

SAFETY NOT GUARANTEED

How great teams break the rules to
create successful products



Jeff Patton
Chief troublemaker, Comakers LLC
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In software
development,
we fail a lot

September 2011: UK government scraps the £12 billion National program for IT in the NHS

The U.K.'s Major Projects Authority concluded the project was "not fit to provide the modern IT services that the NHS needs."

New York City's CityTime project originally had a \$63 million budget, but costs since skyrocketed astonishingly, with total estimates reportedly reaching \$760 million.

November 2012, the United States Air Force canceled a six-year-old modernization effort that had eaten up more than \$1 billion.

The Air Force canceled after realizing that it would cost another \$1 billion just to achieve one-quarter of the capabilities originally planned.

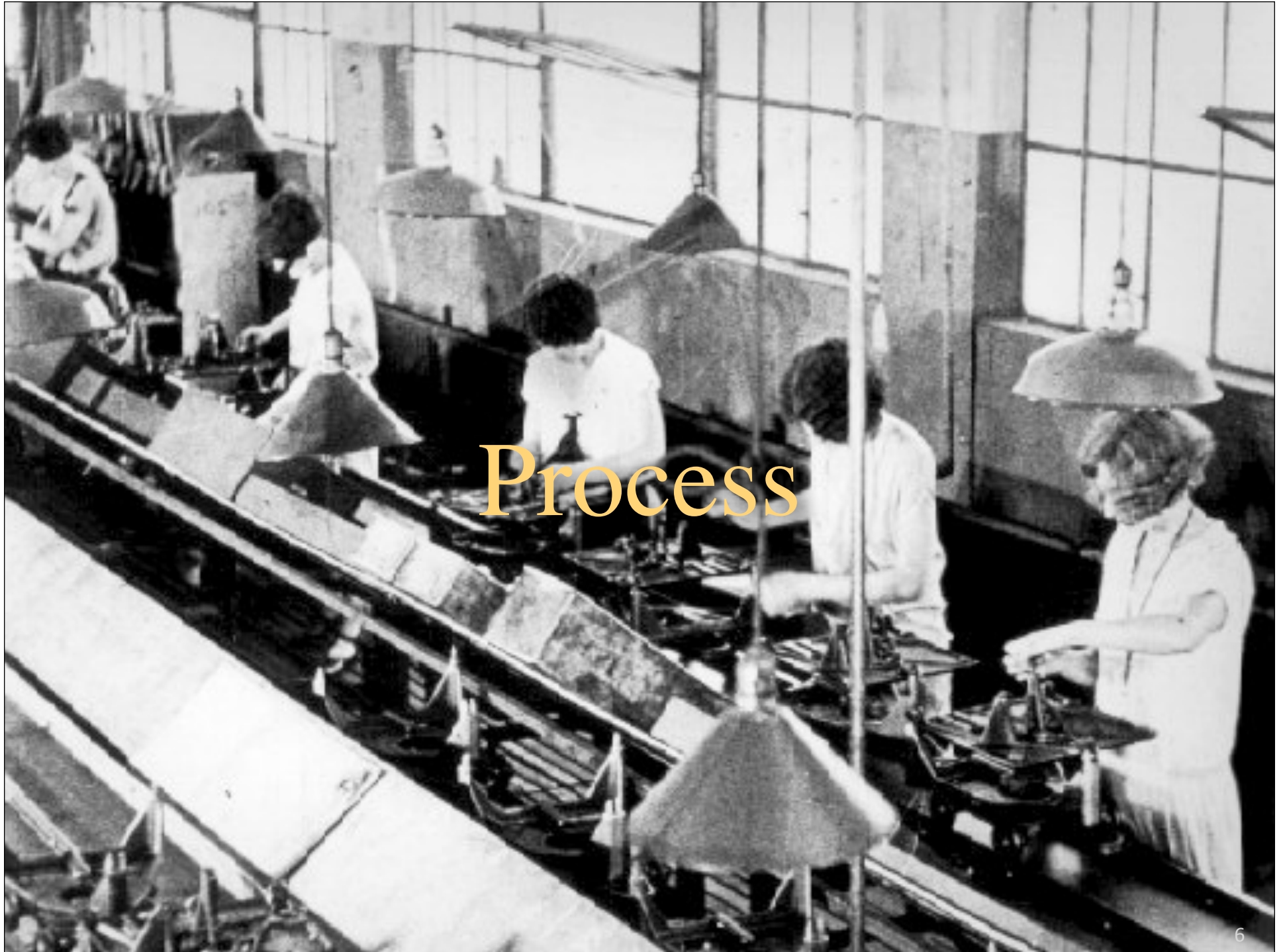
It didn't take long to find these numbers...

This is a talk about
process, and what you
can and can't do about
all this

What does
process
mean to
you?

Process:

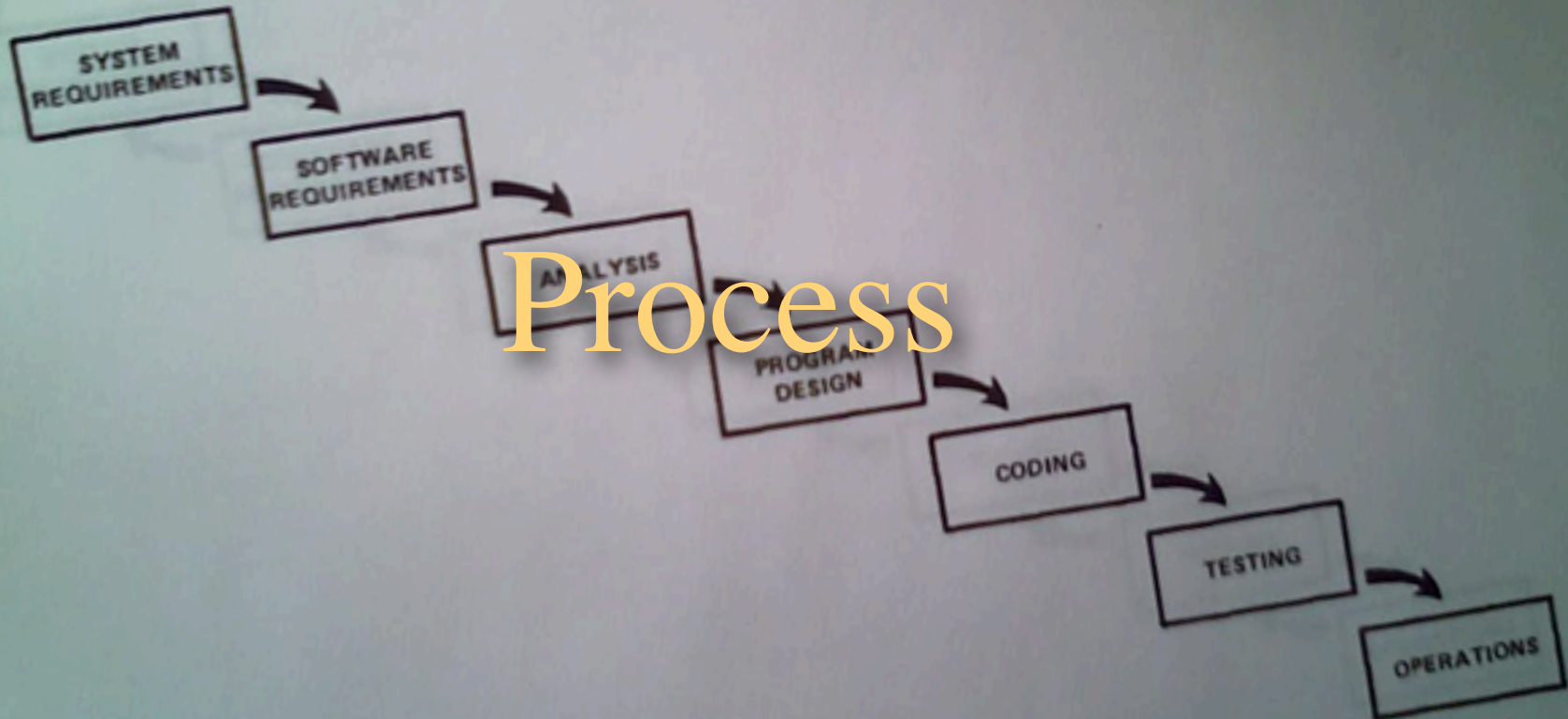
When I
say Process,
what words
come to
mind?



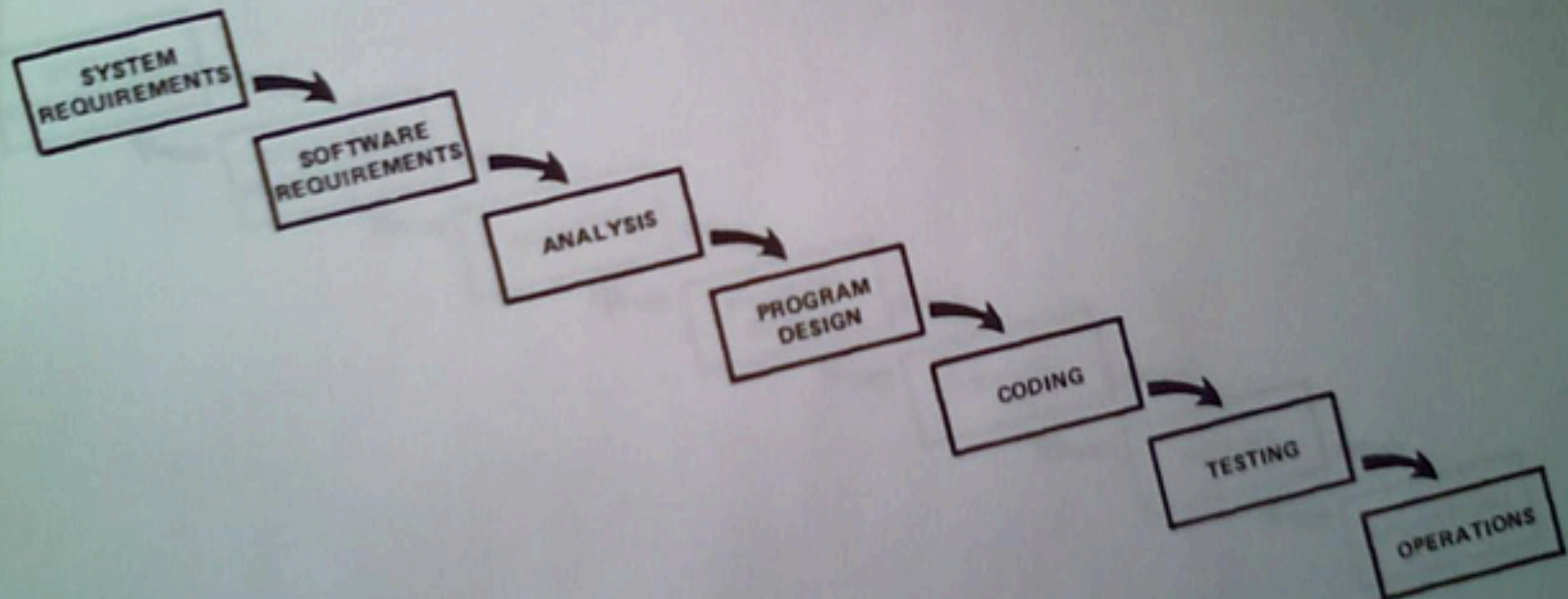
Process

THE DEVELOPMENT OF LARGE SOFTWARE SYSTEMS

Dr. Winston W. Royce

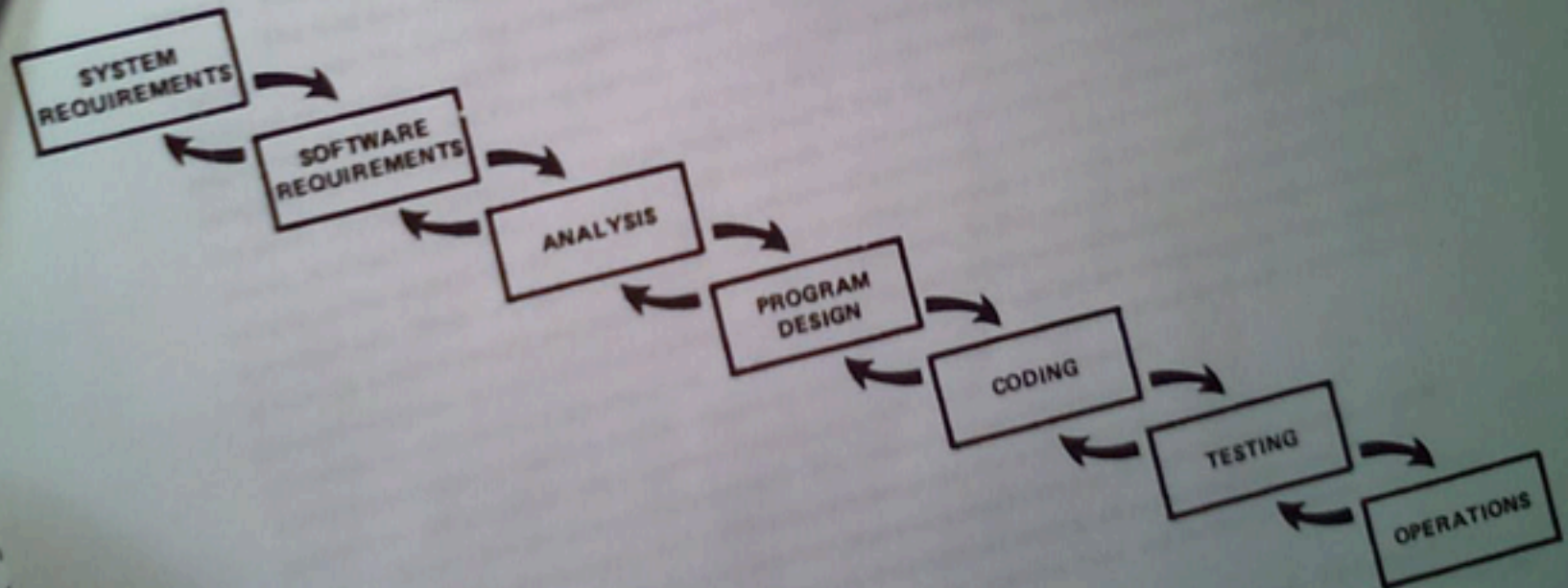


What's wrong with this model?



