



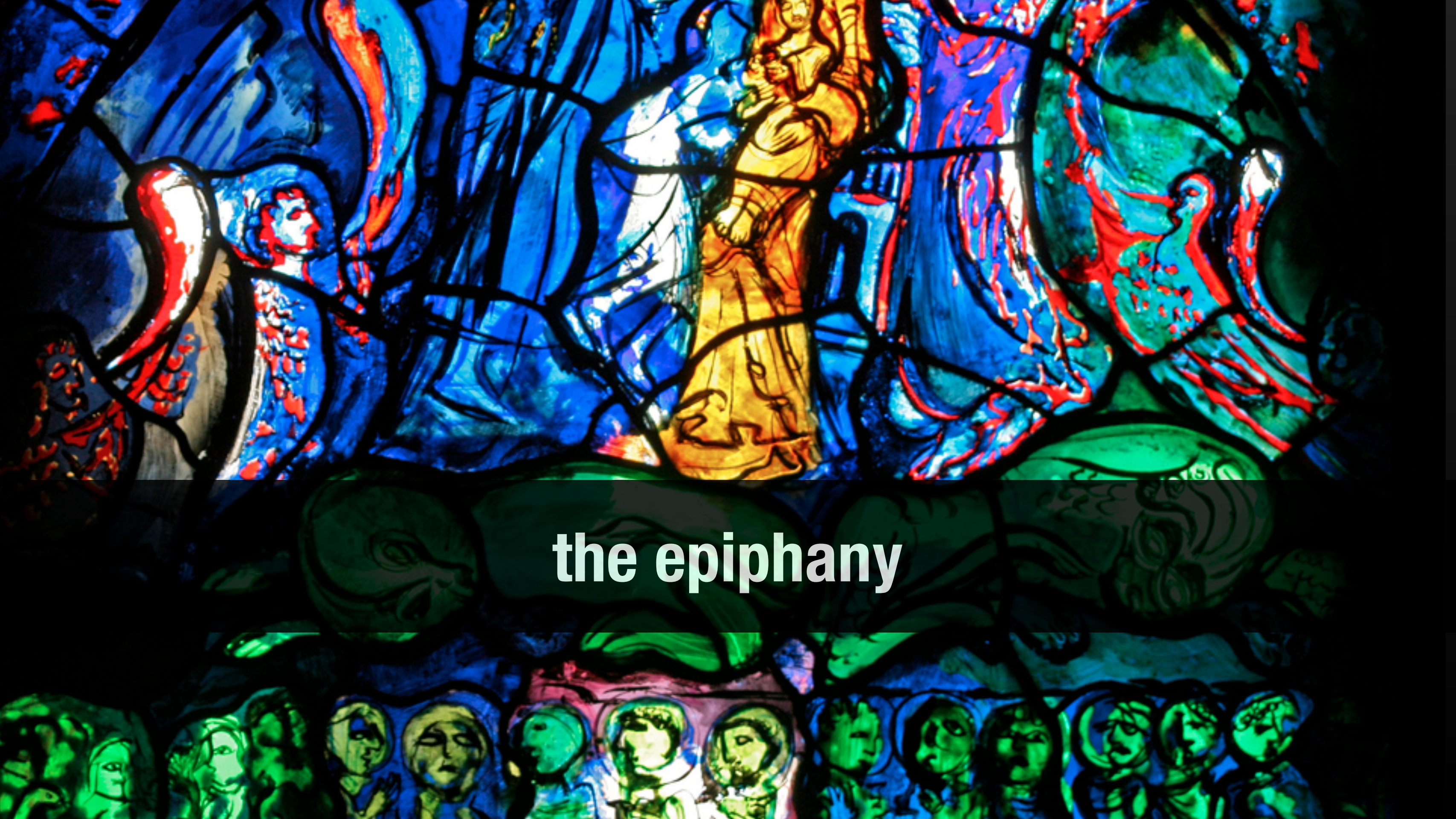
 [@billwscott](https://twitter.com/billwscott)

VP, Next Gen Commerce
PayPal

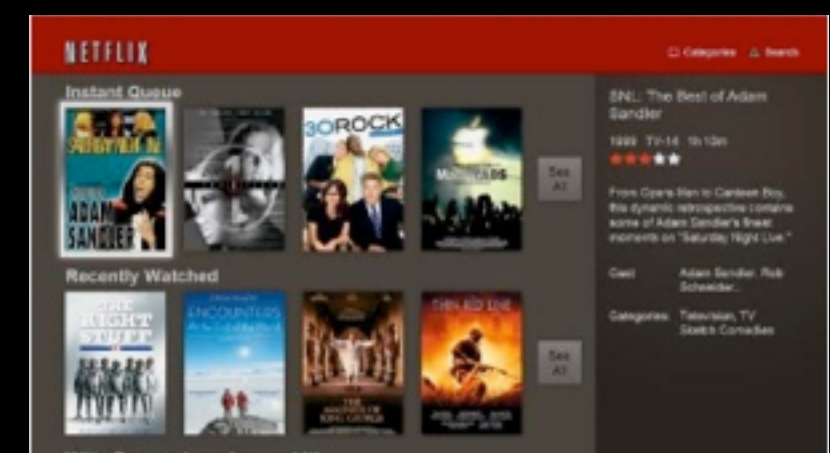
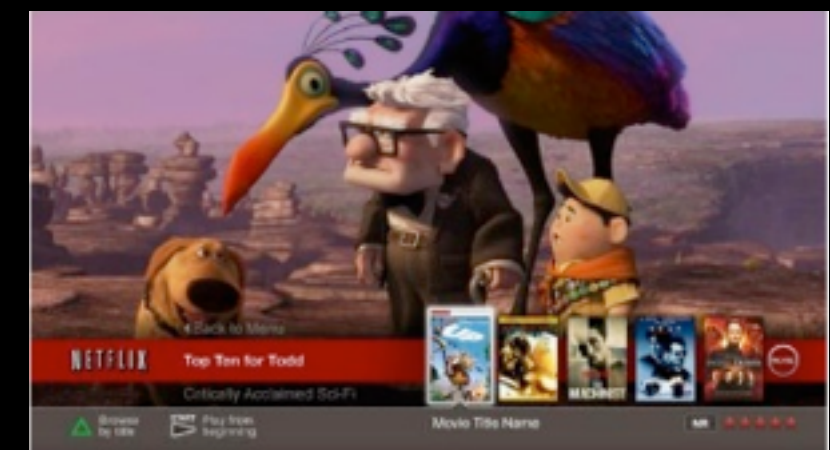
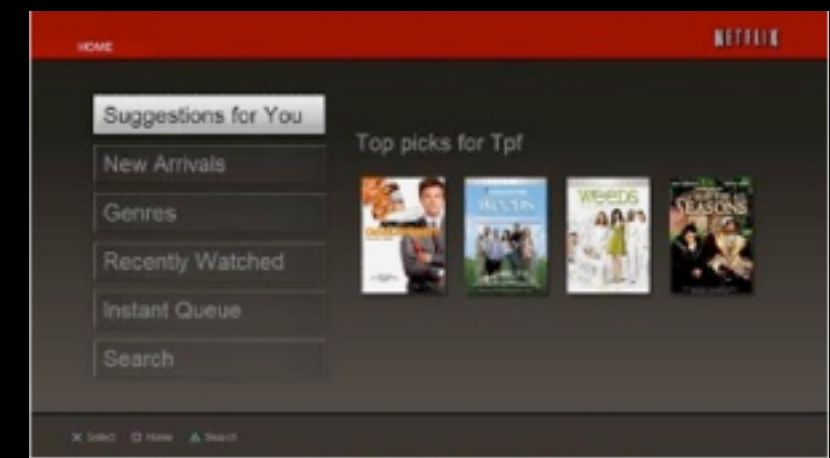
Enterprise UX 2015
San Antonio, TX

