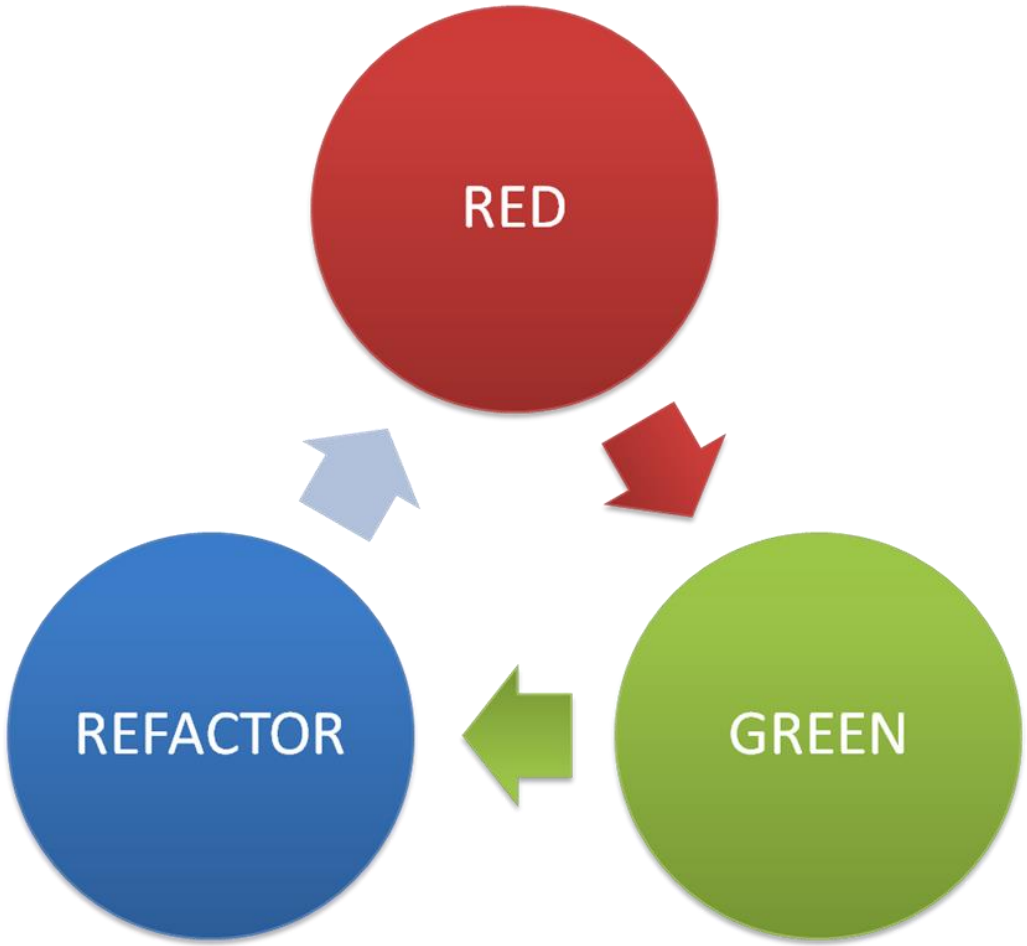

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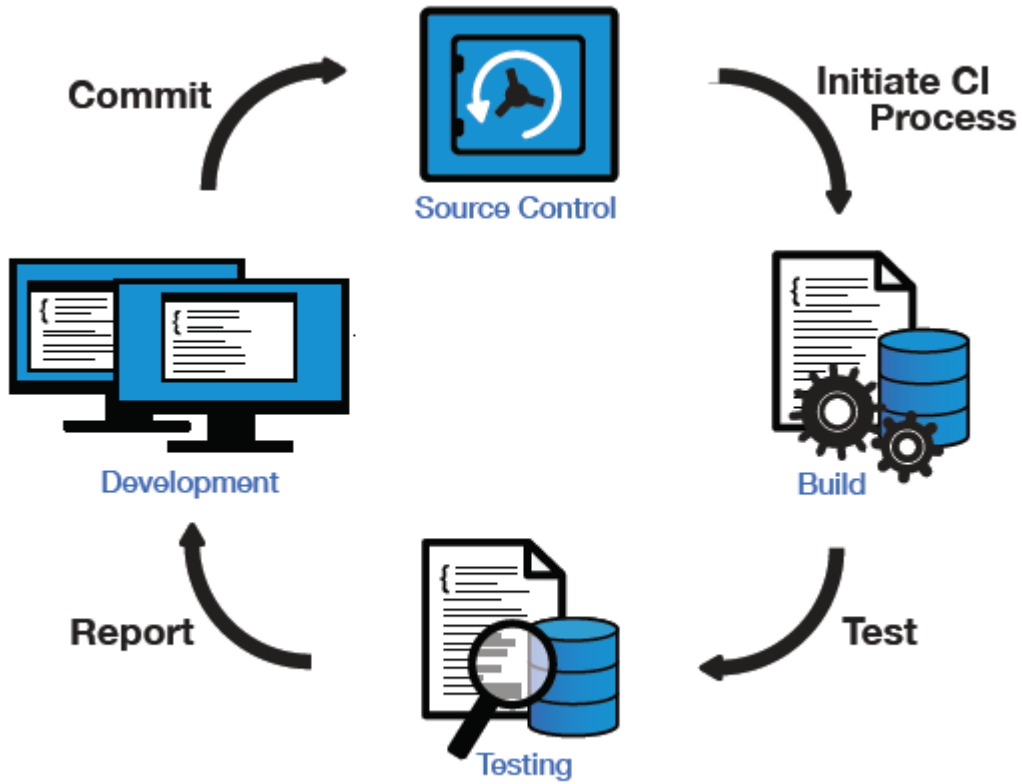
Commit
Source Control
Initiate CI Process
Development
Build
Report
Testing
Test