Winston Royce first published this model in 1970 as an interim figure on the way to his ideal approach

Royce explained you'll need feedback cycles between phases



Handing off documents and moving on doesn't work

You'll need feedback all the way back to design and requirements

Why do we still believe we can get by without collaboration & iteration today?

It's only after testing that we understand if either design or requirements were good

Royce's finished model was less obvious

Good process looks bad.
Remember that, it'll
come up again.

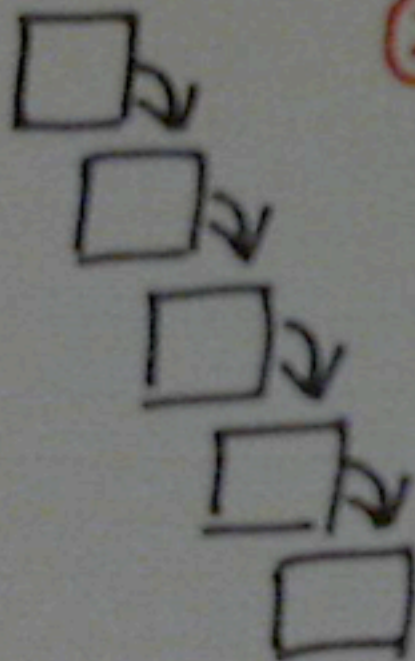
Royce's model had lots of collaboration, "involving the customer", recommended iteratively building the product - "do it at least twice."

"If the computer program in question is being developed for the first time, arrange matters so that the version finally delivered to the customer for operational deployment is actually the second version insofar as critical design/operations areas are concerned."

A black and white photograph of a textile factory interior. Several workers are visible, operating large industrial machines. The room has high ceilings and large windows. A semi-transparent grey box containing text is overlaid on the center of the image.

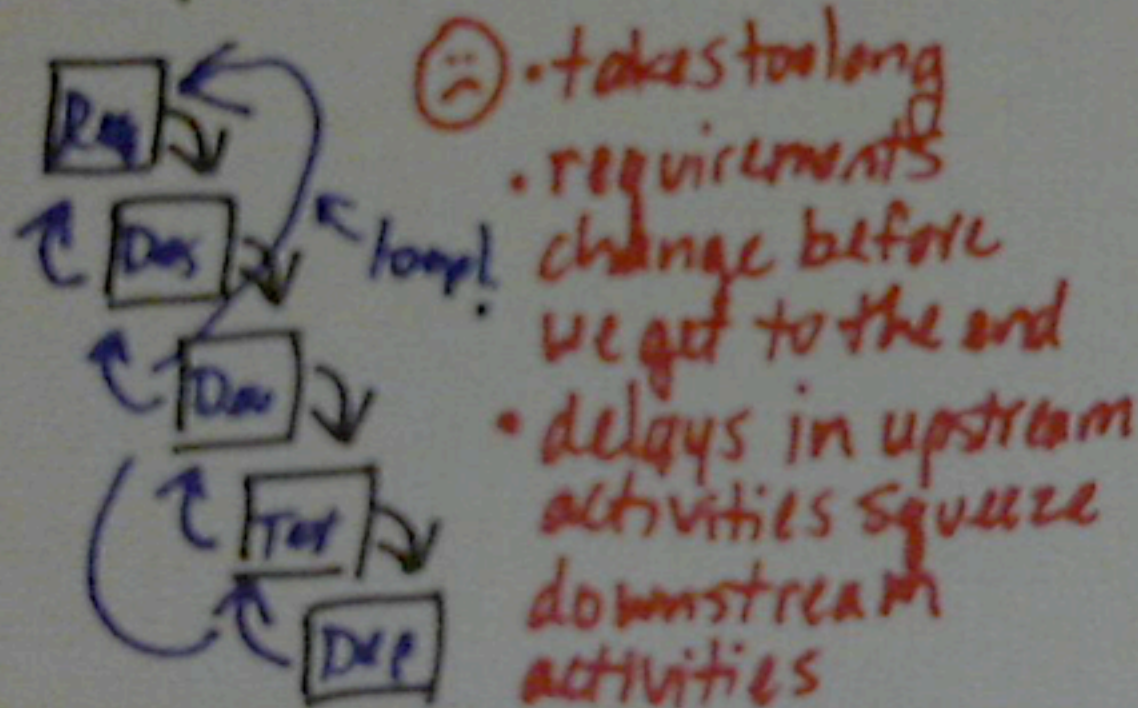
No matter what Royce tried to say,
this is what we keep falling back to

Royce's model

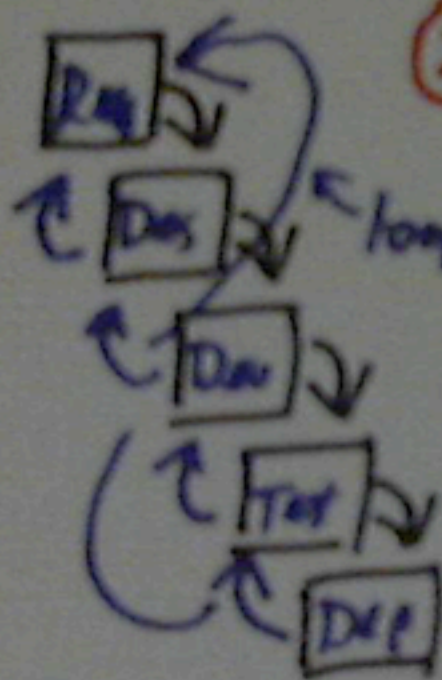


- ☹️ • takes too long
- requirements change before we get to the end
- delays in upstream activities squeeze downstream activities

Royce's model



Royce's model



- ☹️ • takes too long
 • requirements change before we get to the end
 • delays in upstream activities squeeze downstream activities

CYA

- 😊 • easy to understand
 • easy to plan
 • easy to track
 • looks intuitive
 • clear roles & responsibilities
 • clear accountability

Agile Development will
fix this, right?

2011: “[In the UK], the Department for Work and Pensions (DWP) claims the IT behind its £2.2 billion flagship Universal Credit (UC) project is being developed using agile principles.”

“DWP gained agile experience using an unconventional approach developed by Accenture. It contracted lawyers to design contractual add-ons to accommodate the agile approach. Emergn, an agile systems supplier, developed an agile methodology that would apply to DWP's unique situation. Emergn refused to comment.”

What could possibly go wrong?

<http://www.computerweekly.com/news/2240105764/Universal-Credit-deadline-forced-DWP-to-use-unproven-agile-development>

Agile kicked out

2013: “...in its final stages of testing for the pathfinder from April 2013, the programme is using the waterfall approach—a standard DWP testing methodology.” -- Mark Hoban, conservative member of parliament

A former principal agile consultant on Universal Credit, who asked not to be named, said:

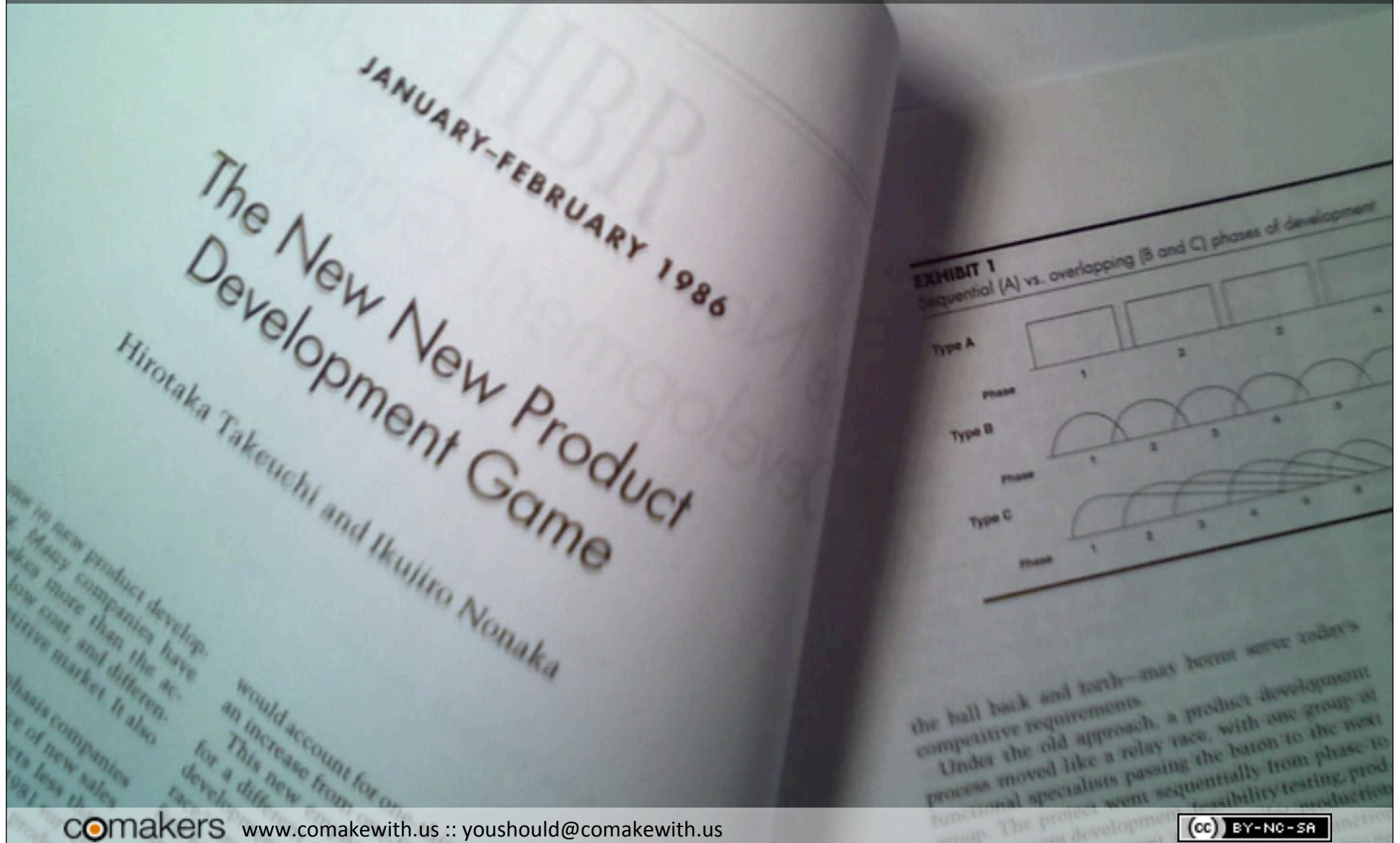
"We were effectively on a waterfall project, because it was a waterfall contract,"

"You might call it agile, but if you don't set up the contract properly, it's not. Call it what you like, but if it clucks and lays eggs, it's a chicken."