lean engineering

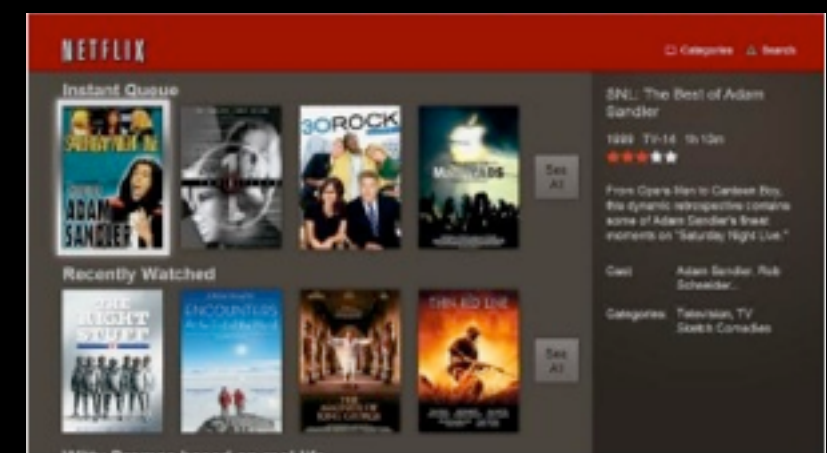
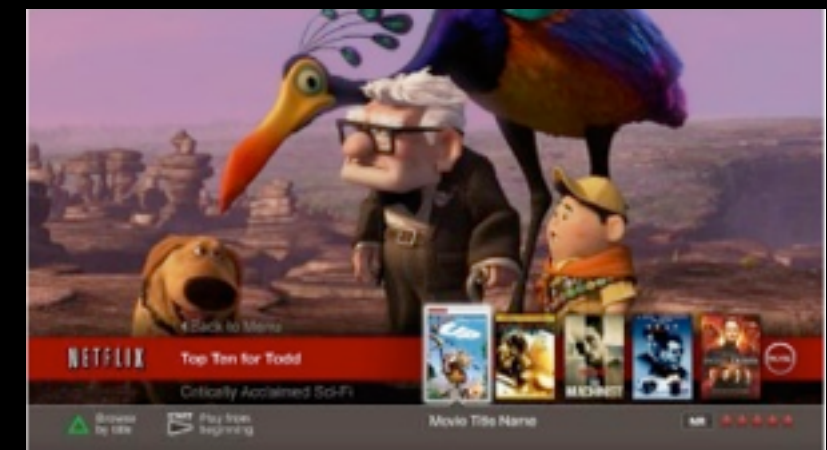
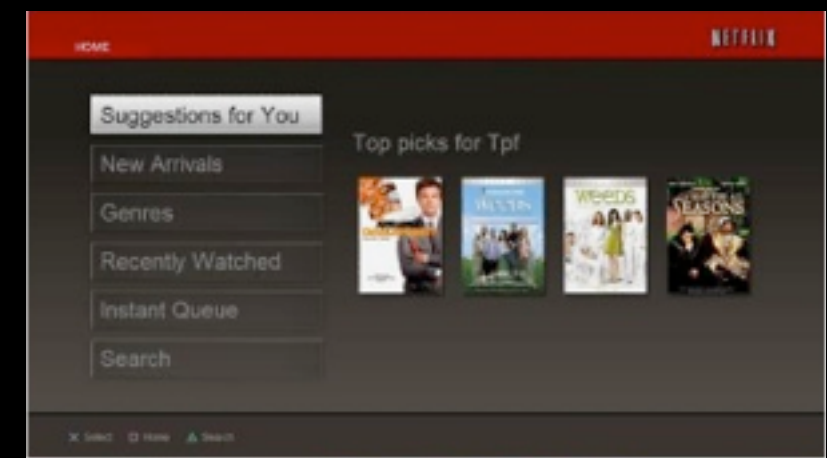
engineering for learning & experimentation in the enterprise



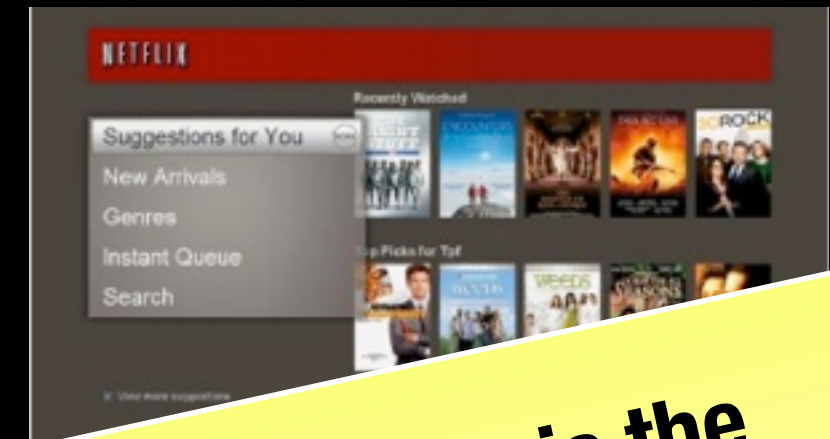
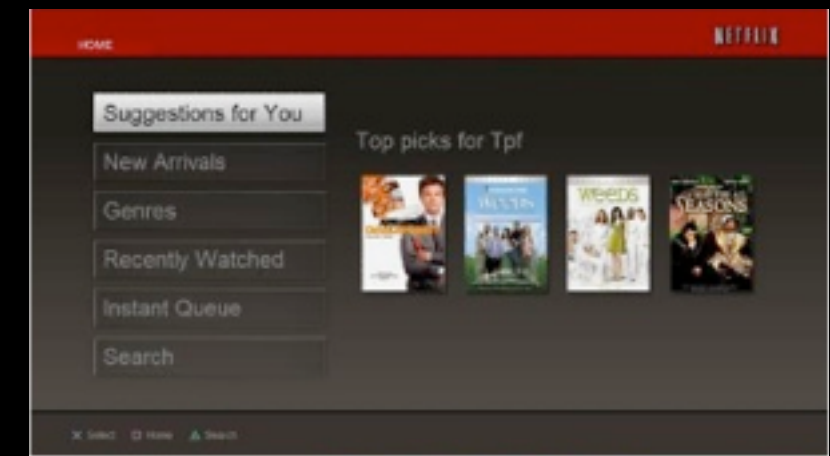
the epiphany



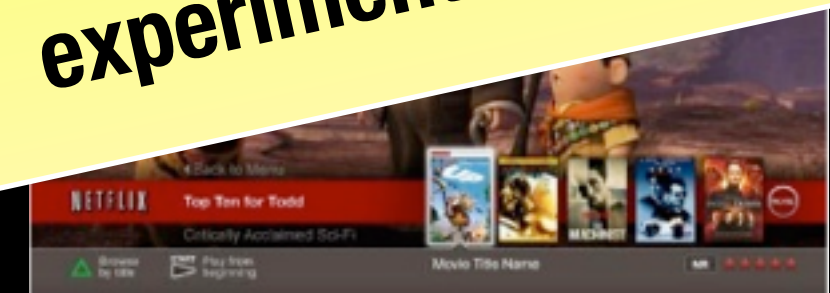
*majority of the
experience
code written
was thrown
away in a year*



*majority of the
experience
code written
was thrown
away in a year*



**the ui layer is the
experimentation layer**



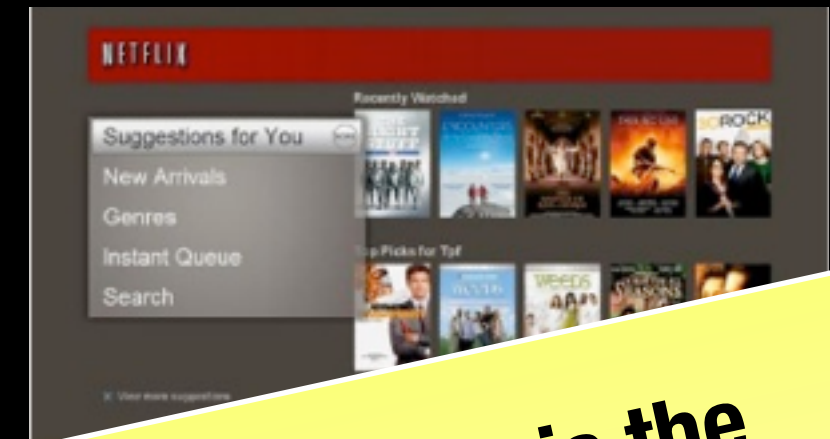
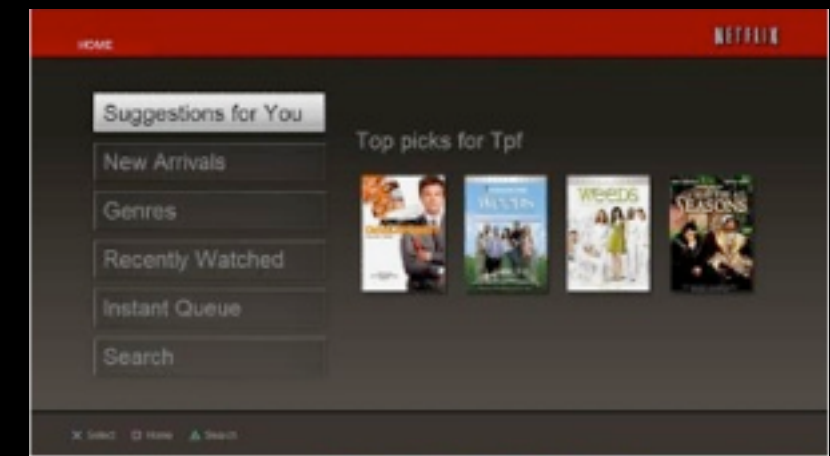
change is the norm

experimentation is not a one time event

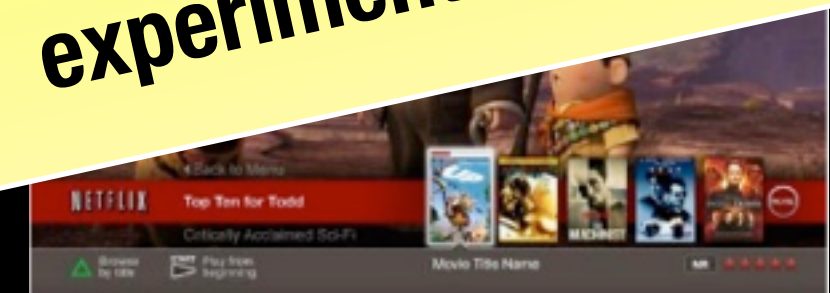
launching a product is giving birth to the product. the product's life just begins.