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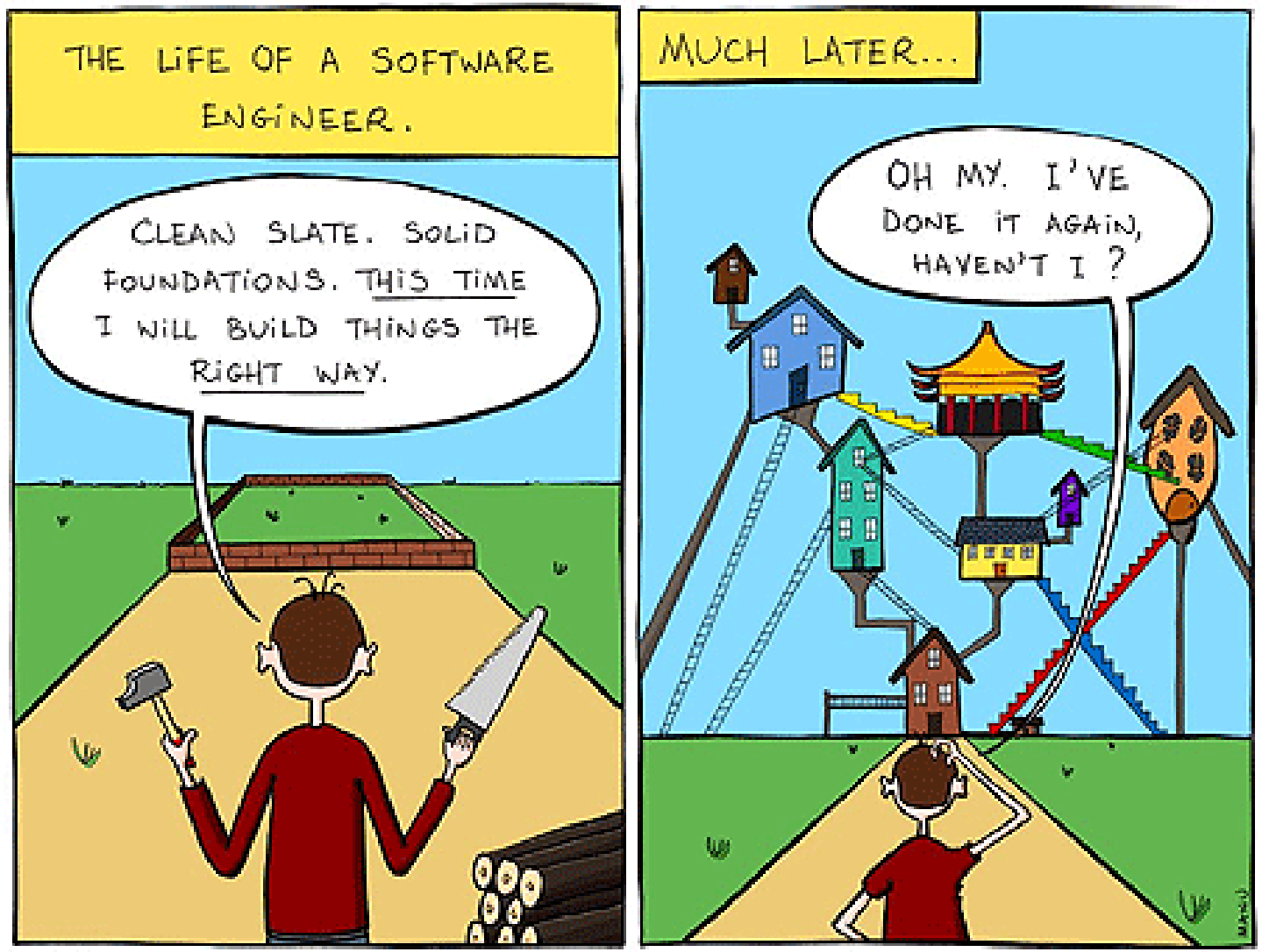
THE LIFE OF A SOFTWARE ENGINEER.
CLEAN SLATE. SOLID FOUNDATIONS. THIS TIME I WILL BUILD THINGS THE RIGHT WAY.
MUCH LATER...
OH MY. I'VE DONE IT AGAIN, HAVEN'T I ?