Good process looks messy

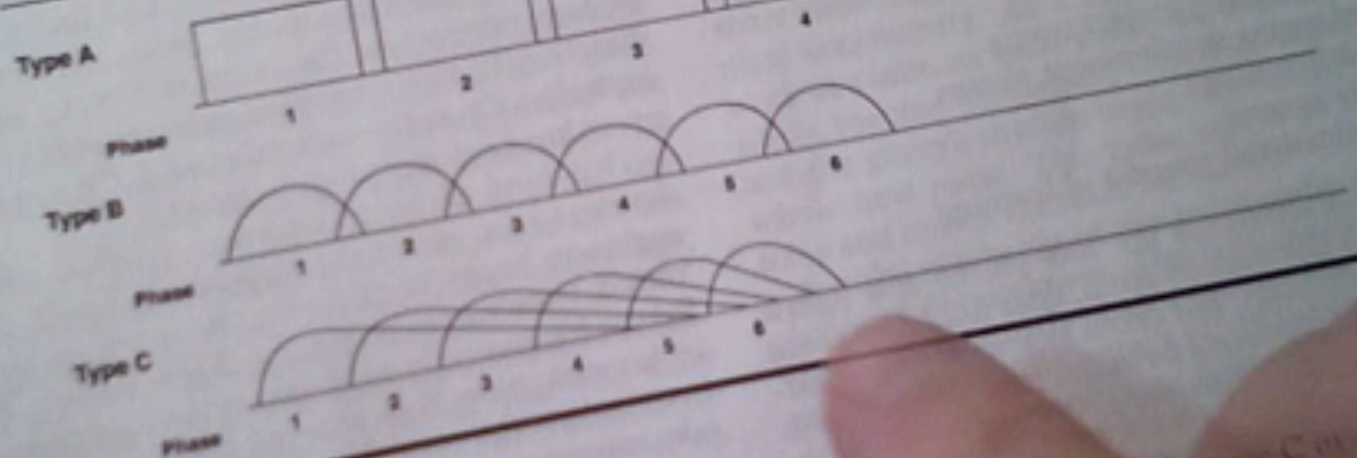


Successful product companies use different approaches



Takeuchi & Nonaka saw three process models

EXHIBIT 1
Sequential (A) vs. overlapping (B and C) phases of development



“Under the rugby approach, the product development process emerges from the constant interaction of a hand-picked, multidisciplinary team whose members work together from start to finish.”

What does
“game”
mean to
you?

Game:

↑ When I
say “game”
what words
come to mind?

It's all just a game



Games have Simple Rules



Almost anyone can learn to play

The sophistication comes from **strategies and tactics** used by skilled players and coaches

Games have

Positions not Roles



Players on a sports team build deep
specialization

but **maintain general skills** to play many positions

Process \neq skill



We tried baseball
and it didn't work

No one expects to be good at a game without
practice

There's no game-winning process

Jeffries, We tried baseball: <http://xprogramming.com/articles/jatbaseball/>

Build breadth and depth of skills

Breadth of skills



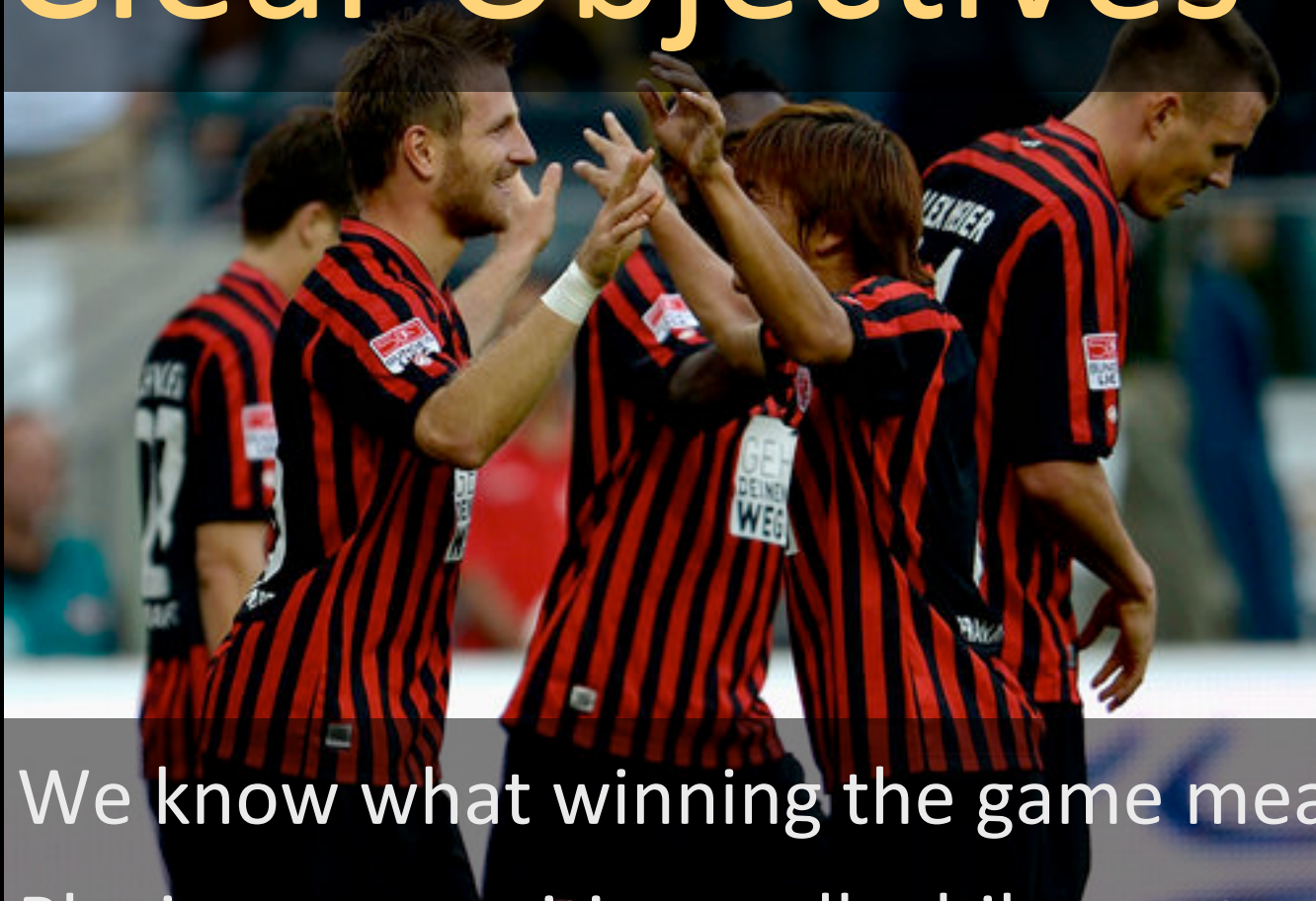
Depth of expertise

Build many skills



Wide breadth of skills along with varying depth in a variety of skills

Games have Clear Objectives



We know what winning the game means
Playing our position well while our team loses
isn't considered success

output



we build this

outcome



we want this

Process \neq Skill

knowing how doesn't make you good

Roles \neq Positions

You might primarily do one thing, but you can't win by doing only one thing

Finishing On Time \neq Winning

Keep score, don't just keep time



“Simple, clear purpose and principles
give rise to complex and intelligent
behavior.

Complex rules and regulations give
rise to simple and stupid behavior.”

-- Dee Hock

Keep rules to a minimum

Allow teams freedom to
control their own strategies
and tactics

We need enough rules to be
playing the same game

Effective process is
more like a team sport,
and less like an
assembly line

Liquidnet plays like a
single team

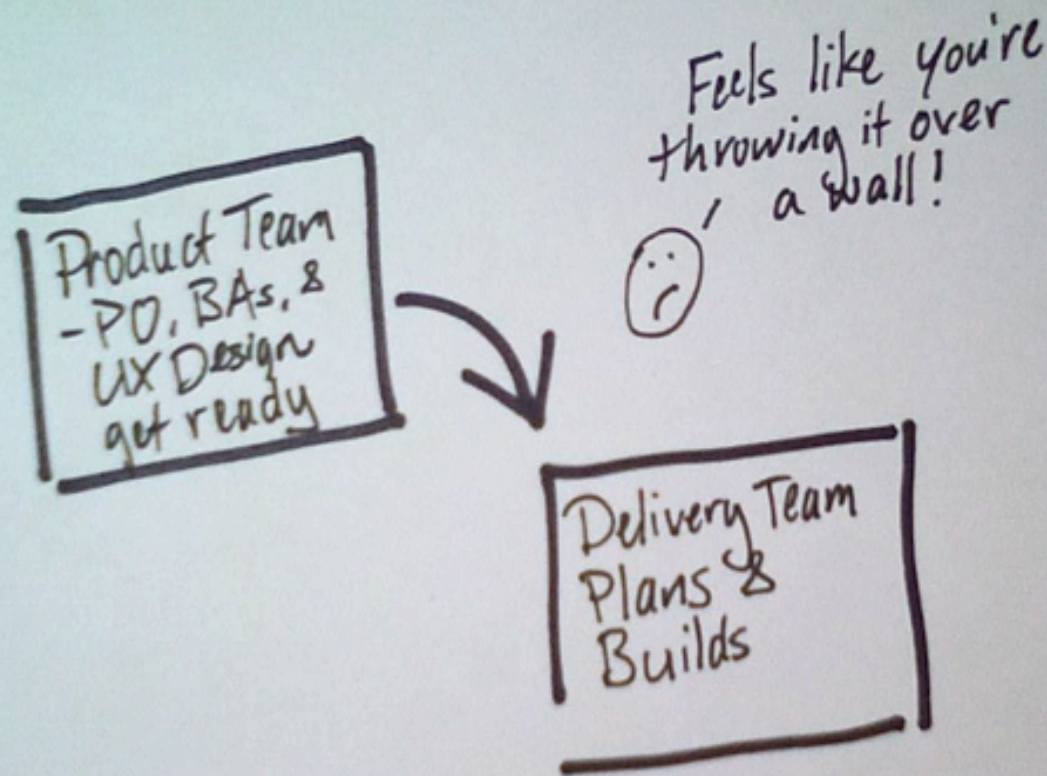
Liquidnet feature team at a daily standup

Liquidnet builds software for large institutional stock traders such as banks, hedge funds, pension funds, and mutual funds.

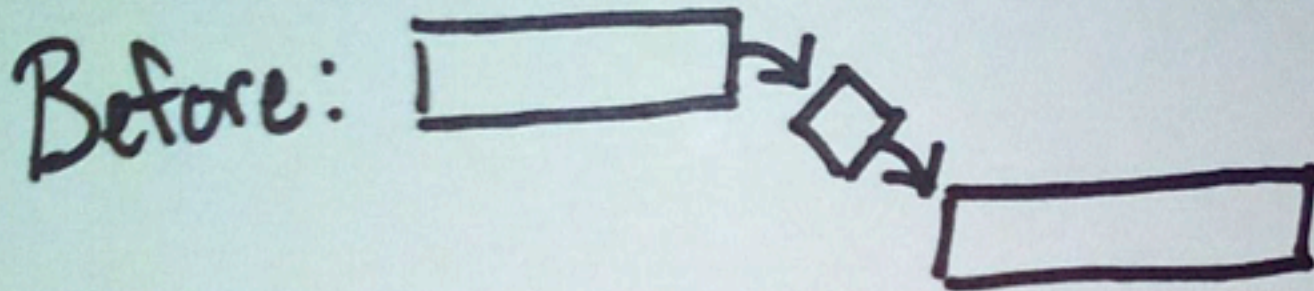
The next major revision of their flagship product use a single team with over 40 total team members and would take over a year to release.



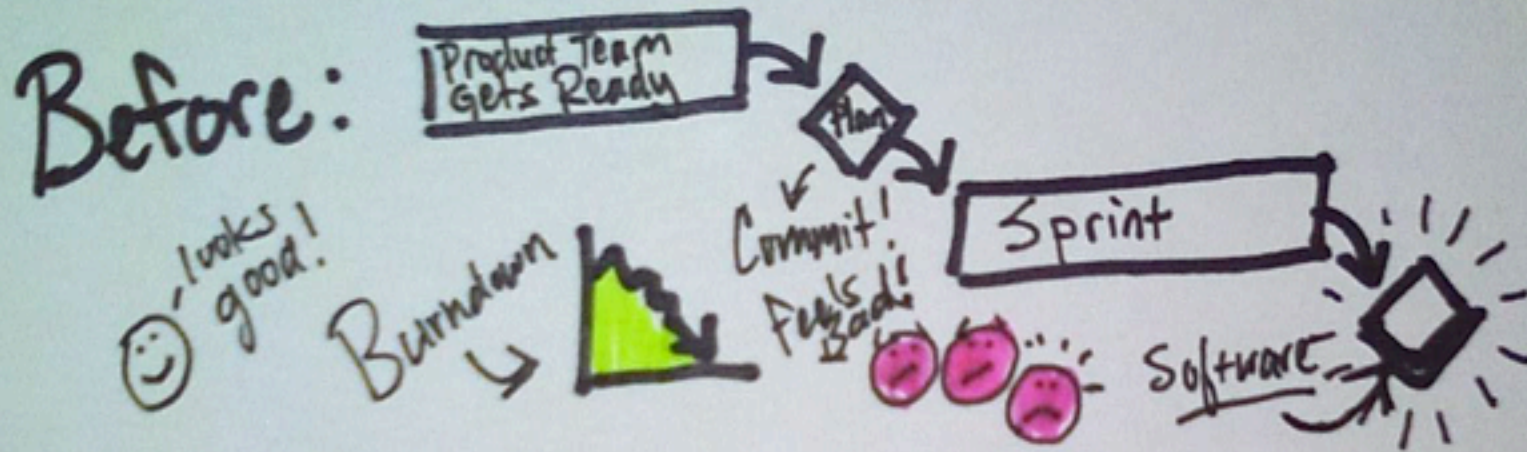
The team used Scrum, but to them it felt like waterfall



