Lean Software Development

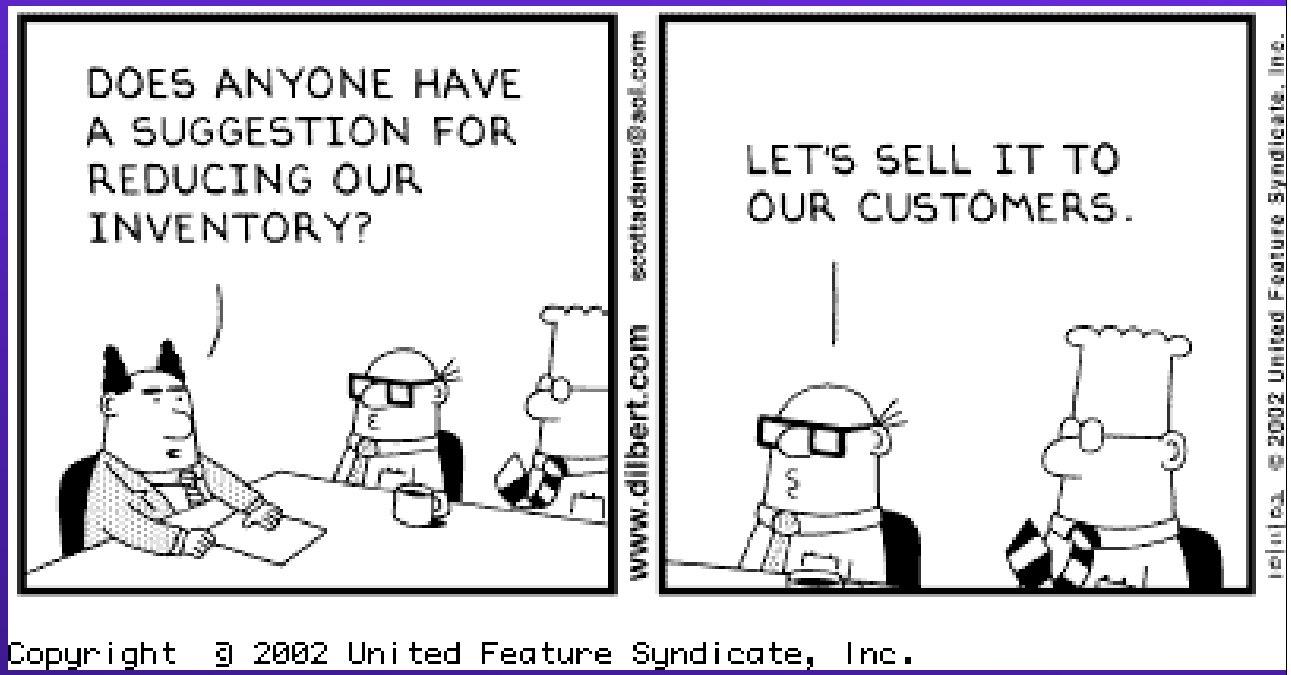
key for Business Profits

Mark Windholtz
ObjectWind Software Ltd

ObjectWind Software

- **Lean Development**
  - Your team, or
  - Delivered applications
- **Project Services**
  - Chartering
  - Reviews & Implementation
  - Lessons Learned
- **J2EE**
  - Patterns & Tools
  - Black Box Tuning
  - Database mapping
  - Domain Design

Dilbert



Agenda

- Lean Goals
- What is Waste?
- Development in Phases
- Lean Concepts
- Fit & Fitness

Lean Thinking Companies

- Fed Ex
- LensCrafters
- SouthWest
- Value Chain
- Hidden Cost
- Toyota

Lean Goals

- Remove Waste
  - To increase the ration of ***Value / Cost***
- Increase Responsiveness
  - To better define ***Value***
- Amplify Learning
  - So as to continuously improve…
    - Identification of waste
    - & Feedback cycles