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Create knowledge

Software development is a knowledge-creating process.

The important questions in development is: how can I learn most effectively?

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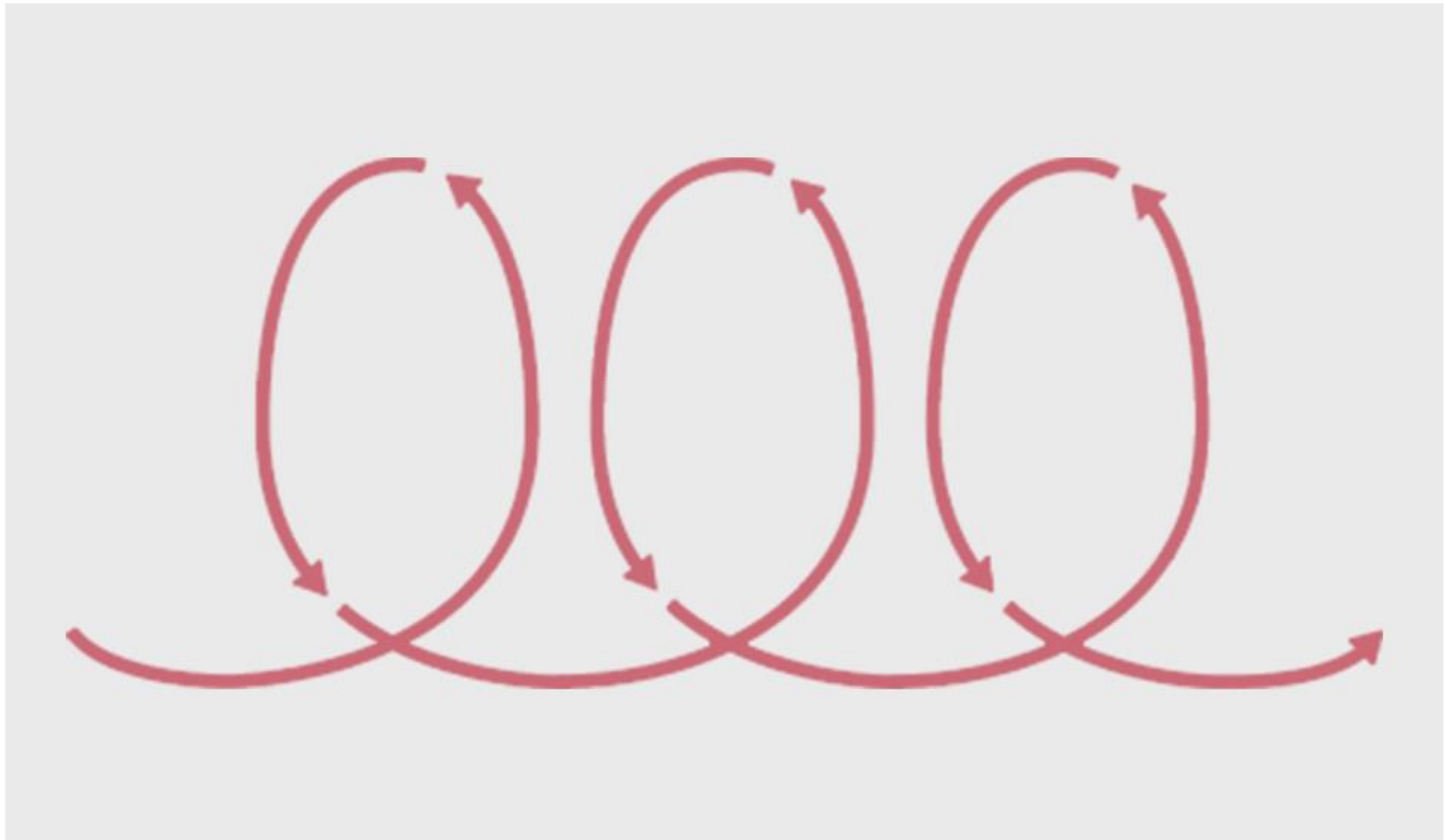