design for throwaway-ability

*majority of the
experience
code written
was thrown
away in a year*



**the ui layer is the
experimentation layer**



you have to engineer for volatility

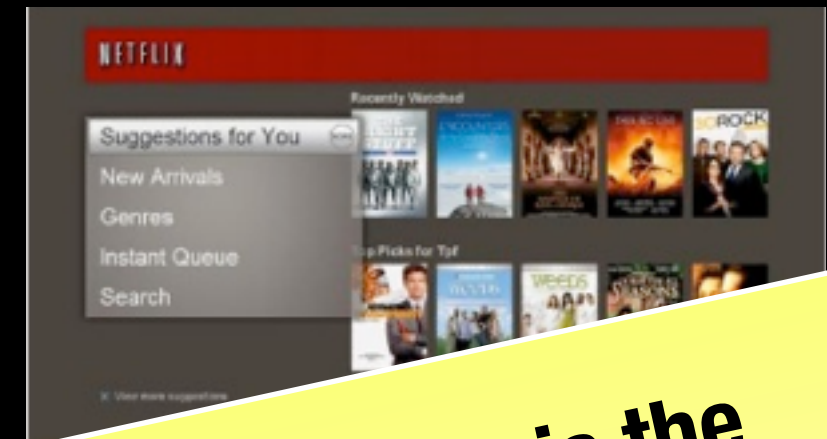
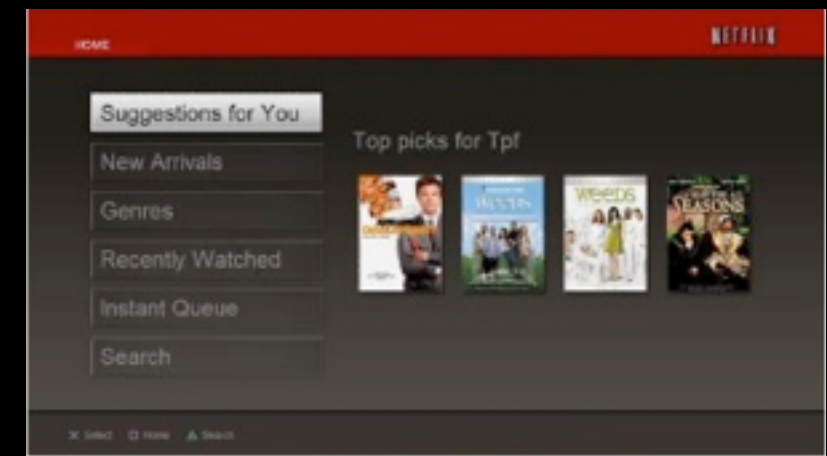
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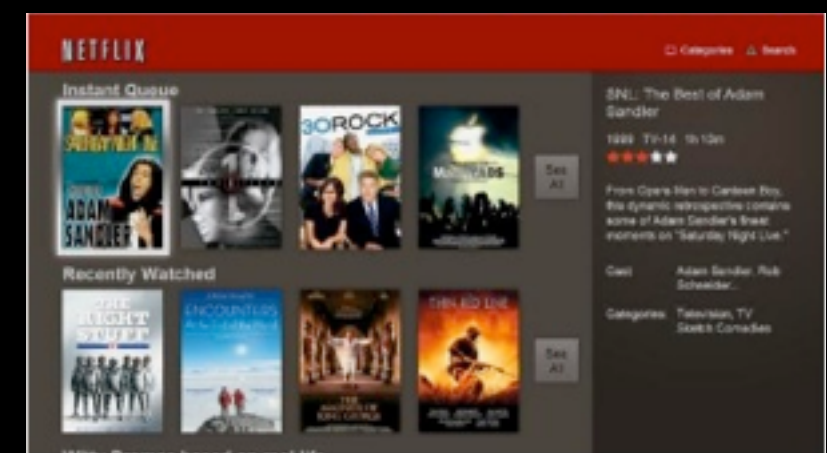
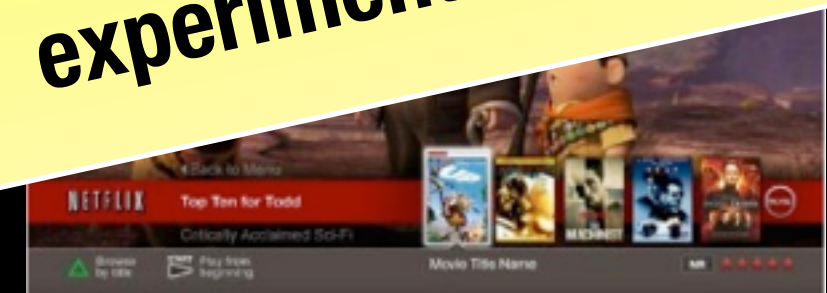
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**the ui layer is the
experimentation layer**



2011

NIGHT AND DAY

paypal vs netflix

contrast this with a large enterprise like paypal in



Home

Individuals

Business

Partners

Get started

How it works

Buying safely

Selling safely

Donate to Charity

GET THE MOST OUT OF PayPal

Managing Your Account



Your account is very easy to manage.
Select a demo chapter to see how to:

 [Manage Your Account](#)

 [Update Your Email Address](#)

 [Link Your Credit Card or Bank Account](#)

LOG IN

New to PayPal? [Sign Up](#)



Home

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Business

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GET THE MOST OUT OF PayPal

Managing Your Account

In 2011, even a simple content copy change could take as much as 4-6 weeks to get live to site

Your account is very easy to manage.
Select a demo chapter to see how to:

 [Manage Your Account](#)

 [Update Your Email Address](#)

 [Link Your Credit Card or Bank Account](#)

LOG IN

New to PayPal? [Sign Up](#)

The background of the image is a reproduction of Michelangelo's famous sculpture 'Prometheus Bound'. It depicts the Titan Prometheus, who was punished for stealing fire from the gods, chained to a jagged rock. He is shown in a highly muscular, contorted pose, with his right arm raised to clutch the rock and his left arm bent behind his back. A white cloth is wrapped around his waist, and a golden eagle is perched on his left leg, ready to attack. The scene is set against a dark, dramatic background with a bright light source illuminating the figure from the right. The text 'change is hard' is superimposed in the center of the image.

change is hard

A microscopic image showing several green fluorescent cells against a black background. The cells are mostly oval-shaped, with some showing internal structures like nuclei. The text is centered over the image.

**organizations contain anti-
bodies that resist change**

A photograph of a large, mature tree with a thick trunk and dense green foliage. The tree is growing on a steep, exposed dirt bank. Its roots are prominently visible, spreading out horizontally and then descending vertically into the soil. The background shows more trees and a clear sky.

**behavior is deep seated
and reinforced**

new dna inserted

jan 2012

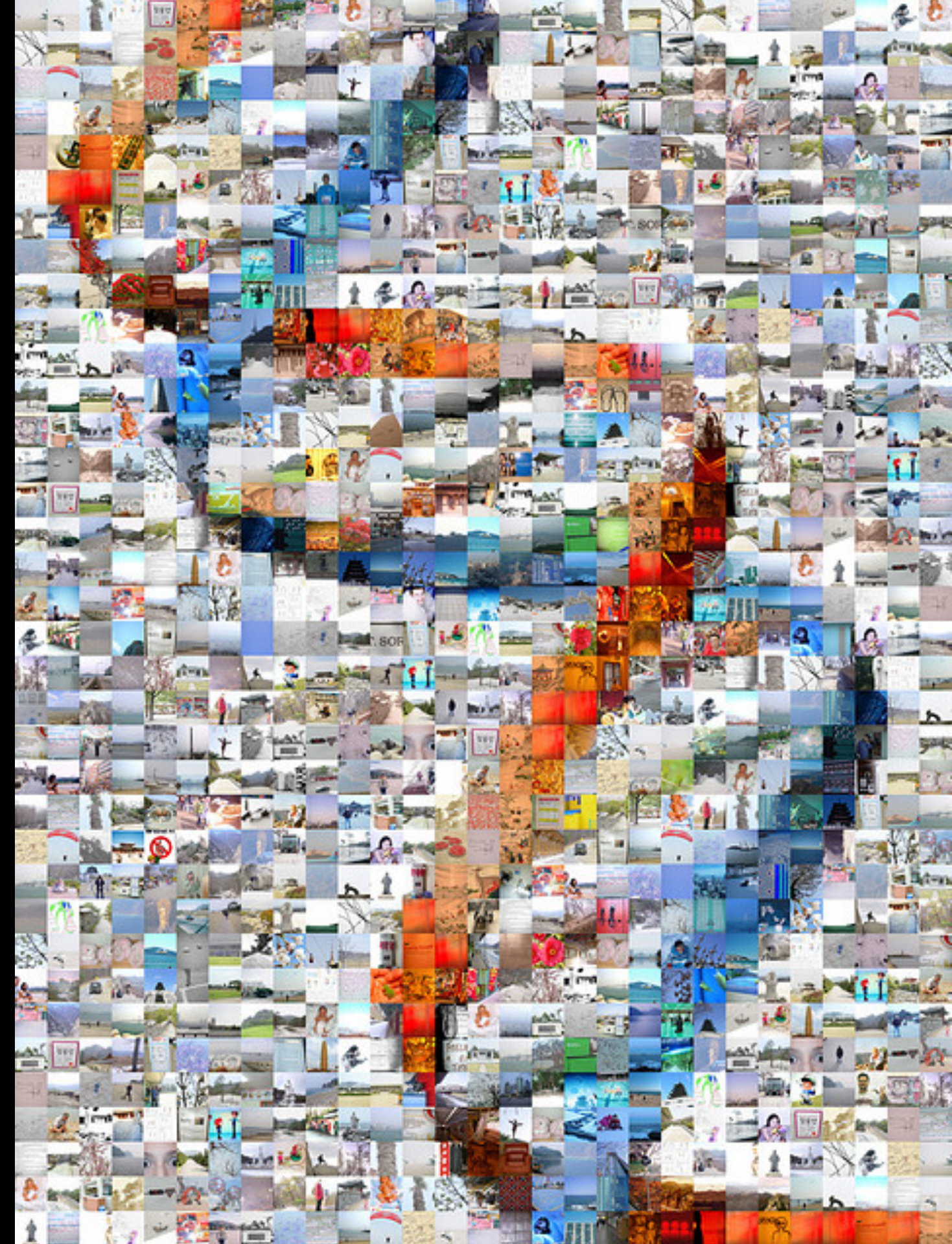
fleshed out ui layer that could support rapid experimentation.

march 2012

david Marcus became president of PayPal. set a new charter for innovation.