Example 1

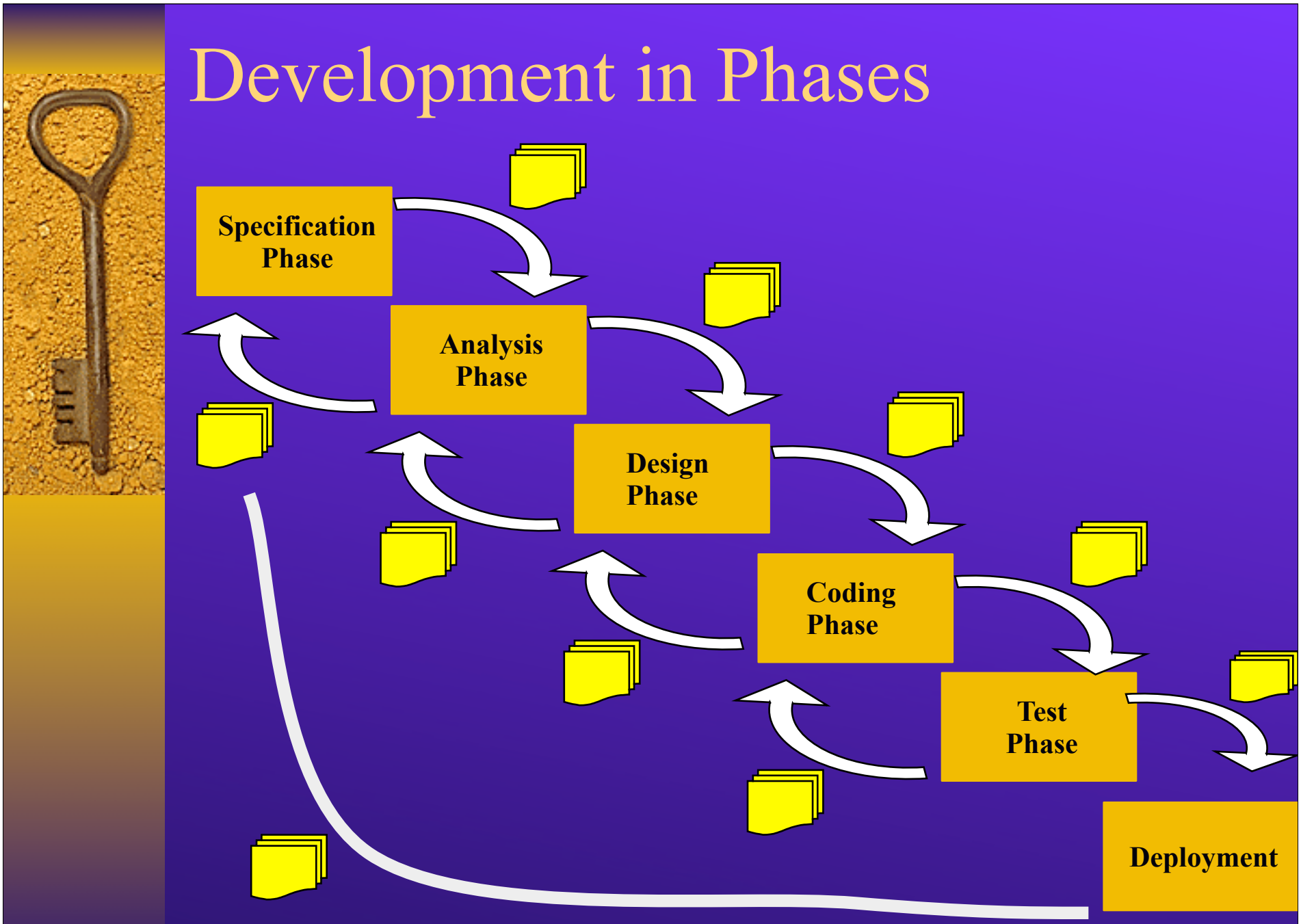
- 3 applications into production
- Web portals
- *very complex employee transition management*
- Delivers every 2 weeks to production

- SIP ~10
  - *One Defect in last 9 months*

Inventory is Waste

- Inventory is a non-producing Asset
- Inventory reduces responsiveness
- Any Artifact not producing Current Income
- Unimplemented Features are Inventory
  - Don't know **if** it will work
    - until it **does** work (Risk)
  - High Administrative costs
  - Reduced response to changing markets
  - Higher (Longer) Return on Investment
    - Consider: Net Present Value
  - Time between Idea and Market feedback

Development in Phases



Lean Concepts

- Value
  - What the Customer will pay for
- Pull
  - Respond to when the Customer asks
- Flow
  - Move value smoothly, continuously
- Perfection
  - Quality is Free
  - Continuous Improvement