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SHORTEN
SOFTWARE
RELEASE
CYCLES.

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Defer commitment

Schedule irreversible decisions for the last responsible moment – the last chance to make the decision before it is too late.

It is easier to change a decision that hasn´t been made.

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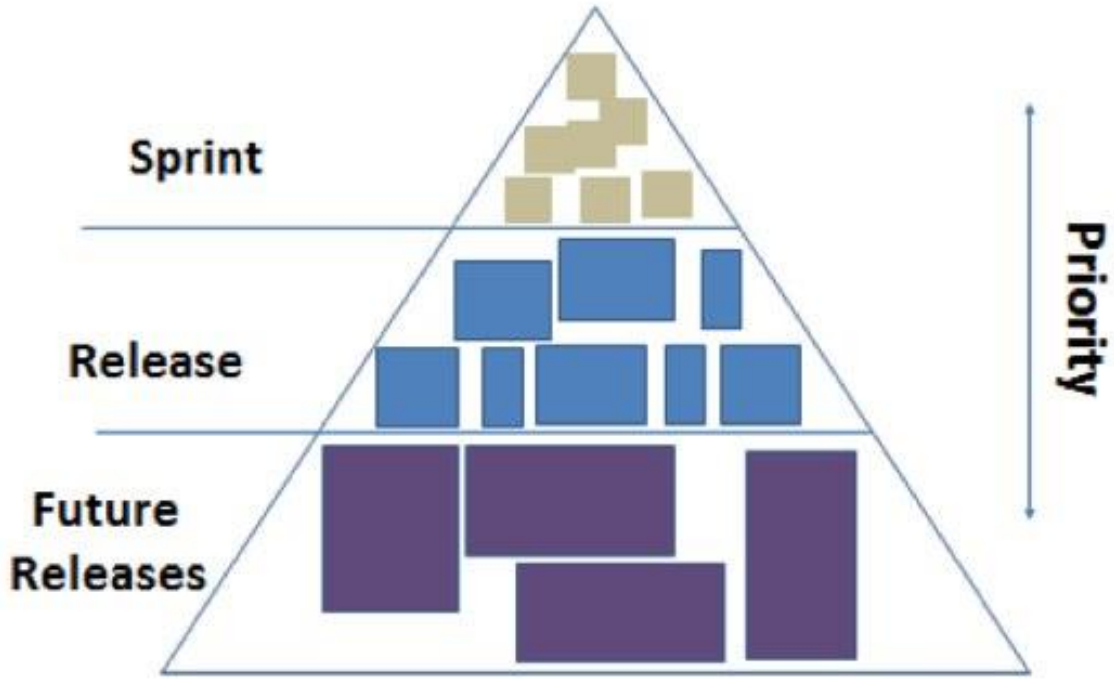