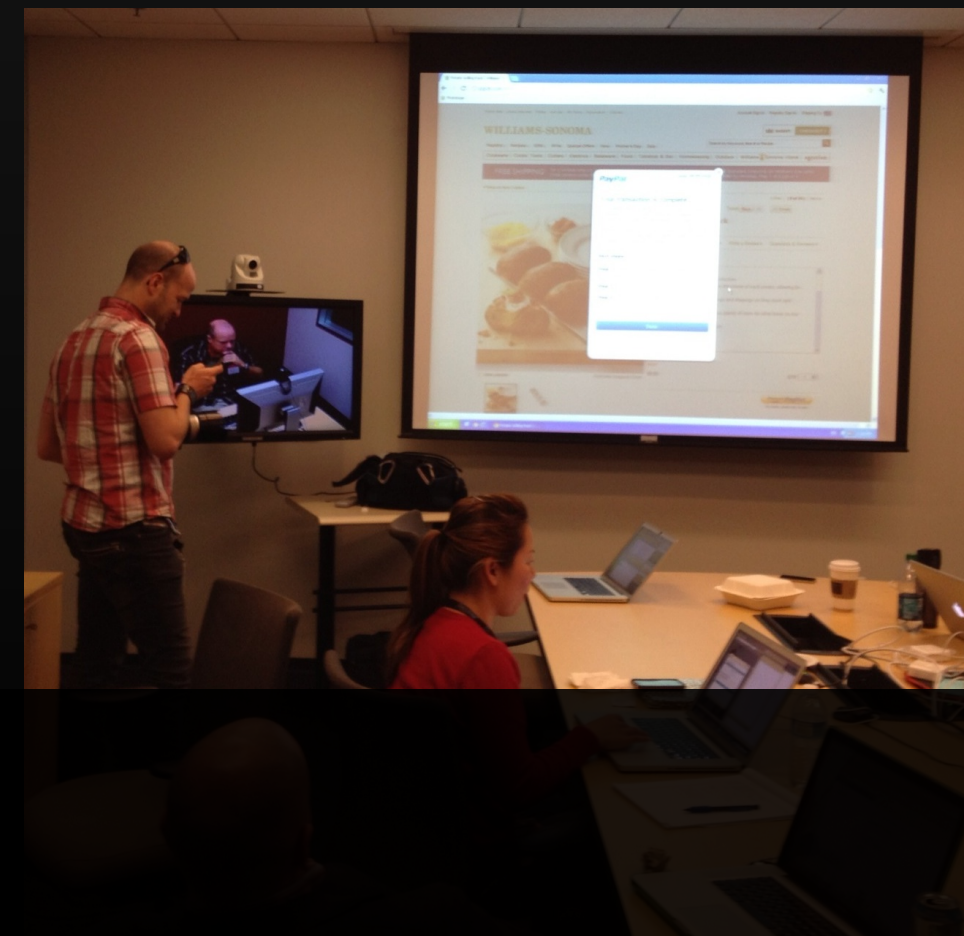
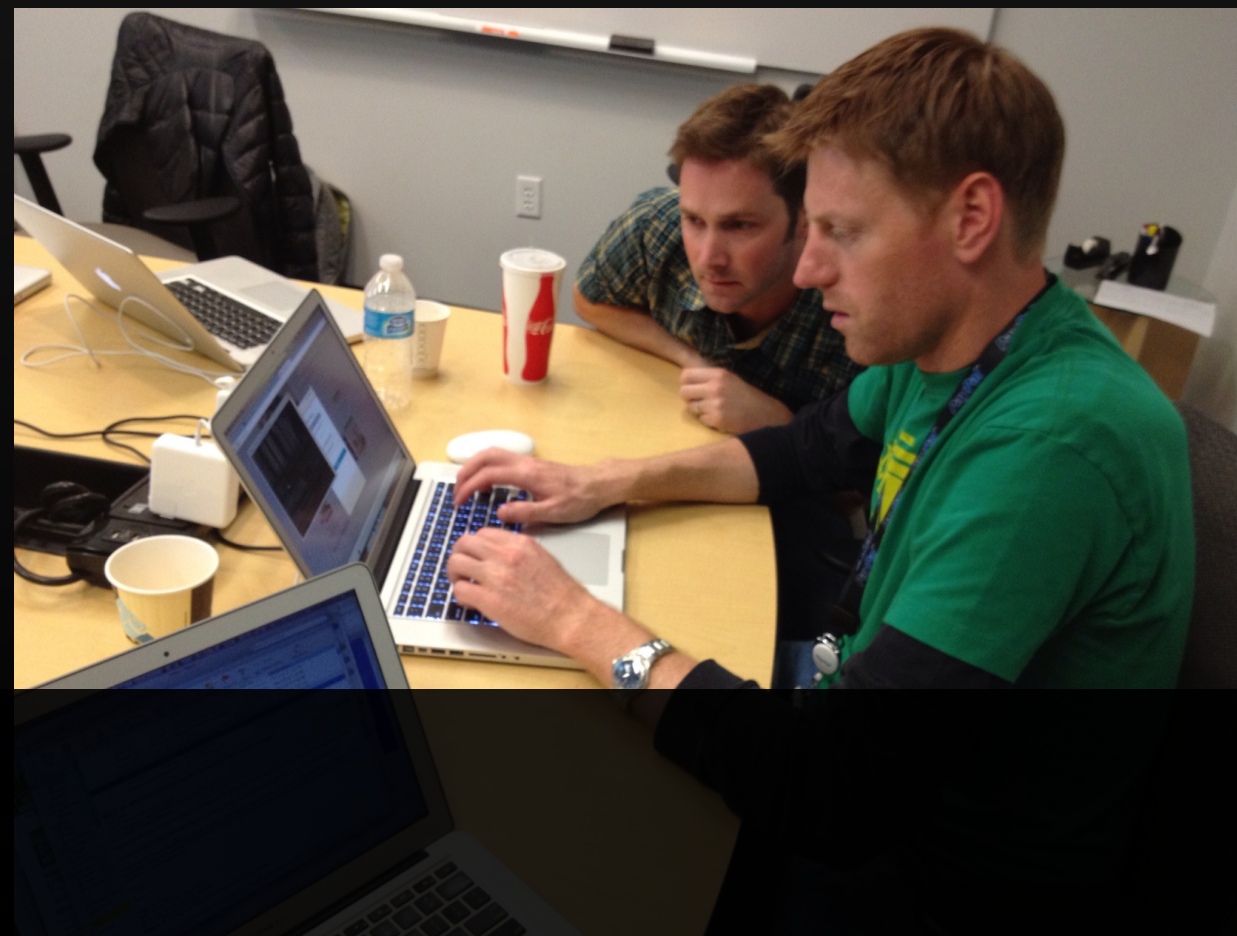
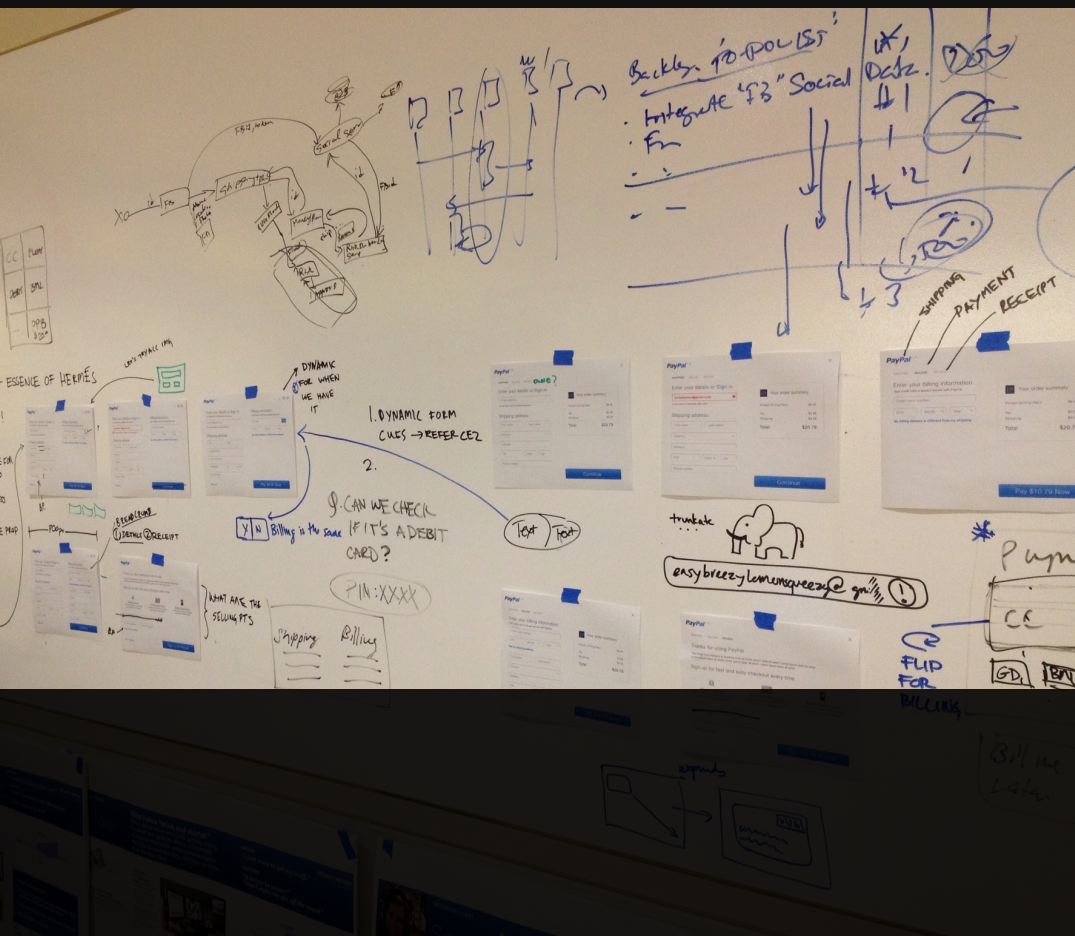
april 2012

formed lean ux team to reinvent checkout experience.