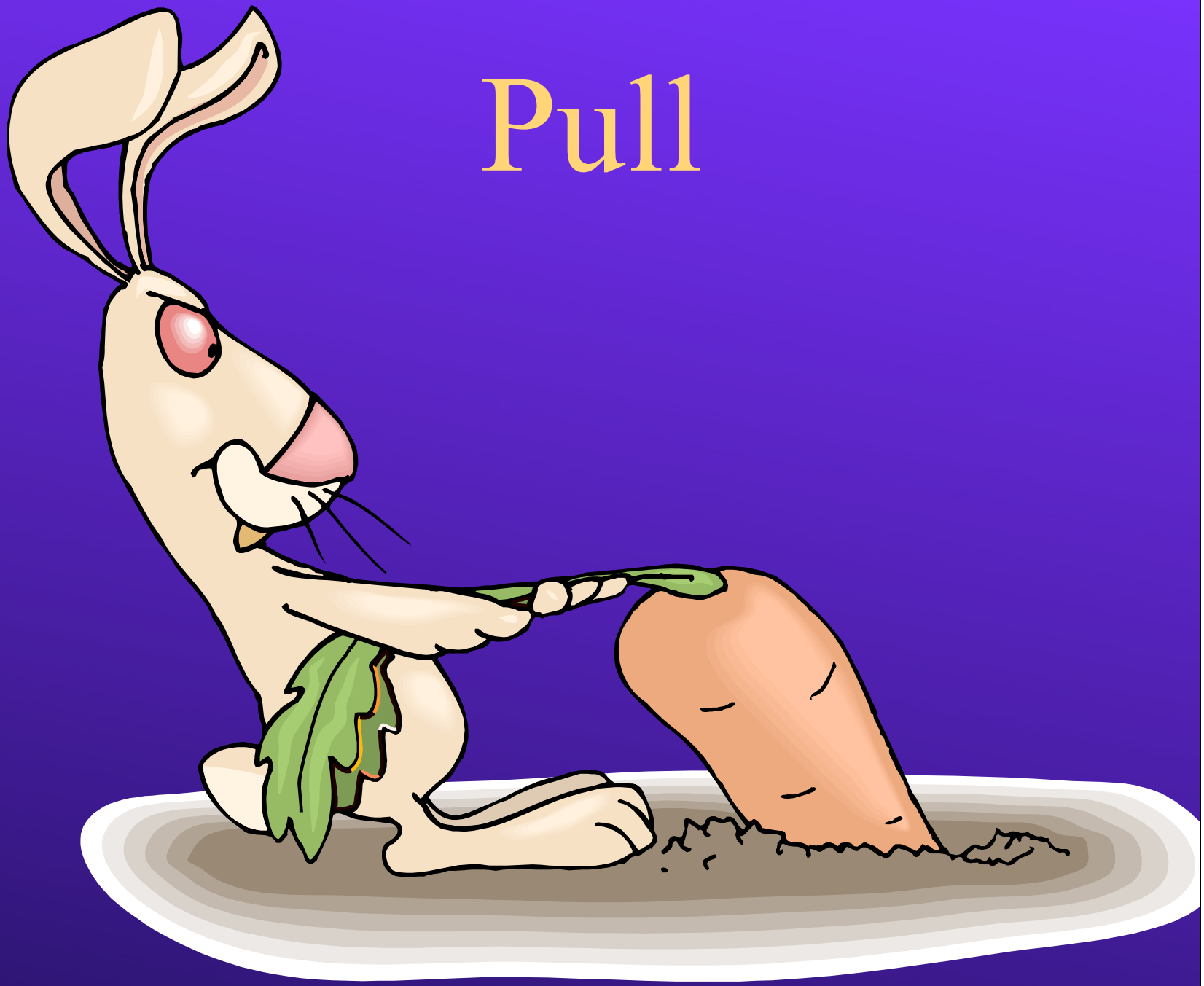
Value

they know the Cost of everything
but the Value of nothing - *Oscar Wilde*

Customer Value

- Business Value
  - What makes money for Business
  - Not always newest Technology
- Understanding Customer
  - Communicating Continuously
  - Feedback Loops
  - Important Project get On-site Customer
  - Un-important Project: Save your Money

Pull



Push

- A lot of stuff is produced,
  - Then force someone to buy it.

- New Car feature packages
- Sales items
- Coupons
- Volume discounts

Just In Time Software

- Let Customer choose Value
- Reduces waste of Over-Engineering
- Deep Focus on quickest payback

Most Important feature	Most Important feature	Most Important feature	Most Important feature
Specify	Specify	Specify	Specify
Analyze	Analyze	Analyze	Analyze
Design	Design	Design	Design
Code	Code	Code	Code
Test	Test	Test	Test
Deploy	Deploy	Deploy	Deploy

Flow

Flow: Small batches

- Deploy often (up to every 2 weeks)
- Eliminate Rework
  - Reconnect: feature spec - code - test - defect
- Continuously …
  - Communicate
  - Improve Design
  - Test
  - Integrate

Example 2

- www.lifeware.ch
- 4000 tests run with every change
- Changes go into production every evening
- Only needed workflows implemented
- Policy redemption not coded until requested
- Low cost of operation
- SIP = 1

Perfection: Fitness Testing

Acceptance Testing

- Test Features at the end of production
- Pro
  - Bad defects don't ship, fix or delay (both cost)
- Cons
  - Minor defects too late to fix, so they ship
  - Too late to help during programming
  - Expensive and often Manual
  - Takes a long time

xUnit Testing

- jUnit (xUnit for Java) is industry standard
- Pros
  - Test-first design is very powerful
  - Allows for changing requirements
  - Produces better modular design
  - Reduces technical defects
- Cons
  - Most defects are in communication about specs
  - xUnit helps the trees but not the forest

Fit & Fitness

- Fit
  - Write tests for features before programming
  - Test written as html tables
  - Domain Expert can specify fitness criteria
- Fitnesse
  - Tool to input and organize fit tests
  - Wiki based for Collaborative web building

CalendarTests.