They used a common staggered sprint model



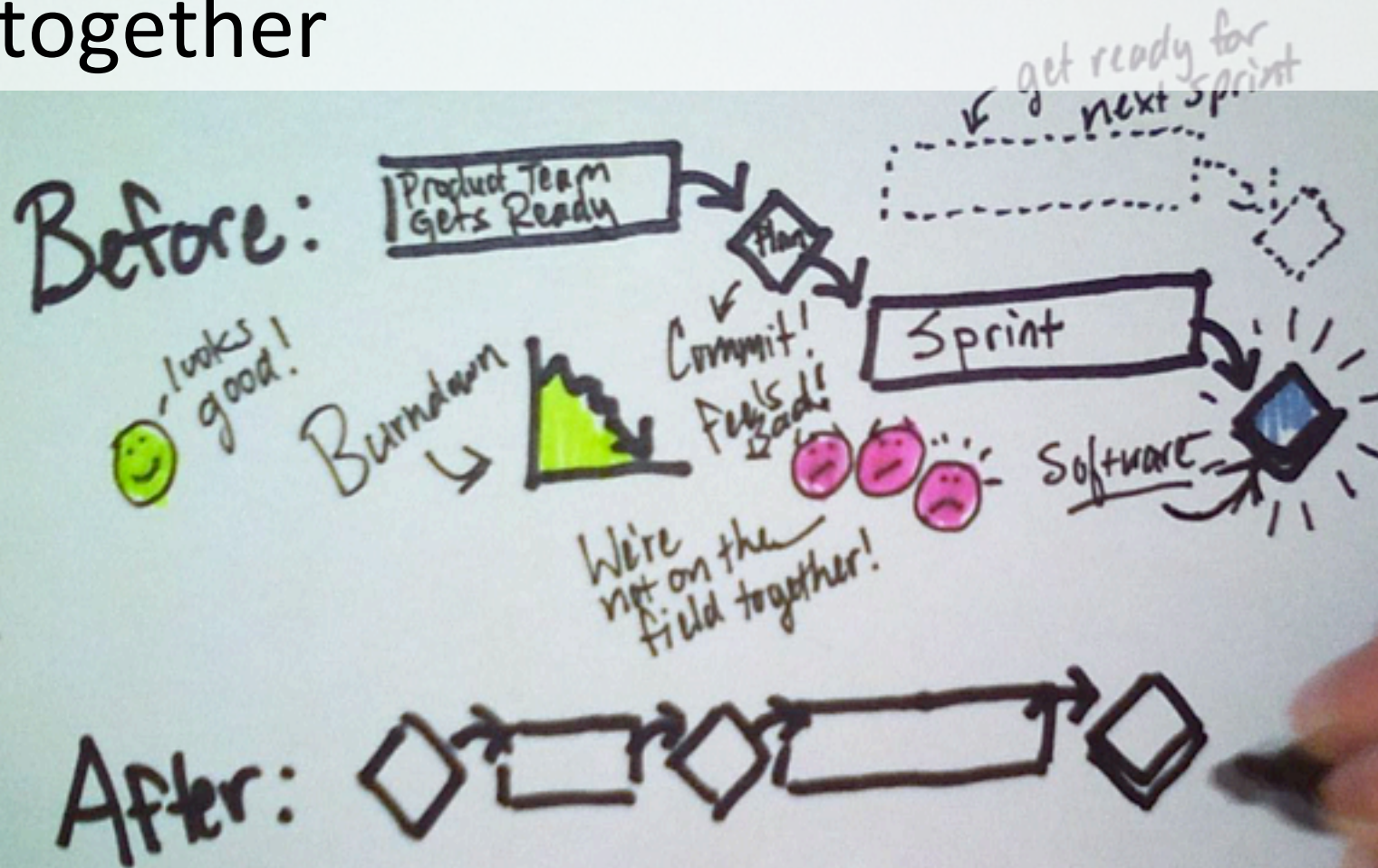
A product owner, BAs and UX designers get stories ready for planning



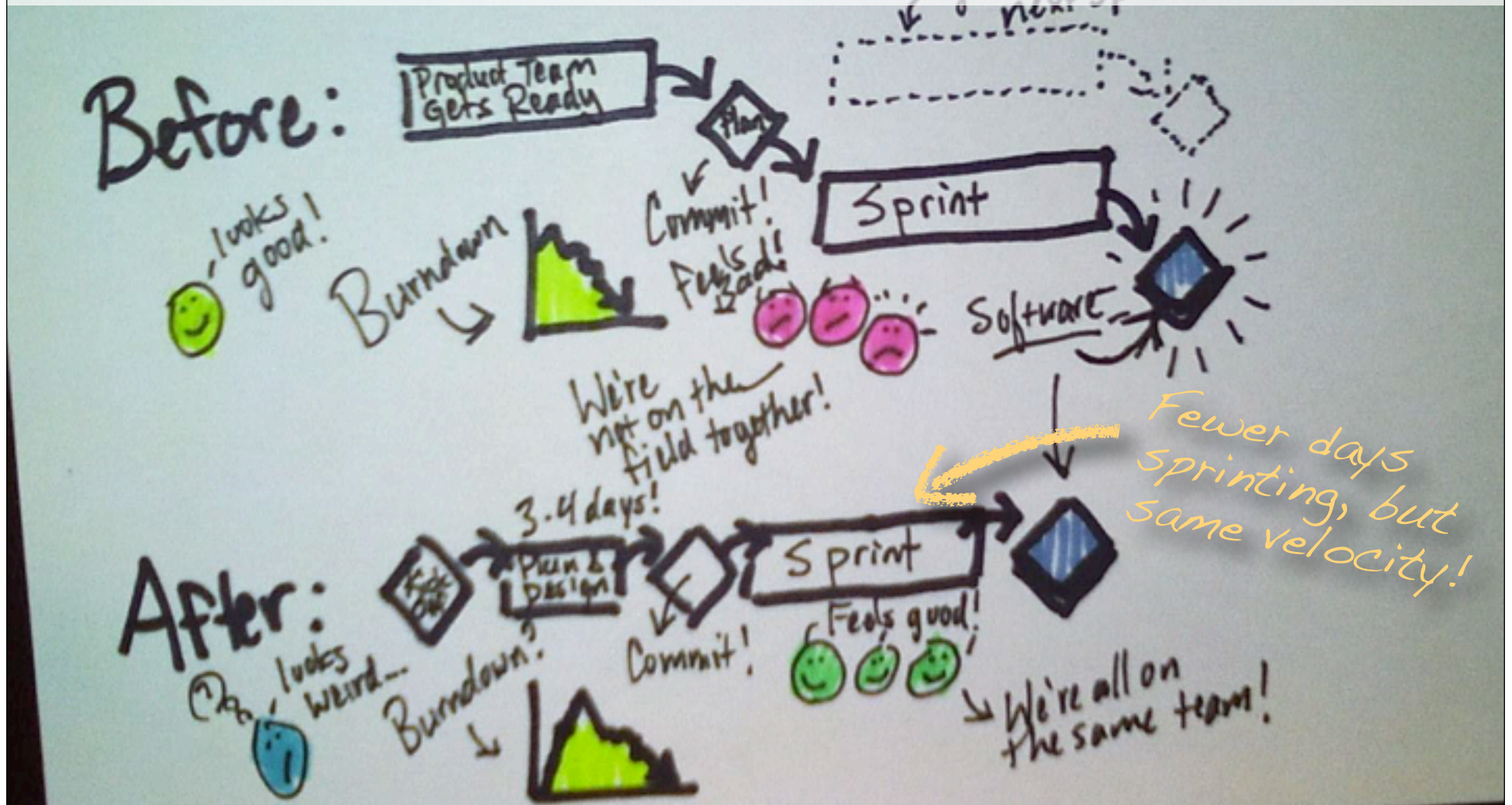
While the team works, the product team get's ready for the next sprint



The team alters their sprint to stay together



The team gets ready together and sprints together



* 2009, Frank & Hartel, Feature Teams Collaboratively Building Products from READY to DONE

Scrum is an agile
strategy, not the rules
of the game

But

Even if you are on time,
you're probably wrong
anyway

Your guesses about the future are
probably wrong

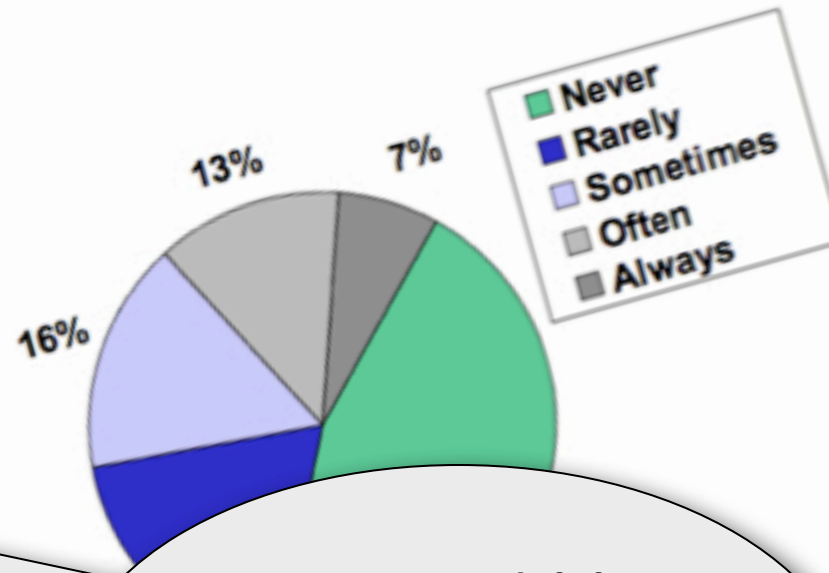
Typically about
50% to 80% of all
software we ship fails to
accomplish it's
objectives.

People like Marty say this stuff is hard
(Marty Cagan, author of **Inspired**, How to Create Products Customers Love)

Is it as simple as building only the features people will use?

THE
STANDISH
GROUP

Features & Function Usage



“Clippy” - Booed off the Microsoft Office stage as seldom-used and often despised.

It seemed like a good idea at the time....

It's only after delivery that we really understand value

opportunity:
integrated music
management and
portable music
player



Adding design thinking to fix agile



Eugene Park is the director of product management at Edmunds.com

Edmunds was founded in 1966 as a publisher of printed booklets consolidating automotive specifications to help car shoppers make buying decisions. Today they're one of the most trusted sources on the web for auto buyers and enthusiasts.

Edmunds.com has mastered Agile, but it doesn't matter

The screenshot shows the Edmunds.com homepage. At the top is a navigation bar with the Edmunds.com logo, a 'Price Promise' badge, and filters for Make, Model, Year, Car Type, and Car Research. A search bar is on the right. Below the navigation bar is a large banner with the text 'Hit the gas. Start shopping now.' and a search form with 'Select Make' (e.g. Mazda), 'Select Model' (e.g. Mazda3), and 'Select Year' dropdowns, followed by a 'Go' button. Below the banner is a large image of a blue 2014 Kia Sorento with the text '2014 Kia Sorento | Learn More'. Below the car image is a grid of car categories: Convertible, Coupe, Crossover, Diesel, Hatchback, Hybrid/Electric, Luxury, Minivan, Sedan, SUV, Truck, and Wagon. At the bottom, there is a section for 'THE ALL-NEW NISSAN VERSA® NOTE™ VALUE' featuring a car image and the text 'Edmunds Price Promise™ makes car buying easy. Look for "Special Offers" to get an upfront, locked-in price on a new car.' There is also a 'SPONSORED CONTENT' section with a red car image.

?