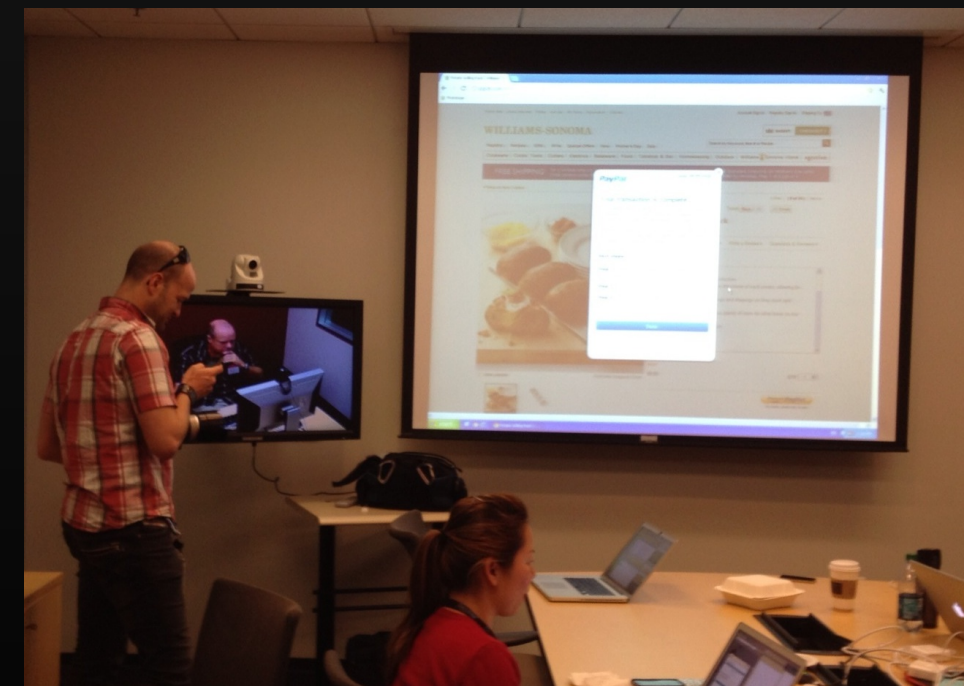
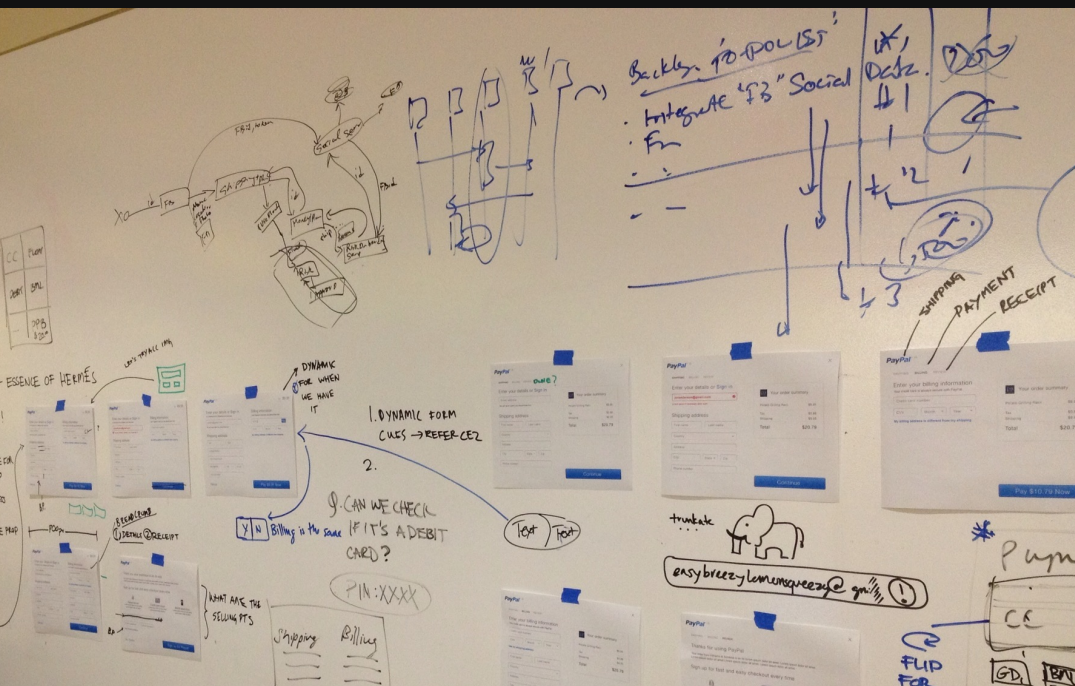
reinvent checkout project

lean ux/engineering in action



reinvent checkout project

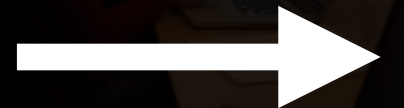
lean ux/engineering in action



from whiteboard to code



from code to usability



start again



learnings



before

My Volusion Store

Your order summary

| Descriptions | Amount |
|------------------------|---------|
| Order Sub-Total | \$60.00 |
| Item price: \$60.00 | |
| Quantity: 1 | |
| Item total | \$60.00 |
| Tax | \$7.80 |
| Shipping and handling: | \$12.71 |
| Total \$80.51 USD | |

Review your information



Continue

Shipping address [Change](#)

Valued Customer
123 Street Dr.
City, ST 12345
United States

Note to seller: [Add](#)

Payment methods [Change](#)

Instant Transfer : Chase Manhattan Checking (Confirmed) x- 2458 \$80.51 USD

PayPal will use MasterCard XXXX-XXXX-XXXX-4472 to fund this transaction if your bank does not have enough funds.

☐ PayPal gift card, certificate, reward, or other discount [Redeem](#)
View [PayPal policies](#) and your payment method rights.

Contact information

valued_customer@mail.com

Continue

You're almost done. You will confirm your payment on My Volusion Store.

[Cancel and return to My Volusion Store.](#)

[Site Feedback](#) (*)

PayPal. The safer, easier way to pay. For more information, read our [User Agreement](#) and [Privacy Policy](#).

after



Merchant Services


Auction Tools

mers – and increase sales.

ated automatically in late October.

y ones. Log in, click the Merchant Services tab,
w you're a business that currently uses PayPal. This
coming back.

changes required.

| New button | |
|------------|---|
| |  |
| |  |
| |  |
| |  |
| |  |

mers – and increase sales.

ated automatically in late October.

y ones. Log in, click the Merchant Services tab,
w you're a business that currently uses PayPal. This
coming back.

changes required.

New button

Buy Now

Add to Cart

Donate

Subscribe

Buy Gift Certificate

With PayPal Here™ and iPad®, get paid quickly, easily, anywhere.

Accept all forms of payment, anywhere you do business, with a low U.S. swipe fee of 2.7% and no long-term commitment. Plug PayPal Here into iPad for an easy-to-use payment solution in your office, store, or on the go.

Learn More

1

Order your PayPal Here Mobile card reader.

2

Download the PayPal Here app

[My Account](#)[Send Money](#)[Request Money](#)[Merchant S](#)[Overview](#)[Add Funds](#)[Withdraw](#)[History](#)[Resolution Center](#)

Welcome, Brent Shepherd

Business Name: Brent Shepherd's Test Store | Account Type: Business | S
Account Limits: [View Limits](#)


PayPal balance: \$5,366.57 USD

My recent activity | [Payments received](#) | [Payments sent](#)

My recent activity - Last 7 days (Jun 21, 2011-Jun 28, 2011)

Displaying 20 results per page

[Archive](#) [What's this](#)

| <input type="checkbox"/> | Date |  | Type | Name/Email | P |
|--------------------------|--------------|---|------------------------|------------|---|
| <input type="checkbox"/> | Jun 27, 2011 | | Recurring Payment From | Test User | C |
| <input type="checkbox"/> | Jun 27, 2011 | | Recurring Payment From | Test User | C |
| <input type="checkbox"/> | Jun 27, 2011 | | Recurring Payment From | Test User | C |
| <input type="checkbox"/> | Jun 27, 2011 | | Recurring Payment From | Test User | C |
| <input type="checkbox"/> | Jun 26, 2011 | | Recurring Payment From | Test User | C |

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| <input type="checkbox"/> | Jun 27, 2011 | Recurring Payment From | Test User | C |
| <input type="checkbox"/> | Jun 27, 2011 | Recurring Payment From | Test User | C |
| <input type="checkbox"/> | Jun 26, 2011 | Recurring Payment From | Test User | C |



Hi again, Minka

Complete your profile. Your profile is at 60%



Send money
to a friend



Get the
PayPal app



Take more
time to pay

Get more from PayPal by setting up the basics.



Account Created



Card linked



Link a bank

Send money to
friends in the U.S.
for free.



Email confirmed



Confirm mobile

PayPal balance

\$143.18

\$115.25 Available

[Withdraw](#)

Pending

| | | |
|--------|--------------------------|-----------|
| MAY 02 | iTunes Payment | - \$11.25 |
| MAY 01 | Bank of America Transfer | + \$25.00 |
| MAY 01 | Home Depot Payment | - \$71.67 |

Completed

| | | |
|--------|-----------------------------|-----------|
| APR 29 | eBay - Goods 4 Less Payment | - \$21.00 |
| APR 27 | David Watts Money received | + \$30.00 |
| APR 27 | The Plaza Bistro Payment | - \$61.46 |
| APR 22 | Netflix Payment | - \$8.63 |
| APR 26 | American Red Cross Payment | - \$40.00 |



subimage
@subimage



 Follow

Gotta give it up to @billwscott on the redesign of the PayPal pages. Lightyears ahead of what was there previously.





subimage
@subimage



Follow

Gotta give it up to @billwscott on the redesign of the PayPal pages. Lightyears ahead of what was there previously.