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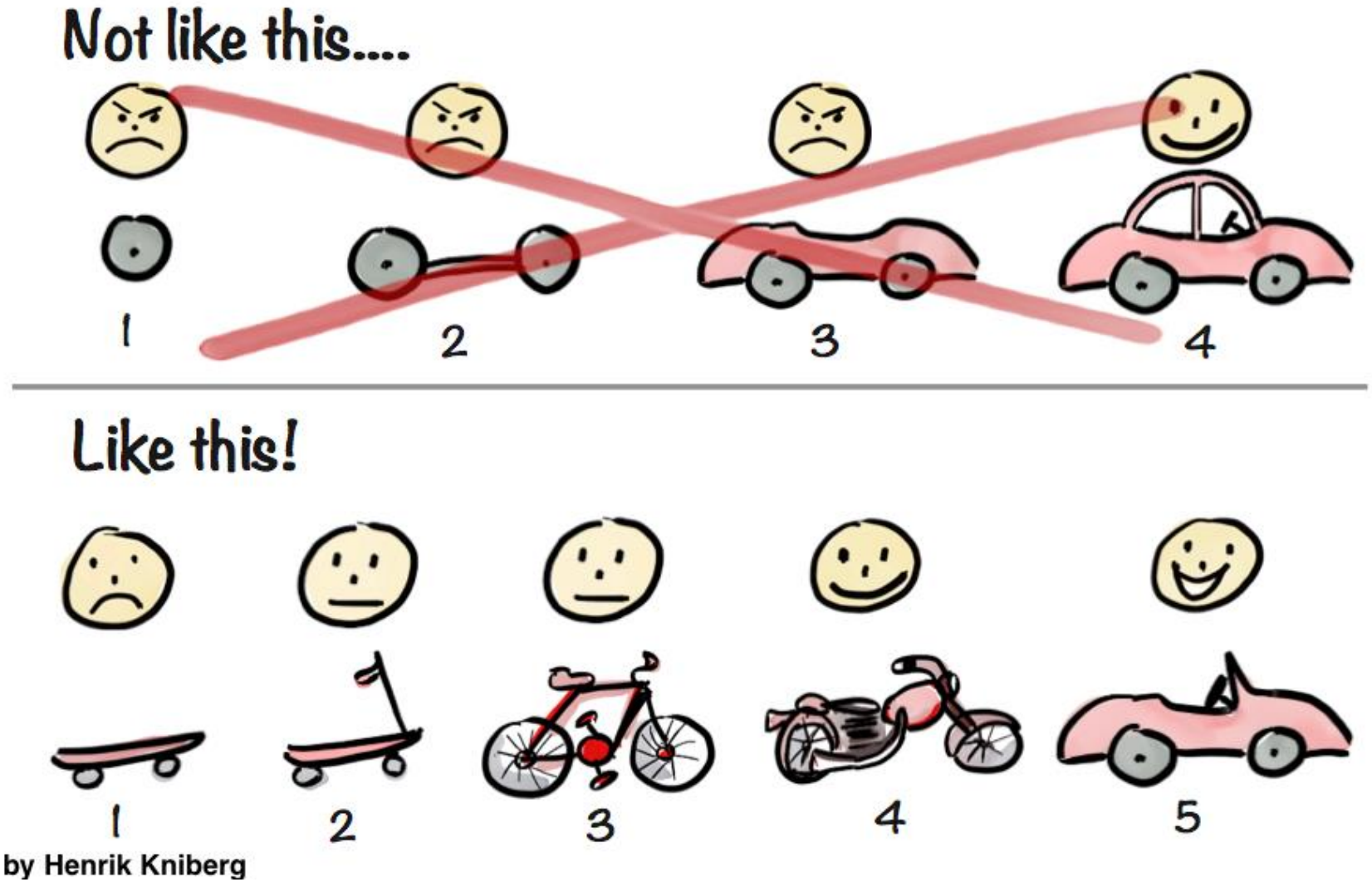

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Deliver fast

Companies that compete on the basis of time often have a significant advantage over their competitors.

- → Elimination of huge amount of waste
- → Low defect rate
- → Experimental approach to product development
- → The faster you can deliver, the longer you can delay decisions

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Respect people

- Lean thinking capitalizes on the intelligence of frontline workers
- Critical factor in motivation is empowerment

"Hire good people, and leave them alone."
"If you put fences around people, you get sheeps. Give people the room they need."
"Encourage, don´t nitpick. Let people run with an idea."
"Give it a try - and quick"