AddEventTest

[.CalendarTests] [.FrontPage] [.RecentChanges]

fitnesse.FitFilter

Add an event with a group name.

fit.ActionFixture		
start	xpcinci.ECalendarFixture	
check	countOfEvents	0
enter	eventName	xp-cinci
enter	eventGroup	programming
enter	eventDate	04Mar2003
press	create	
check	countOfEvents	1
check	countOfGroups	1
check	groupsTop	programming

Add another event with same group name

Green

AddEventTest

Note: Ouput from Standard Error was captured during execution. You may view it by visiting the ErrorLog
[.CalendarTests] [.FrontPage] [.RecentChanges]
fitnesse.FitFilter

Add an event with a group name.

fit.ActionFixture		
start	xpcinci.ECalendarFixture	
check	countOfEvents	0
enter	eventName	xp-cinci
enter	eventGroup	programming
enter	eventDate	04Mar2003
press	create	
check	countOfEvents	1
check	countOfGroups	1
check	groupsTop	programming

Add another event with same group name

Fail

AddEventTest

Note: Ouput from Standard Error was captured during execution. You may view it by visiting the ErrorLog
[.CalendarTests] [.FrontPage] [.RecentChanges]
fitnesse.FitFilter

Add an event with a group name.

fit.ActionFixture		
start	xpcinci.ECalendarFixture	
check	countOfEvents	0
enter	eventName	xp-cinci
enter	eventGroup	programming
enter	eventDate	04Mar2003
press	create	
check	countOfEvents	42 *expected* 1 *actual*
check	countOfGroups	1
check	groupsTop	programming

suite

CalendarTests

Note: Ouput from Standard Error was captured during execution. You may view it by visiting the ErrorLog

fitnesse.fixtures.RecursiveAllFiles	
AddEventTest	8 right, 1 wrong, 0 ignored, 0 exceptions
QueryByDateTest	6 right, 0 wrong, 0 ignored, 0 exceptions
UiCalendarTest	0 right, 0 wrong, 0 ignored, 4 exceptions

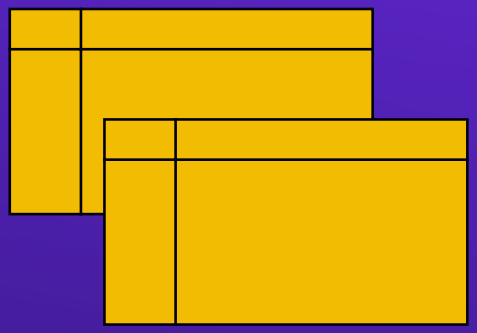
fit.Summary	
counts	1 right, 2 wrong, 0 ignored, 0 exceptions
counts run	14 right, 1 wrong, 0 ignored, 4 exceptions
run date	Fri Mar 14 15:42:42 PST 2003
run elapsed time	0:01.42

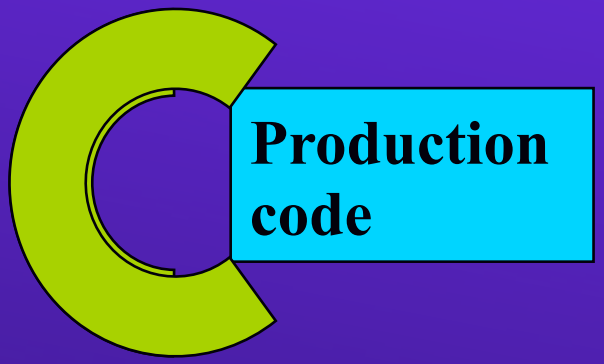
Contents

Fit: Overview

Tests As Html Tables

Fixture to "hold" real code





How to be Lean

- Reduce Waste - Inventory
  - Artifacts: Smaller , fewer, more useful docs
  - Code size: Refactor (Once and Only Once)
- Increase Responsiveness
  - Communication: sit together
  - Testing: test-first
  - Focus: single piece flow

Business Models

- Lean Software Development
  - Enables
    - Shorter Investment Cycles
    - Increased ROI
    - Subscription based software
    - Responding to Market
  - Requires
    - Change in thinking
    - Greater Feedback
    - Courage !