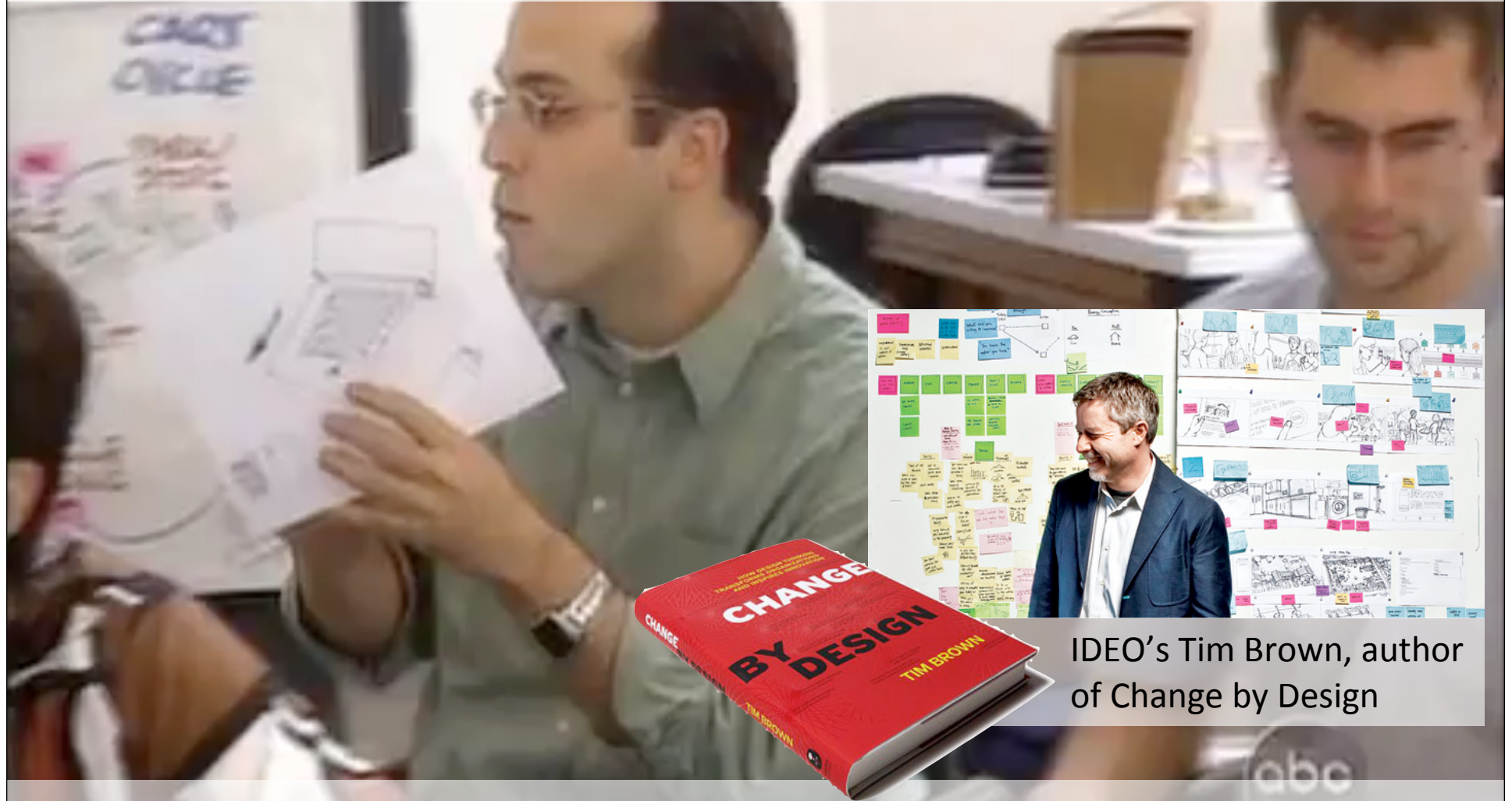
www.comakewith.us



We'd like to adopt
design thinking

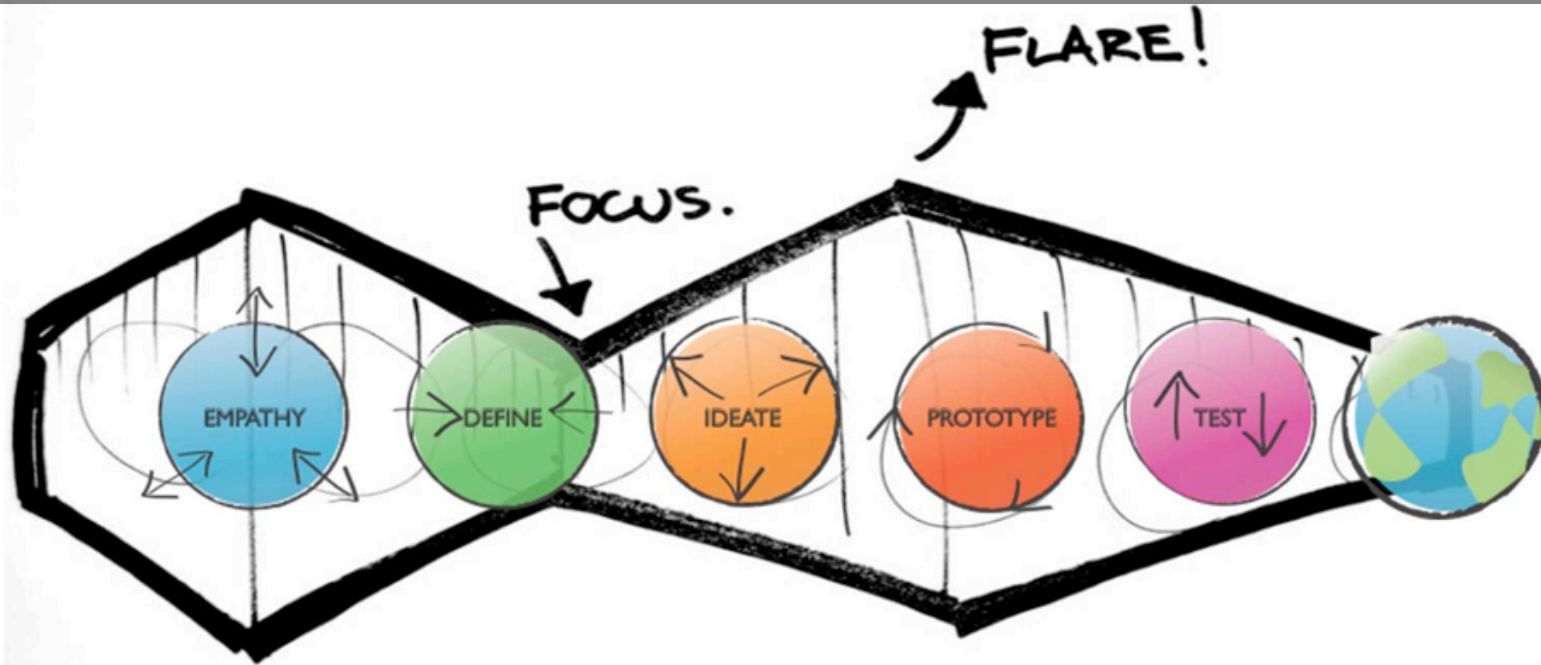
Design thinking focuses
whole teams on solving
customer and user
problems

IDEO Pioneered Design Thinking, schools like Stanford's d.school and the HPI School of Design Thinking teach it



IDEO's "Shopping Cart Video": <https://www.youtube.com/watch?v=M66ZU2PClcm>

Design & Design Thinking



Design follows a basic flow from research to solution design

[It can sometimes be seen as an “ivory tower” activity for select individuals]

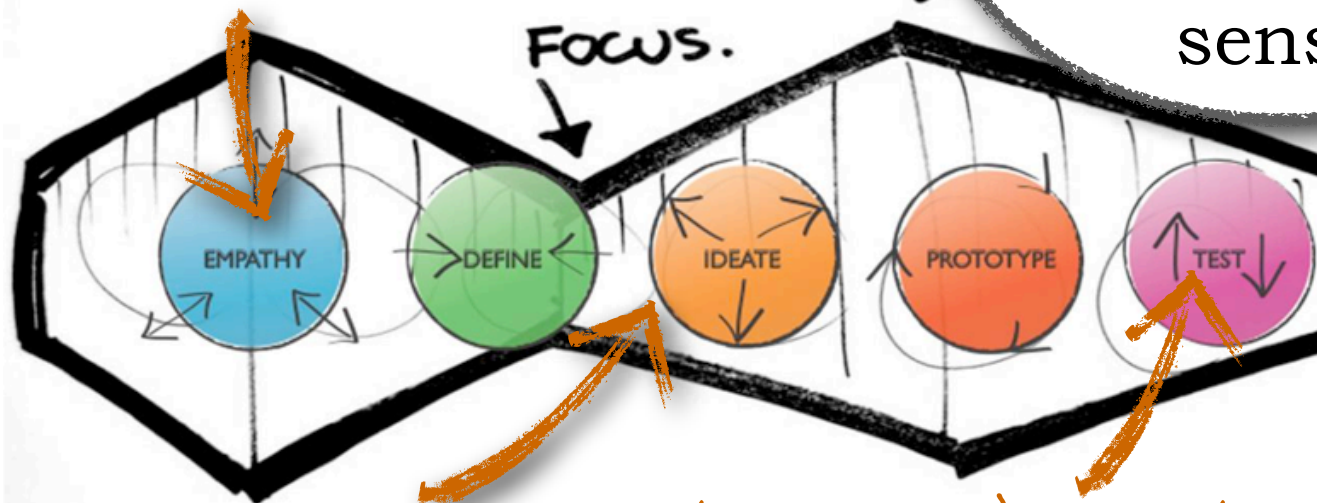
Design thinking leverages diverse teams, lots of collaboration, and user participation

[Design thinking asks everyone to participate, but still relies on strong leadership]

Design thinking seems like common sense, right?

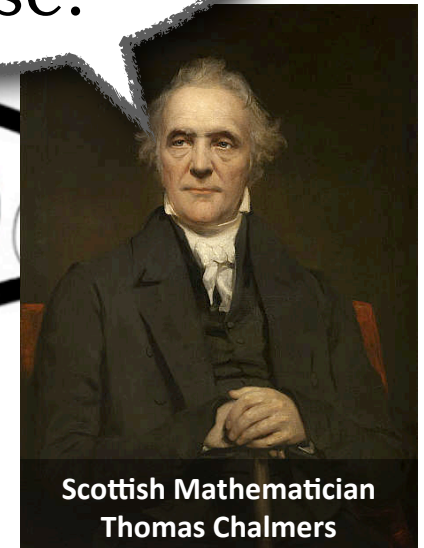
Understand the problem you're solving & focus on specific problems

There is nothing more uncommon than common sense.



Consider lots of possible solutions

Make sure it'll work before investing big



Different ways of thinking - NOT process roles, hand-offs, sequence and phases



Designers act as experts and guides



“Design isn’t a product that designers produce, design is a process that designers facilitate.”

-- Leah Buley

Leah Buley

www.adaptivepath.com/aboutus/leah.php

(Almost) everyone at Edmunds spends time with users



Teams work together to make sense of what they've learned



They ideate by sketching independently



Everyone shares their results



Everyone shares their results



They start to imagine solutions using paper, scissors, and tape



They start to imagine solutions using paper, scissors, and tape

A collage of various items including a 'Scheduler' label, a 'Don't Forget! Bring these things to the Dealer:' note with a clock drawing, a 'Happy Mobbing' note with a drawing of angry faces, and a 'Submit' button.

Edmunds.com shares the product's story for all teams in an internal "trade show"



Edmunds.com shares the product's story for all teams in an internal "trade show"

A man in a black shirt is pointing at a large display of Edmunds.com website screenshots. The display is titled "Pricing Authority - Walk Through" and shows a sequence of steps in the pricing process. The screenshots are arranged in a row, connected by blue arrows. The man is standing in front of the display, and two other people are visible in the foreground, looking at the display. The background shows a large indoor plant and a window with blinds.

Edmunds.com shares the product's story for all teams in an internal "trade show"



Edmunds.com shares the product's story
for all teams in an internal "trade show"





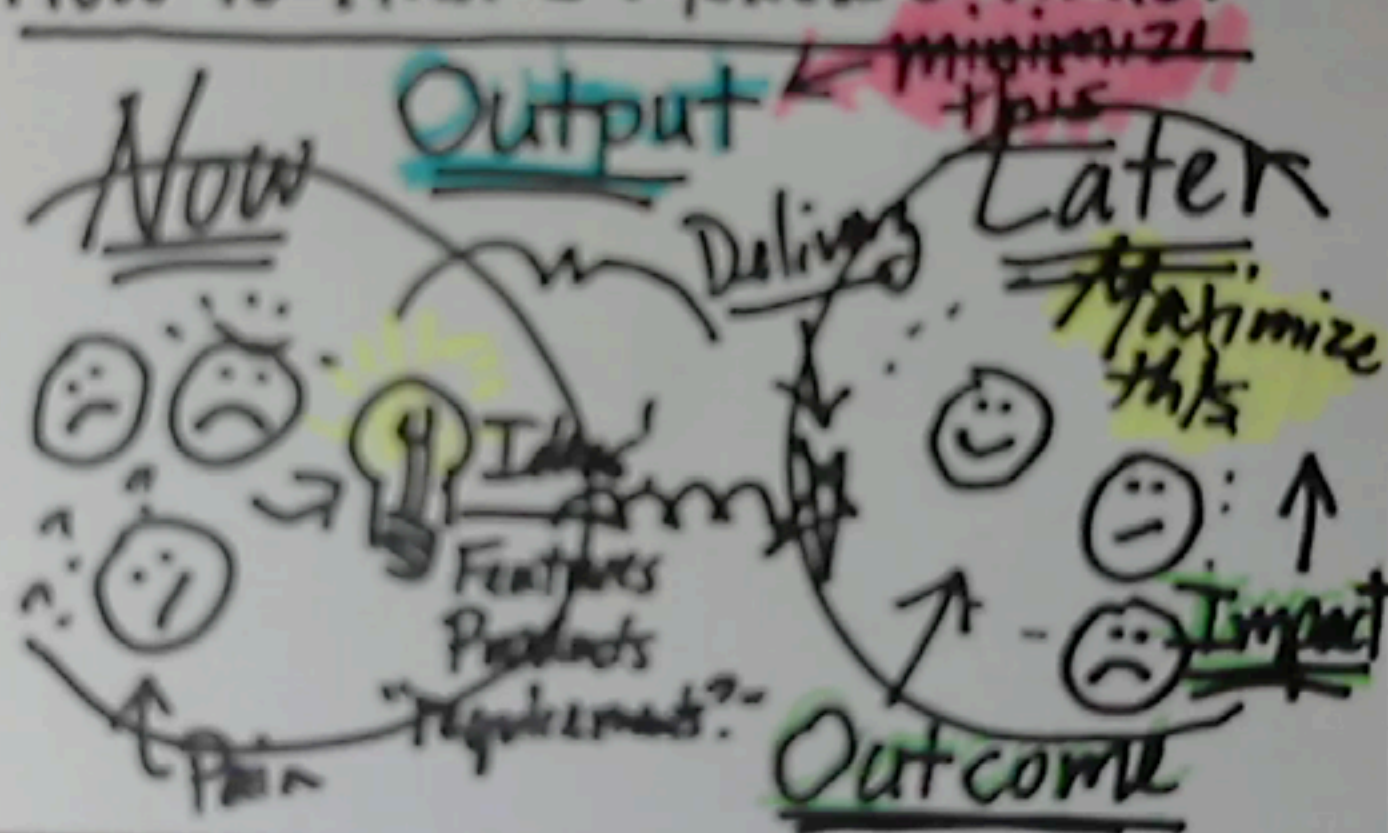
We've found simple ideas
that now generate millions in
revenue every year

Edmunds teams stopped
worrying about velocity and
started focusing on success

The secret to effective software development

It's not about software
It's about changing the
world

How to find & Measure Value:



We've gotten a lot better at measuring outcomes

We're still wrong most of the time, but now we pull out software that's not getting us the outcomes we want.