William McKnight

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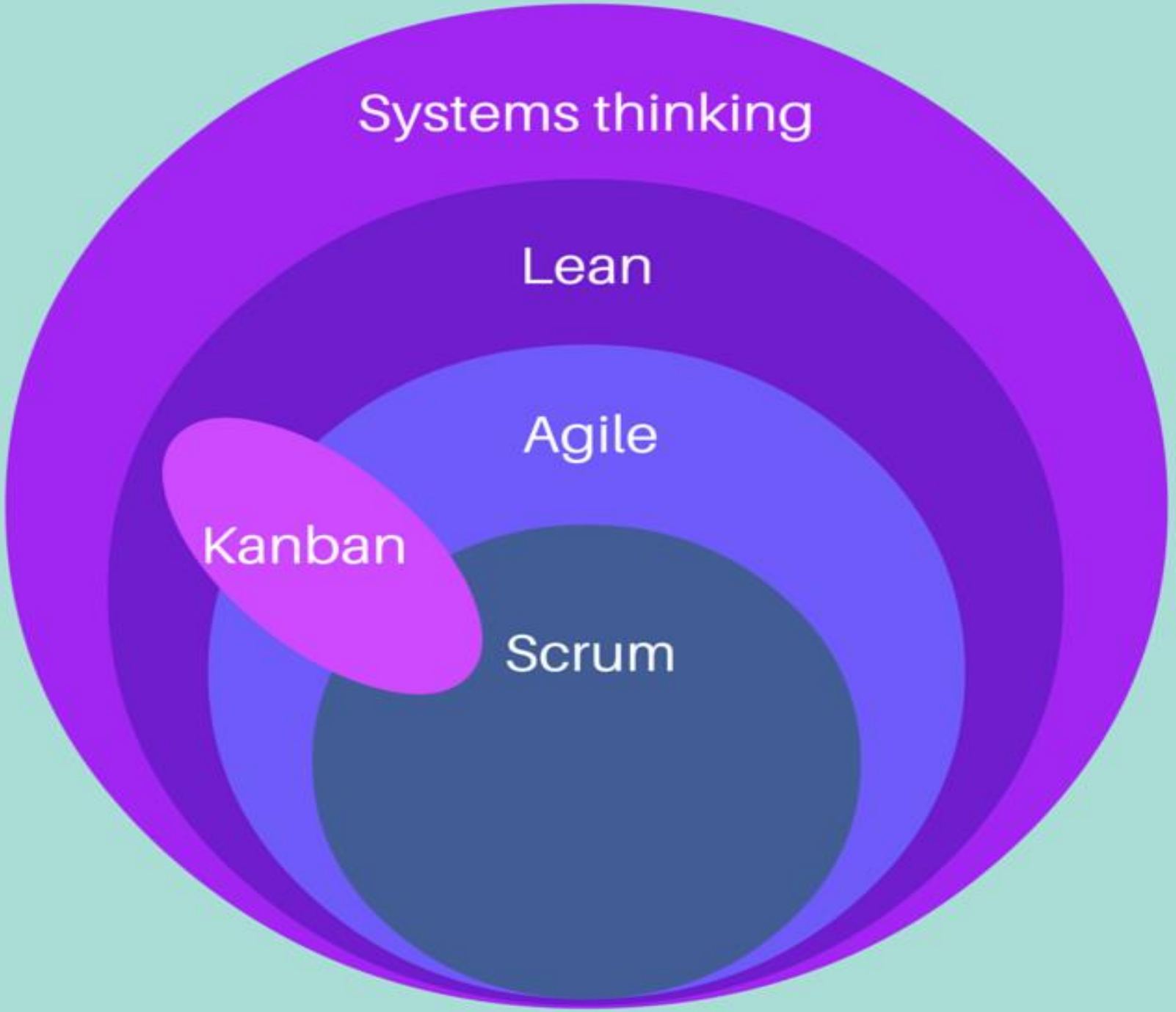
Optimize the whole

Software development is legendary for its tendency to sub-optimize. If you break a value stream into silos and optimize them separately, experience shown that the overall system will almost certainly be sub-optimized.

The basic rule: you get what you measure

Solution: measure up


Systems thinking
Lean
Agile
Kanban
Scrum

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Lean	→ **Agile**
Eliminate waste	→ deliver value
Build quality in	→ XP engineering practices, agile testing, shippable product
Create knowledge	→ iterations, spikes, automated testing, customer collaboration
Defer commitment	→ incremental design, agile backlog, iterations
Deliver fast	→ short release cycles, MVPs, pull system, shippable product
Respect people	→ self organizing teams, Scrum master, agile organization
Optimize the whole	→ team is responsible

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What is startup?

- Temporary organization designed to **search for** a repeatable and scalable **business model**

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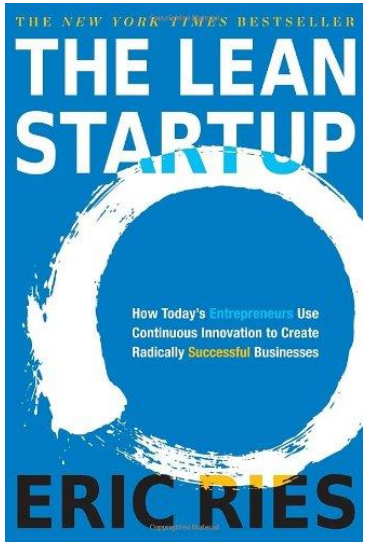
What is The Lean Startup?

- Methodology used by startups
- Way of maximizing learning per unit of time
- Systematical process of iterating from plan A to a plan that works



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Questions?