ChristophePorteneuve
@porteneuve



Following

Just sent money through PayPal for the 1st time in a few months. ZOMG @billwscott the new UX is AMAZING :-)



RETWEETS
3

FAVORITES
6



8:32 AM - 23 Oct 2014



subimage
@subimage



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8:32 AM - 23 Oct 2014



Jeff Cook
@jeff_cook



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[@billwscott](#) New [@PayPal](#) checkout UI is drastically better, just used it this morning, bravo!



RETWEETS
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FAVORITES
3





subimage
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8:32 AM - 23 Oct 2014



Rob Slifka
@robslifka



Follow

New PayPal looks terrific; very fast and responsive. Great job [@billwscott](#) and the [@PayPal](#) team!



RETWEET
1

FAVORITES
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@jeff_cook



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[@billwscott](#) New [@PayPal](#) checkout UI is drastically better, just used it this morning, bravo!



RETWEETS
5

FAVORITES
3





subimage
@subimage



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RETWEETS
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FAVORITES
6



8:32 AM - 23 Oct 2014



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@robslifka



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RETWEET
1

FAVORITES
6



Stephen Rivas Jr
@sprjrx



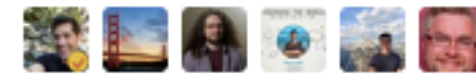
Following

Holy shit the [@paypal](#) account page & credit payment sites are amazing. Are they both in node now or is that other sections I'm confusing...?



RETWEETS
4

FAVORITES
7



Jeff Cook
@jeff_cook



Follow

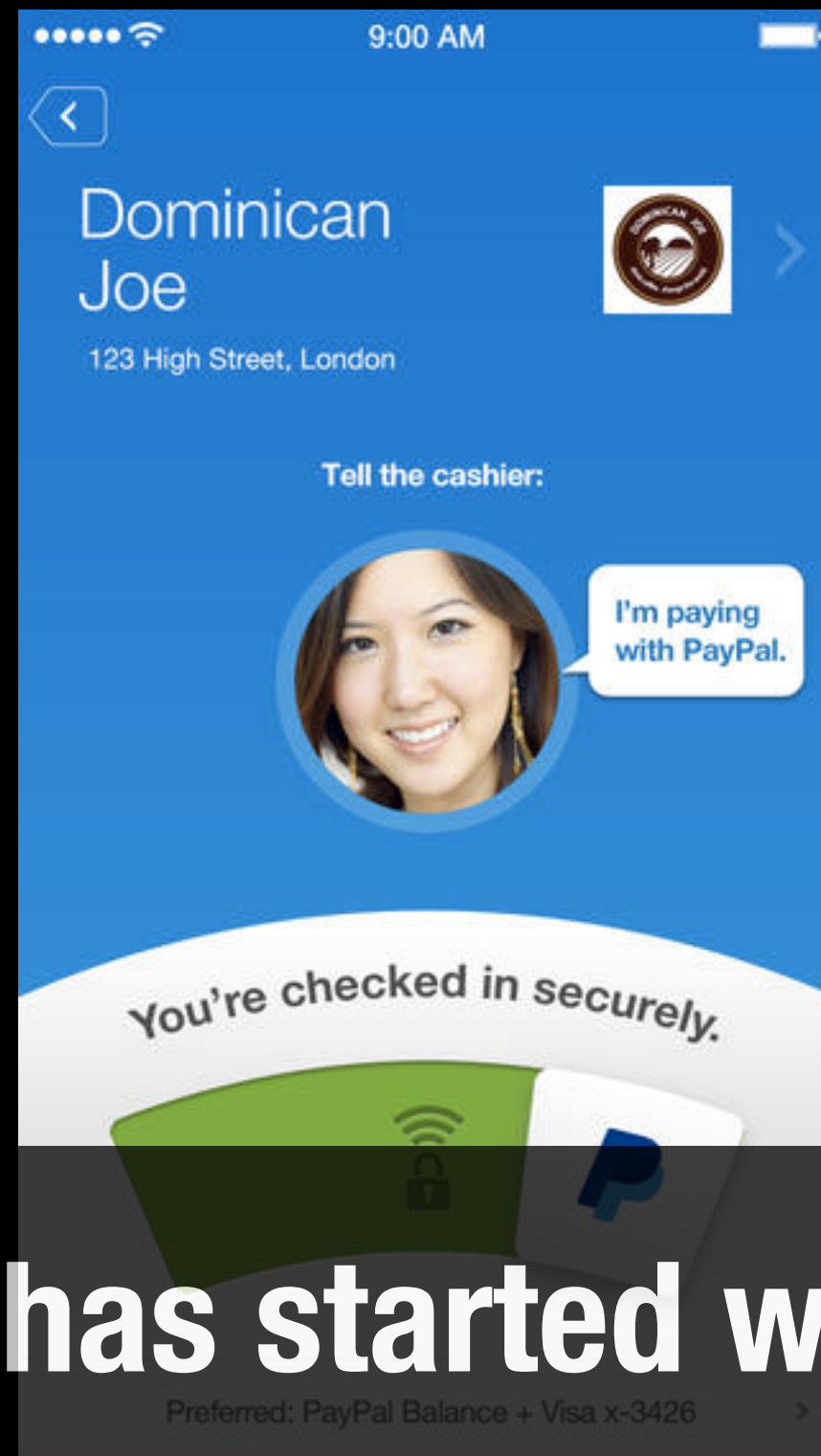
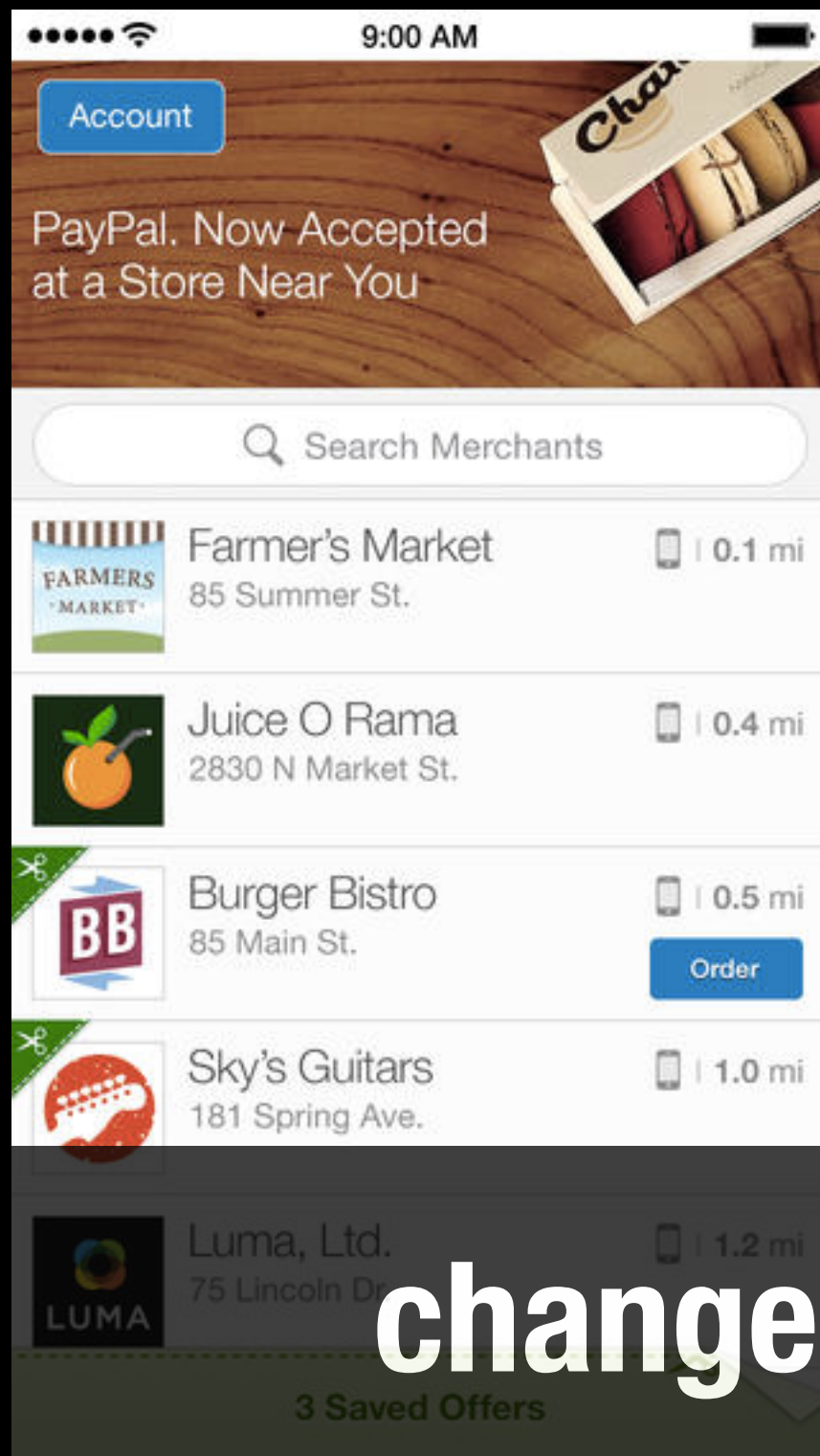
[@billwscott](#) New [@PayPal](#) checkout UI is drastically better, just used it this morning, bravo!