Adding Lean Startup to fix Agile

Validated learning over working software (or comprehensive documentation)

In May of 2010, Kent Beck gave a keynote speech at the first Lean Startup conferences where he revised the agile manifesto from his perspective



Working software
isn't enough to ensure
product success

Does anyone want your product?

Customer Discovery

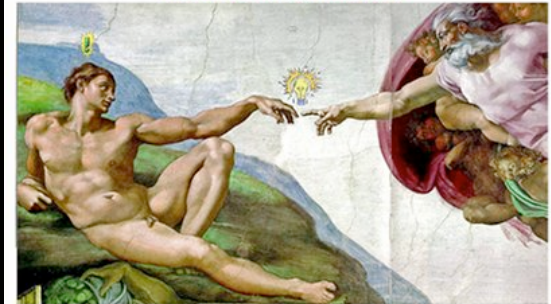
- Find customers who have a problem your product can solve

Customer Development

- Iteratively test solutions with target customers until you have a solution they'll buy and recommend to others

The Four Steps to the Epiphany

Successful Strategies for Products that Win



Steven Gary Blank



Steve Blank, author of
The Four Steps to
Epiphany

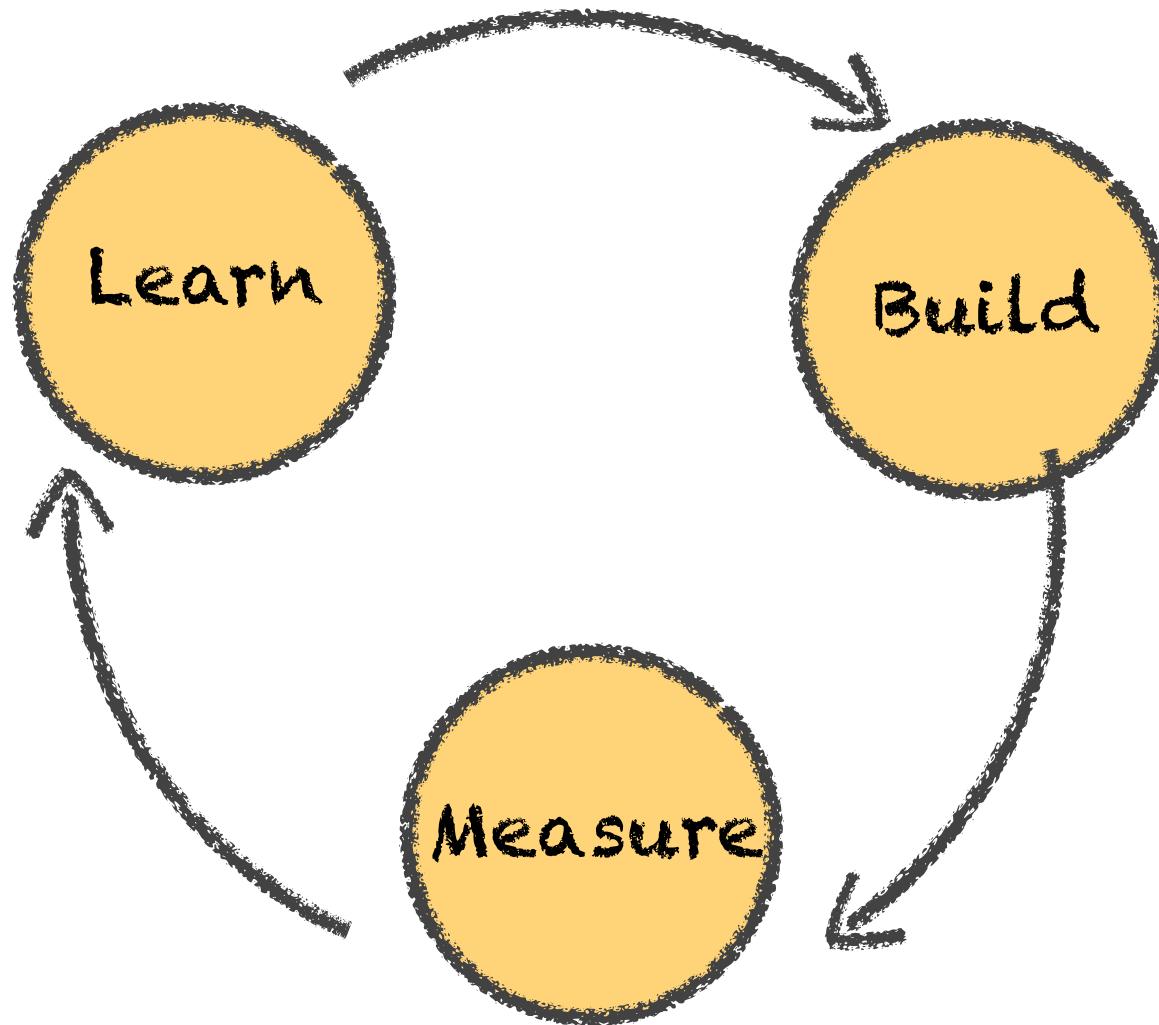


Eric Ries, author of The Lean Startup

Important
concepts

Dumb title

The Lean Startup Validated Learning Loop

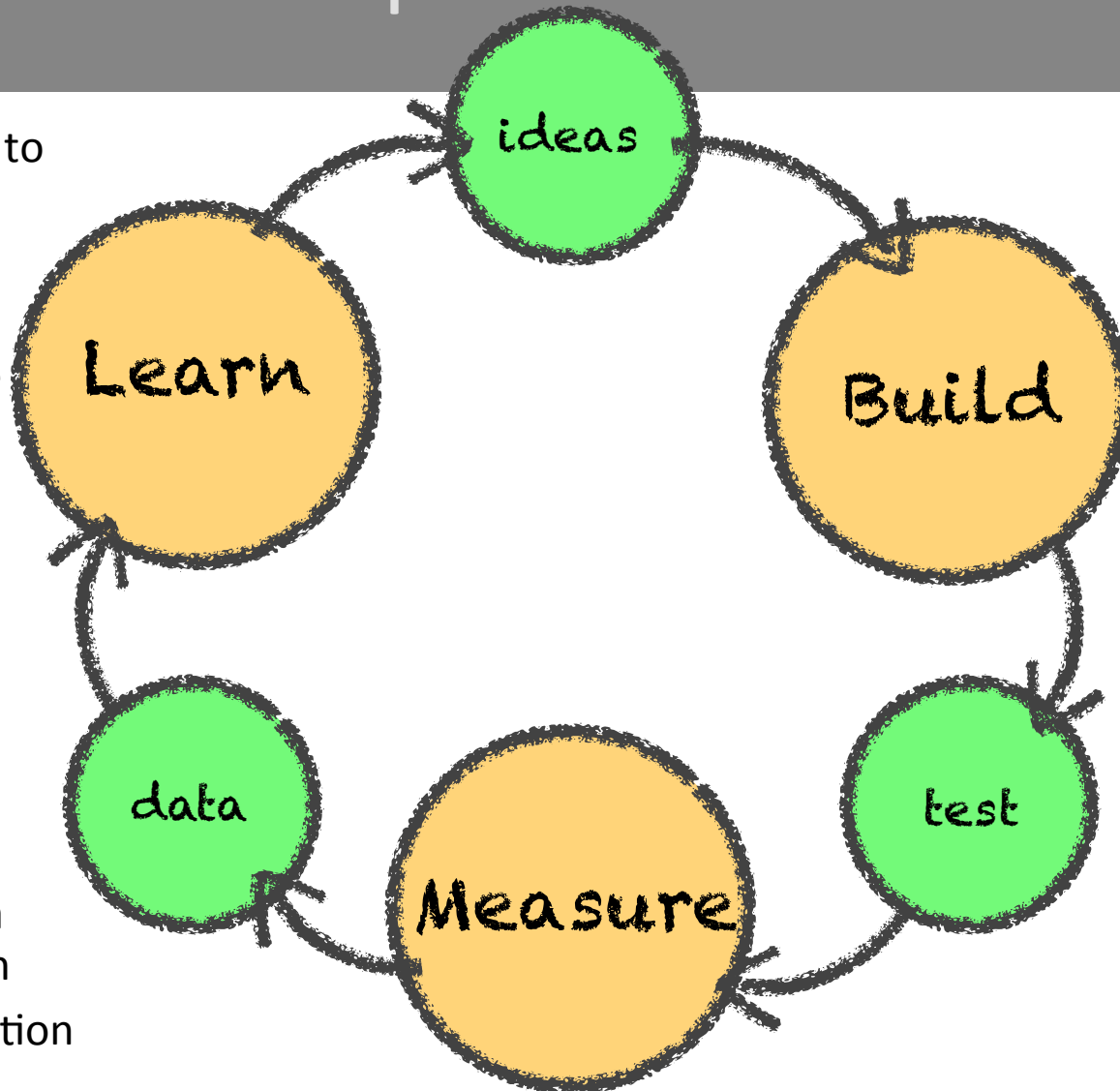


The Lean Startup Validated Learning Loop

Simple models to
distill findings

Ideation

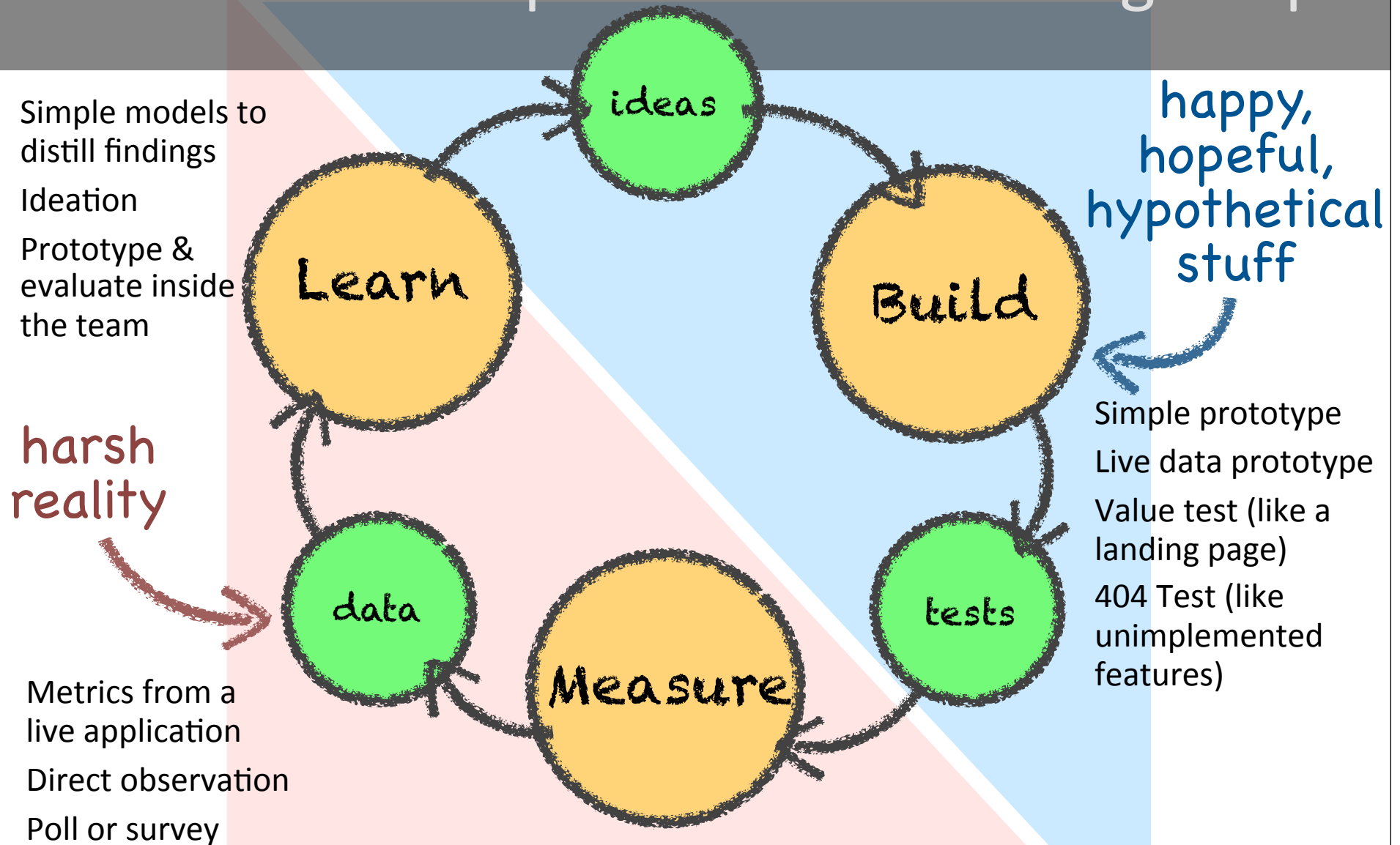
Prototype &
evaluate inside
the team



Simple prototype
Live data prototype
Value test (like a
landing page)
404 Test (like
unimplemented
features)