RETWEETS
5

FAVORITES
3





Customer Reviews

Fast and easy ★★★★★
by G4Monster

I find it so much easier to pay on the iPhone in the moment than to write a check. I pay my baby class, my friends for group expenses. Plus the iPhone app makes it easier to send money without sometimes the PayPal web app has so many options that it easy to accidentally pay a friend as if

Excellent App (mostly) ★★★★★
by Cincinnatvs

PayPal's developers have done a nice job with this App, it's easy to use and figure out, it's very in there is one thing I would like them to work out... I have two PayPal accounts, for two different b currently, the App requires me to completely enter the email address for the other account when

Great App!! Fast & Easy! ★★★★★
by LuvTheSouth

This is an awesome app! I can send money to friends and family or I can use it for transactions s everything's secure! I love how fast and easy it is to send money, receive money or transferring t Like sending my son cash at college or pay my friend back for lunch. I can add any details or list

change has started working its way out

LEAN ENGINEERING

LEAN

ENGINEERING

engineer for learning

LEAN

ENGINEERING

engineer for learning

some lessons I have learned



1. engineer for learning

"A library that grows as a work in progress" — with projects cataloged in the book and on its companion website

HOW BUILDINGS LEARN

What happens after they're built



Two houses, 1917

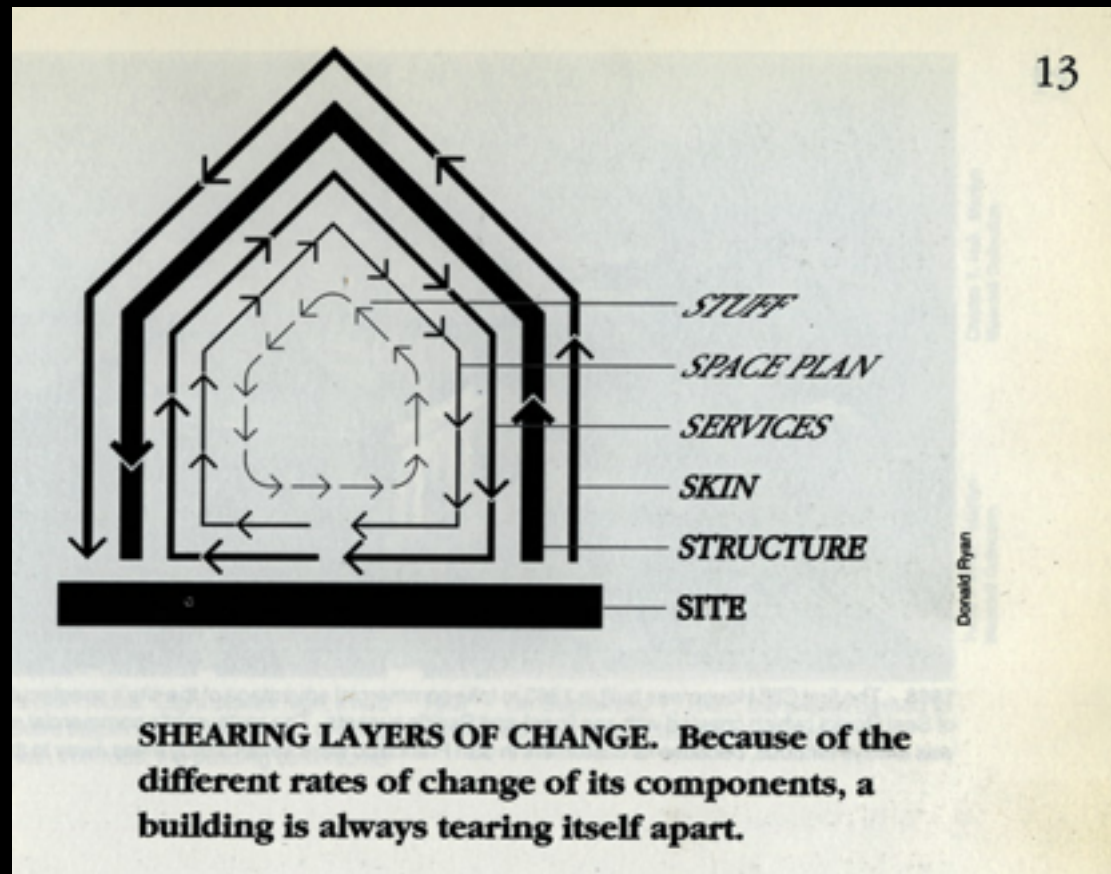
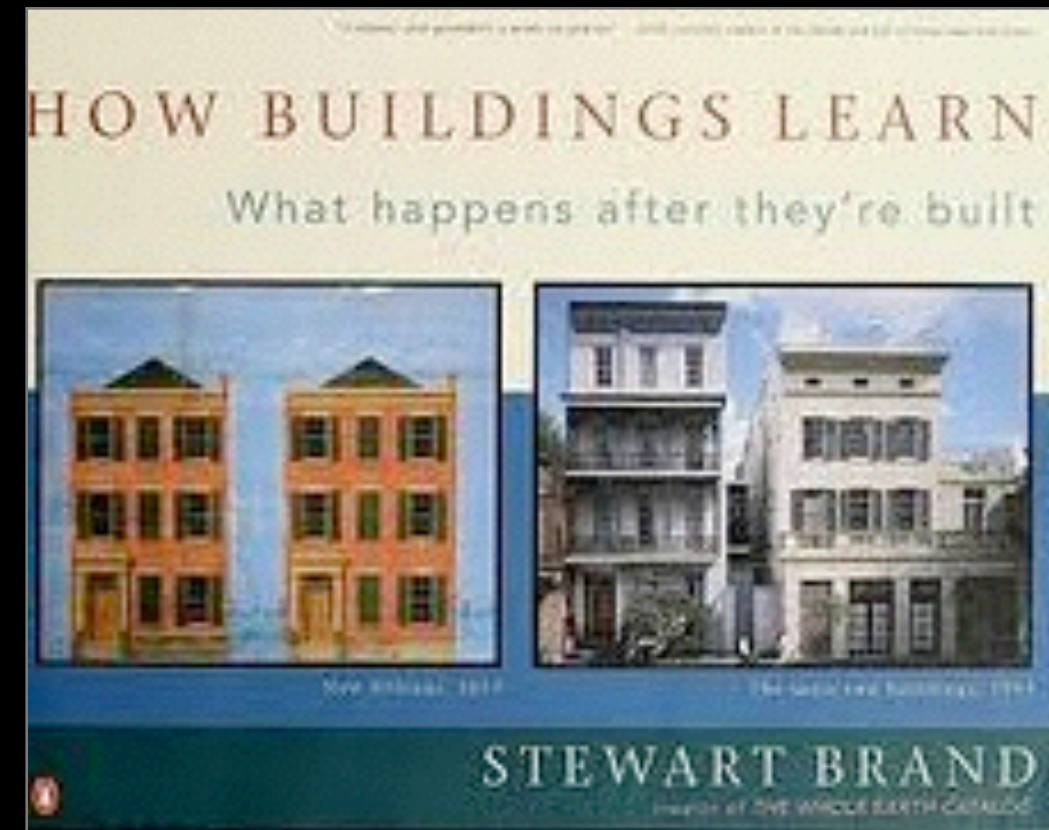