Metrics from a
live application
Direct observation
Poll or survey

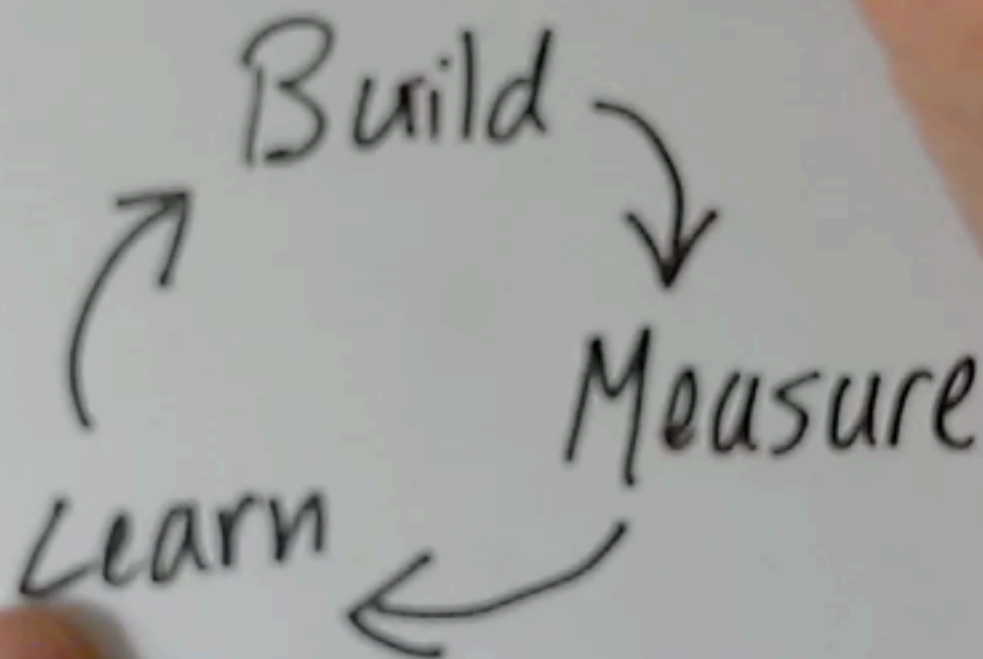
The Lean Startup Validated Learning Loop



MVP = minimal
viable
product

1. smallest viable product
for a target market

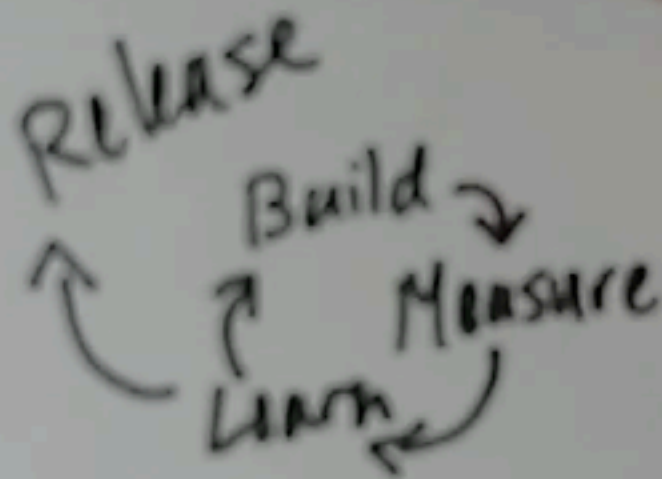
Lean Startup Cycle



Lean Startup's

MVP₂ = minimal
viable
product

[experiment]
2. Smallest viable experiment
to validate a product concept



Release

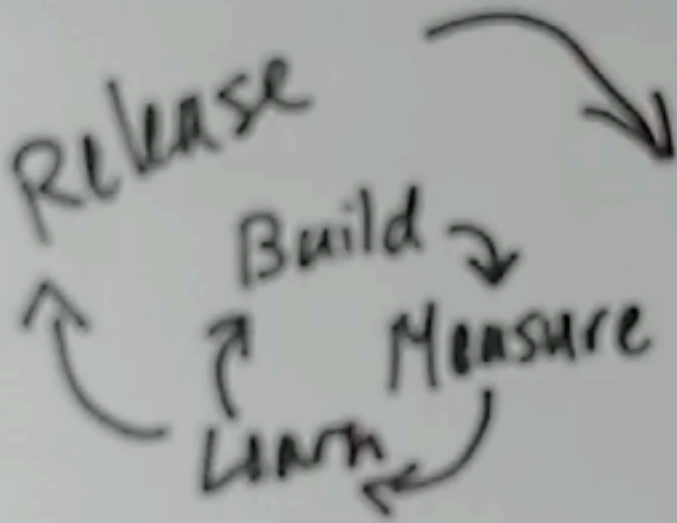
Build

Measure

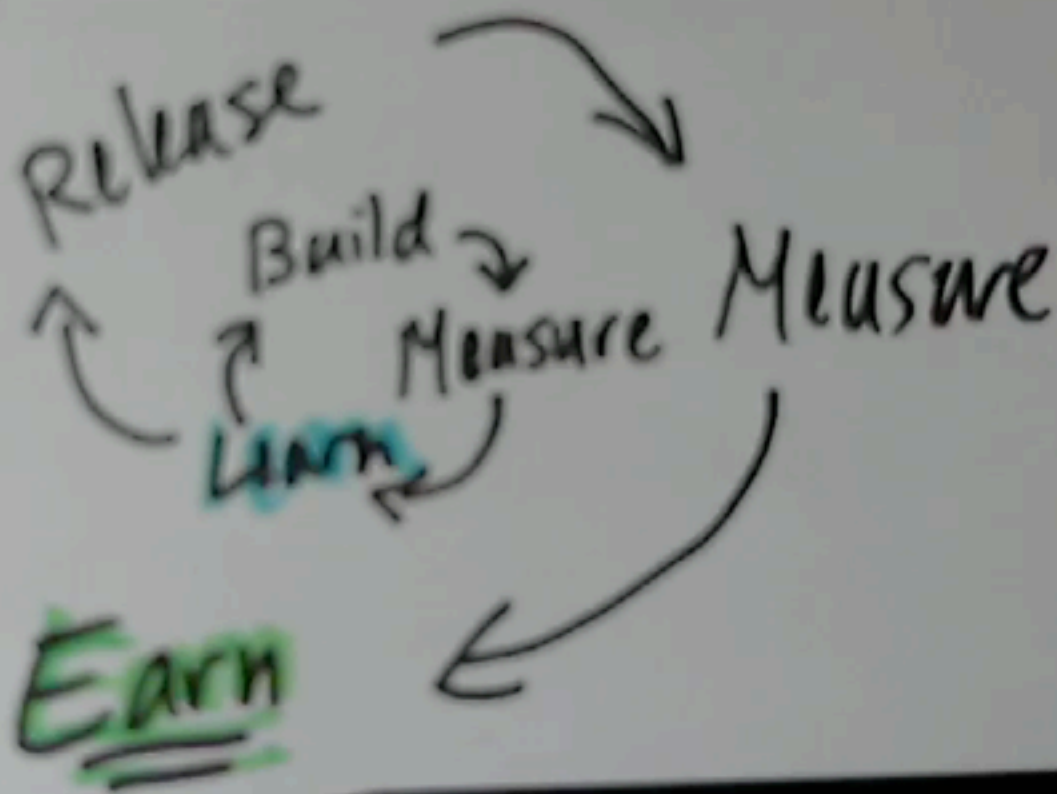
Measure

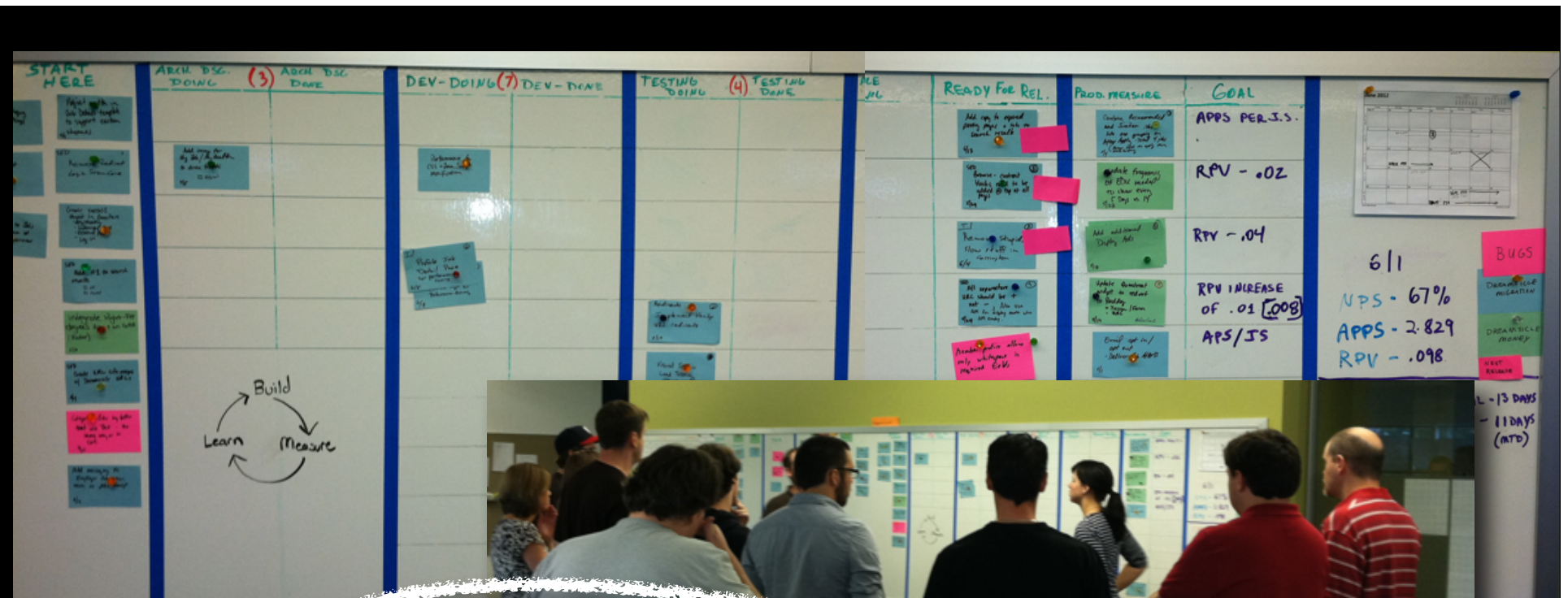
Learn

Earn



LS Loop Inside the Market Value
Loop





Explicit release step

Explicit measure step & metrics

Nothing leaves the board until there's been a discussion on what we've learned

Snag-a-Job's board courtesy of David Bittenbender

Nordstrom Innovation Lab's Learning Loop



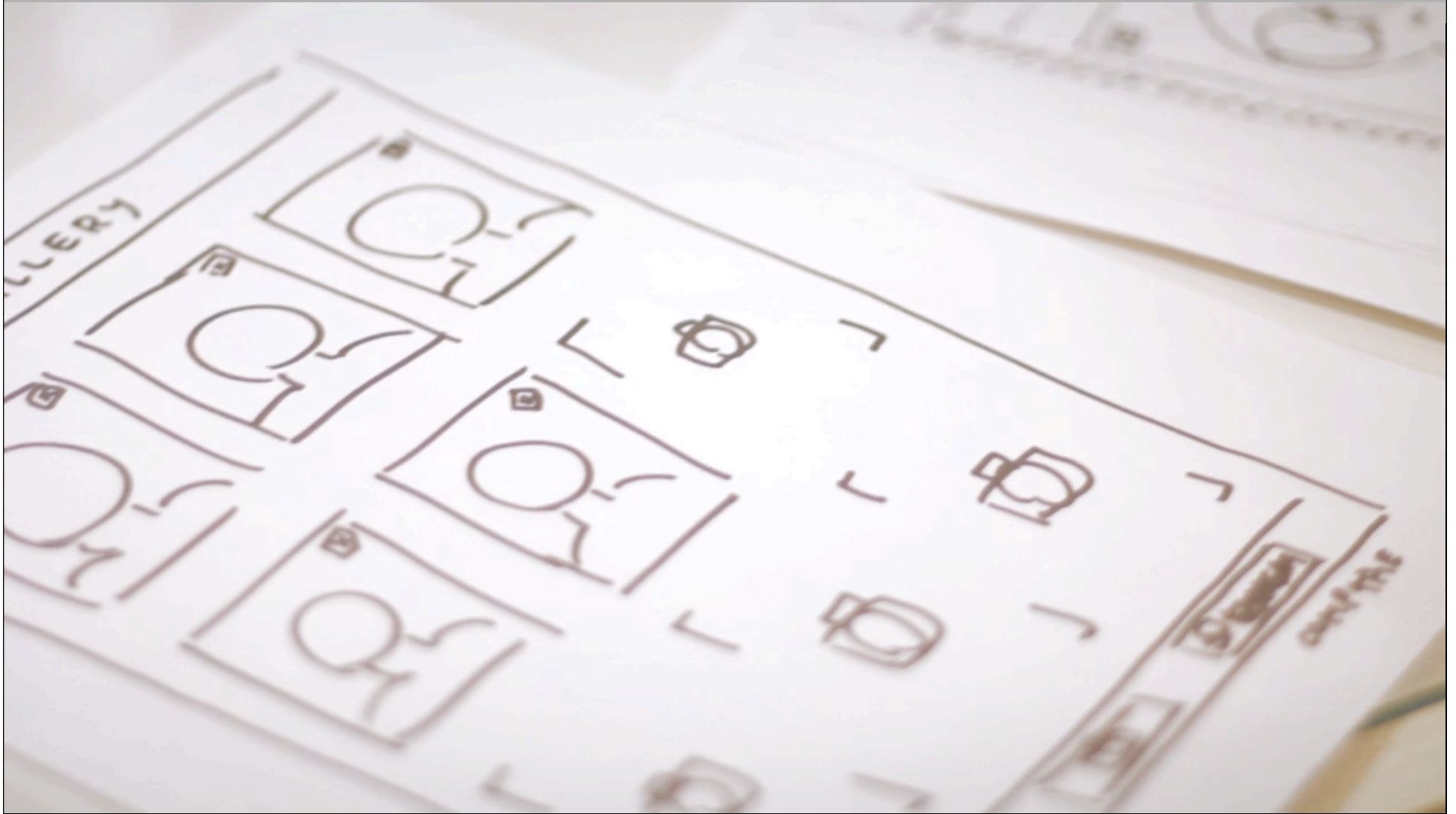
<http://www.startuplessonslearned.com/2011/10/case-study-nordstrom-innovation-lab.html>

Nordstrom Innovation Lab's Learning Loop



<http://www.startuplessonslearned.com/2011/10/case-study-nordstrom-innovation-lab.html>

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<http://www.startuplessonslearned.com/2011/10/case-study-nordstrom-innovation-lab.html>

Snagajob uses experiments in their live site to learn



We believe all these ads turn people off.



The screenshot shows the Snagajob homepage. At the top is a blue banner for 'GOOD HANDS ROADSIDE ASSISTANCE FROM Allstate' with a 'REGISTER NOW' button. Below this is an orange navigation bar with links for 'Browse Jobs', 'Job Tips', 'Join Today', and 'Sign In'. The main header features the 'snagajob' logo and a 'FIND LOCAL JOBS' button with a search bar for 'Enter ZIP Code' and a 'Find Jobs' button. A secondary search bar allows searching by 'keywords'. A large orange button with a white 'S' icon and text 'Interested in an ad-free Snagajob? Learn more' is prominently displayed. Below this is a 'Now hiring in your area!' section featuring logos for UPS, Chipotle Mexican Grill, Dish, and Denny's. A search bar with fields for 'ZIP Code', 'City', 'State', and 'Within 20 miles' is present. The main content area includes 'Sponsored Links' for 'Internet Job - \$475/day', 'University of Phoenix', and '\$37/hr Work At Home Jobs'. A 'Find local jobs' section lists various locations like Rock, Rogers, California jobs, Colorado jobs, Connecticut jobs, Delaware jobs, and District of Columbia jobs. On the right side, there is a vertical banner for Vatterott College and a small 'KEEP YOUR HEALTH IN CHECK' ad at the bottom right. A handwritten orange arrow points from the text 'Snagajob uses "404 Tests" or "buttons to nowhere."' to the 'Interested in an ad-free Snagajob? Learn more' button.

GOOD HANDS[®] ROADSIDE ASSISTANCE FROM Allstate PAY ONLY IF YOU USE IT REGISTER NOW

snagajob THE DREAM BEGINS WITH THE RIGHT JOB.

FIND LOCAL JOBS Enter ZIP Code Find Jobs Search with keywords BETA

Interested in an ad-free Snagajob? Learn more

Now hiring in your area! ups CHIPOTLE MEXICAN GRILL dish Denny's

ZIP Code City State Within 20 miles Search

When it's on your mind, it's on eBay. Shop now ebay

Sponsored Links

Internet Job - \$475/day Work from Home. Flexible Schedule. No Scam. \$475/day. [benandbevesfreed.com](#)

University of Phoenix® Earn a Degree Online or On Campus. No-Cost Orientations Available Now. [Phoenix.edu](#)

\$37/hr Work At Home Jobs \$37/hr Part-Time Job Openings. Requirements: Must Have Computer. [Finance-Reporting.org](#)

Find local jobs

Rock, Rogers

California jobs Berkeley, Corona, Fresno, Irvine, Los Angeles, Pasadena, Sacramento, San Diego, San Francisco, San Jose, Santa Ana, Torrance

Colorado jobs Arvada, Aurora, Colorado Springs, Denver, Englewood, Grand Junction, Greeley, Lakewood, Littleton, Longmont, Loveland, Westminster

Connecticut jobs Bristol, Brookfield, Danbury, Hamden, Lebanon, Manchester, Milford, North Haven, Norwalk, Norwich, Orange, Waterbury

Delaware jobs Bear, Camden, Wilmington, Claymont, Dover, Lewes, Middletown, Milford, New Castle, Newark, Seaford, Wilmington

District of Columbia

Vatterott Programs in Medical Assisting YOUR EDUCATION YOUR CAREER. 1-866-200-1898 www.vatterott.edu

KEEP YOUR HEALTH IN CHECK View tips and articles

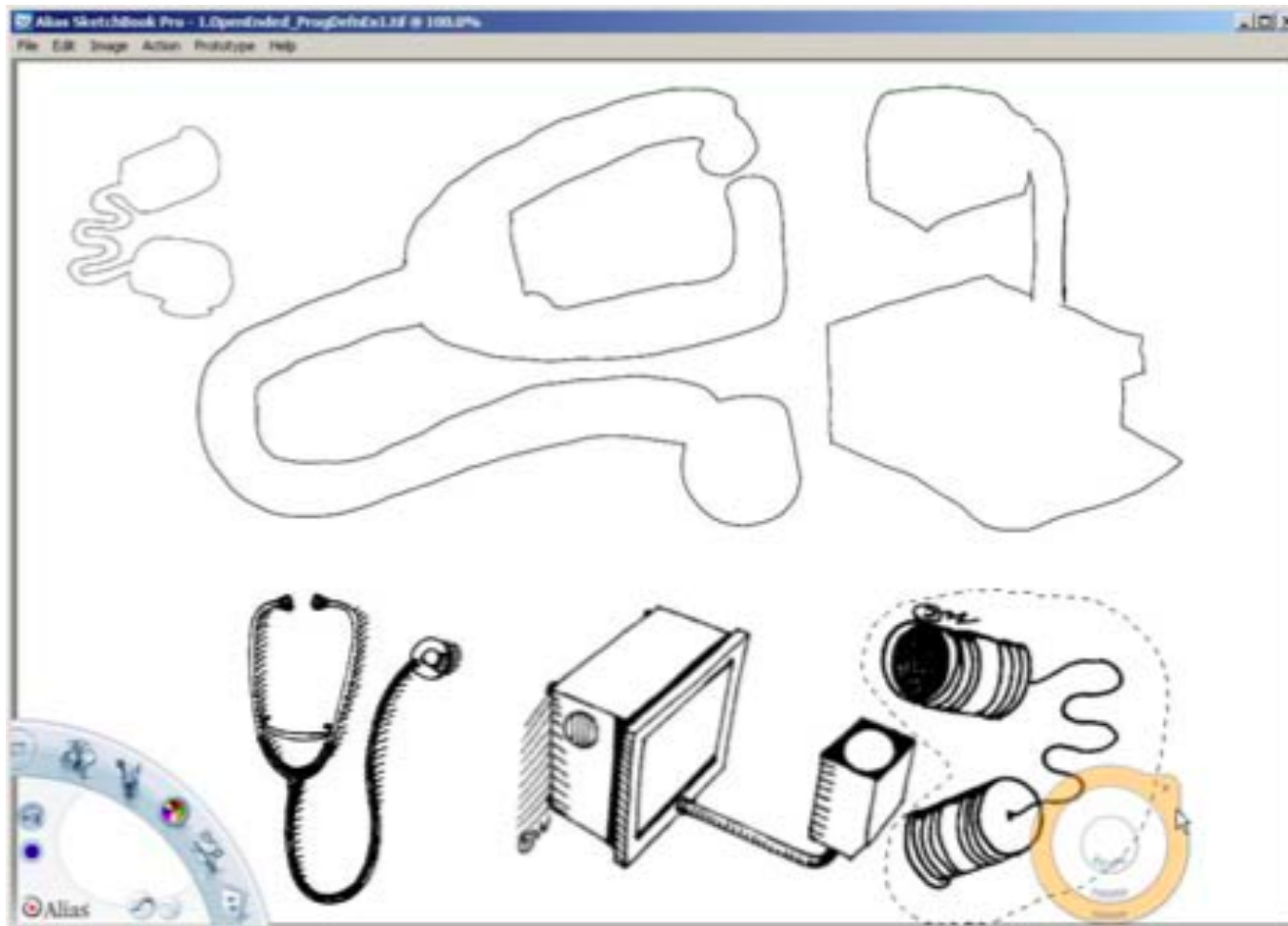
Sponsored Links

Internet Job - \$475/day Work from Home. Flexible Schedule. No Scam. \$475/day. [benandbevesfreed.com](#)

University of Phoenix® Earn a Degree Online or On Campus. No-Cost Orientations Available Now.

Snagajob uses "404 Tests" or "buttons to nowhere."

Sketchbook Pro's Minimal Viable Product Experiment for rotate and resize



Adding Design Thinking to fix Lean Startup

Nordstrom recognizes something is missing...



Adding Lean Startup to fix Design Thinking

It's easy to fool yourself

edmunds.com Price Promise™ Make ▼ Model ▼ Year ▼ Car Type ▼ Car Research ▼ Search Edmunds.com

Select Make ▼ Select Model ▼ Select Year ▼ Go
e.g. Mazda e.g. Mazda3

Get an upfront, locked-in price on a new car with **Edmunds Price Promise™** [Learn More](#)

Select Model ▼ Select Year ▼ Go
e.g. Mazda e.g. Mazda3

gas. Start shopping now.

Live Help

Edmunds **Price Promise™** makes car buying easy.
Look for "Special Offers" to get an upfront, locked-in price on a new car.
[Learn More](#)

2014 Kia Sorento | [Learn More](#)

Convertible Coupe Crossover Diesel Hatchback Hybrid/Electric
Luxury Minivan ELANTRA Sedan SUV TUNDRA* Wagon
* Prototype shown with options.

THE ALL-NEW NISSAN VERSA® NOTE™ YOU'VE

Edmunds **Price Promise™** makes car buying easy.
Look for "Special Offers" to get an upfront, locked-in price on a new car.

SPONSORED CONTENT

comakers www.comakewith.us :: youshould@comakewith.us

CC BY-NC-SA

We've gotten a lot better at measuring outcomes

Before, we would have spent a lot of time arguing about what to do. We wouldn't have spent money and time to learn. Now we do.



“We had the misperception that
the process, the practice, or the
methods will automatically
produce success.

Occasionally that’s the case, but
most of the time it isn’t”



The fastest way to
failure is to believe
you're safe

Recognize process as a game
strategy and play to win

Invest in understanding the
problems you're solving

Invest in validating your solutions

Minimize output, maximize
outcome

SAFETY NOT GUARANTEED

How great teams break the rules to
create successful products



Jeff Patton

Chief troublemaker, Comakers LLC

jeff@comakewith.us, twitter: @jeffpatton