The same two houses, 1994



STEWART BRAND

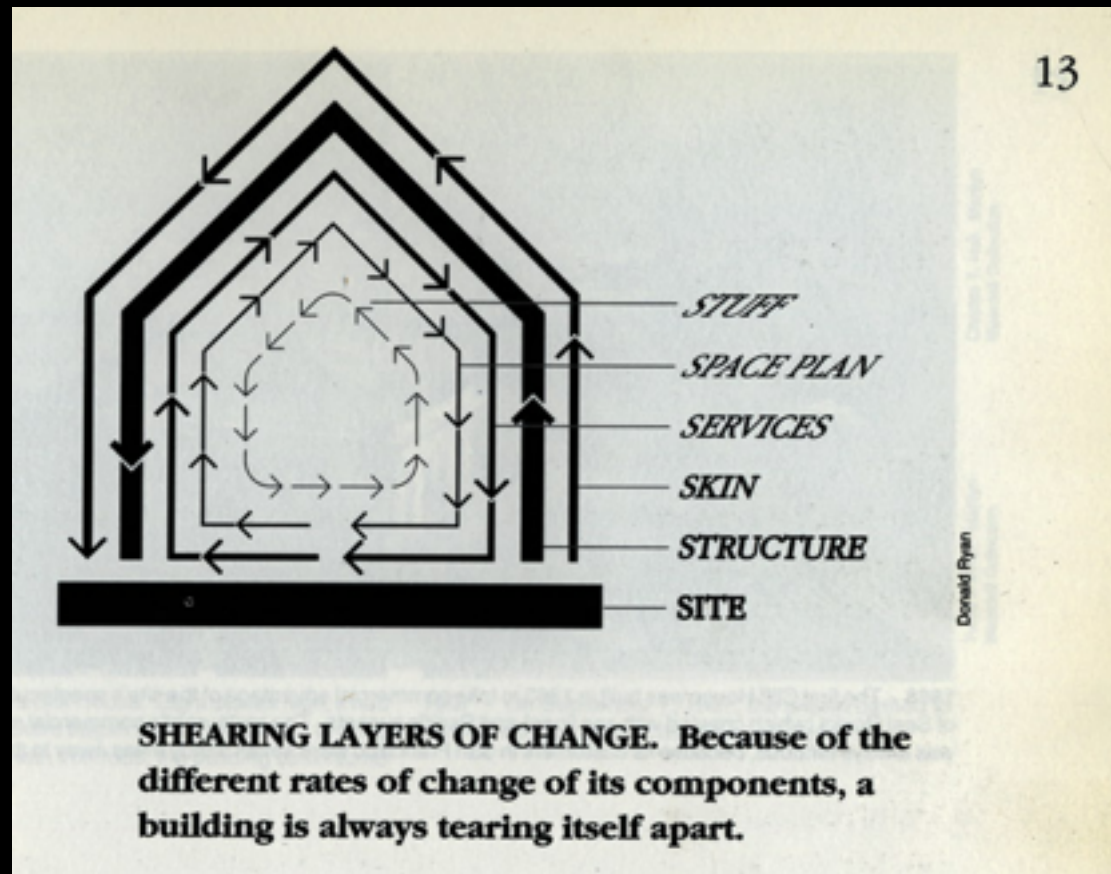
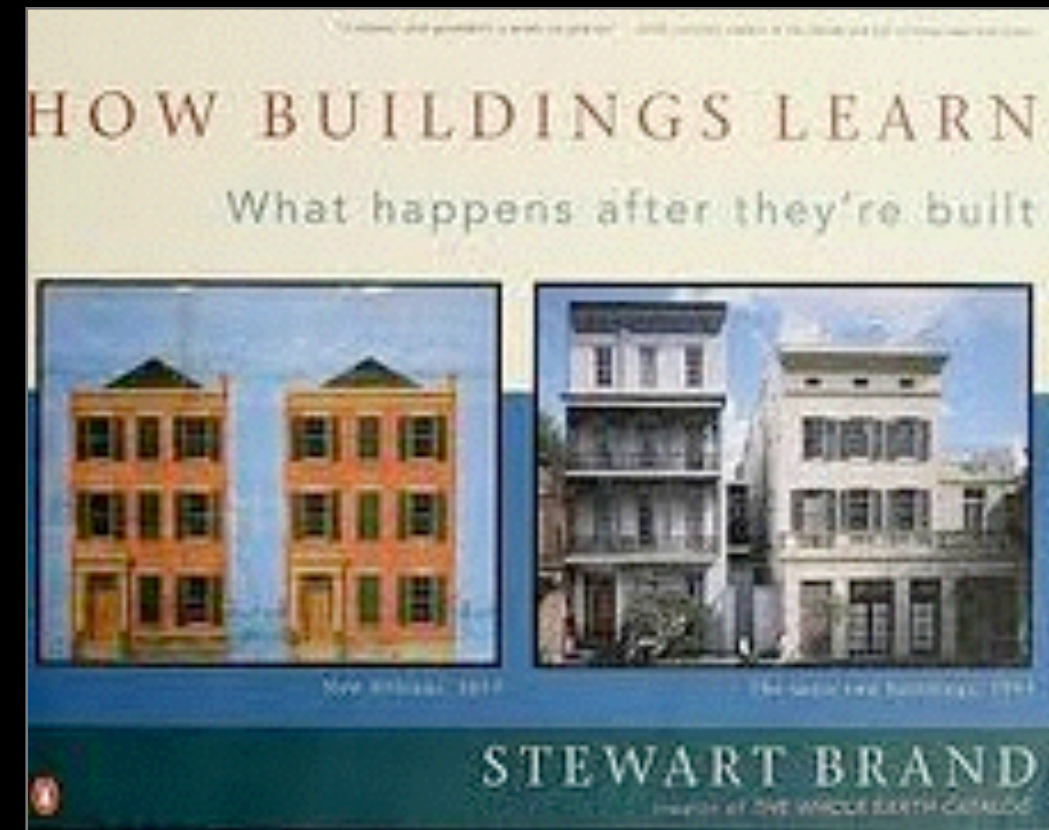
author of THE WHOLE BIRTH CATALOG



All buildings are predictions.
All predictions are wrong.

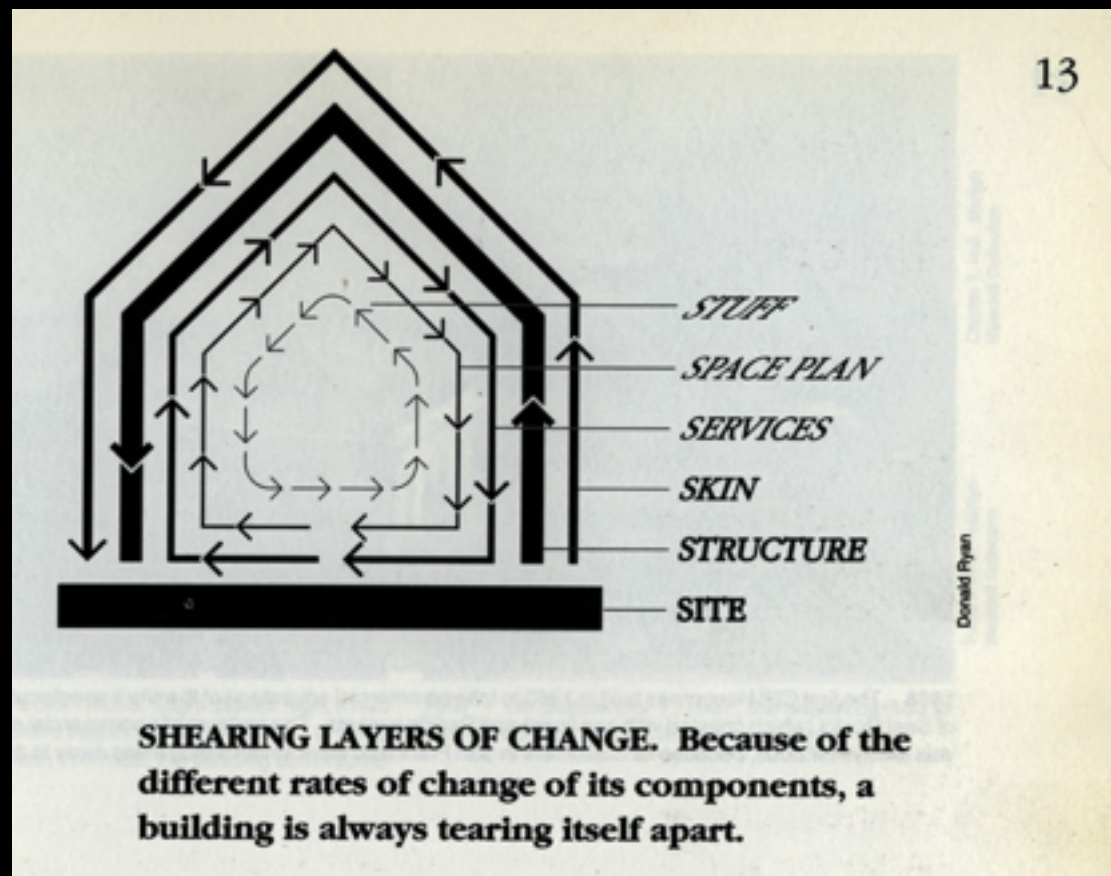
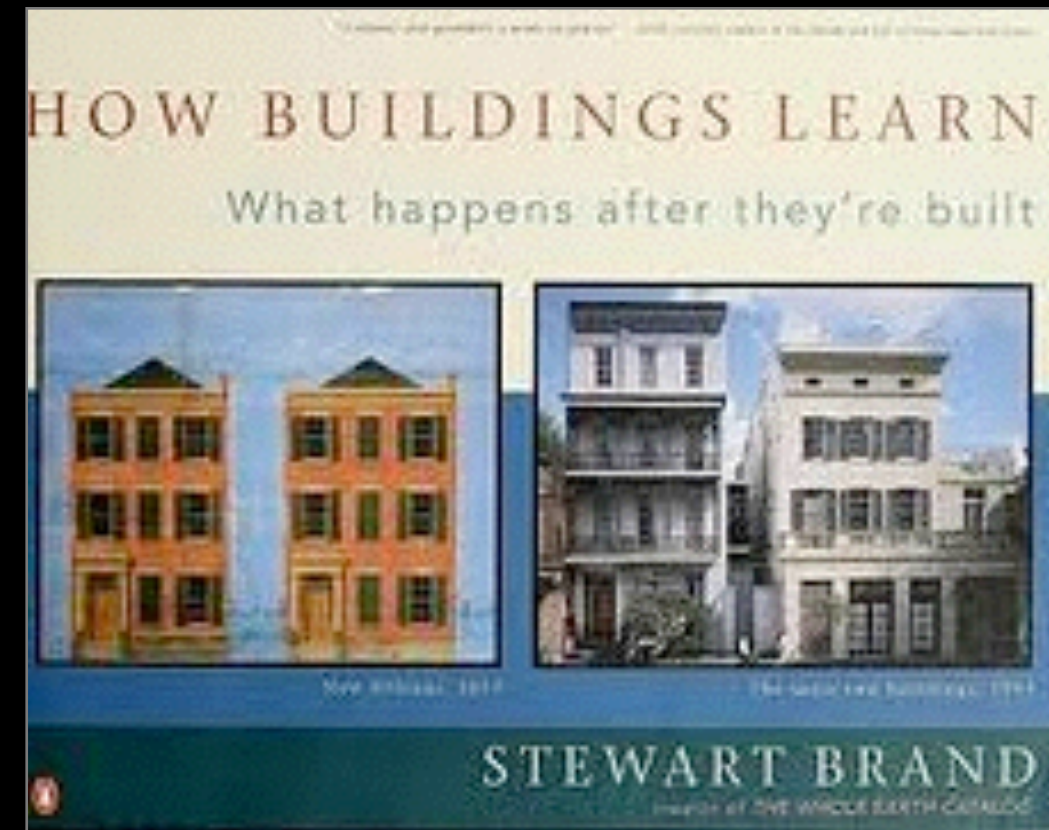
There's no escape from this grim
syllogism, but it can be softened.

Stewart Brand



All buildings are predictions.
All predictions are wrong.
There's no escape from this grim
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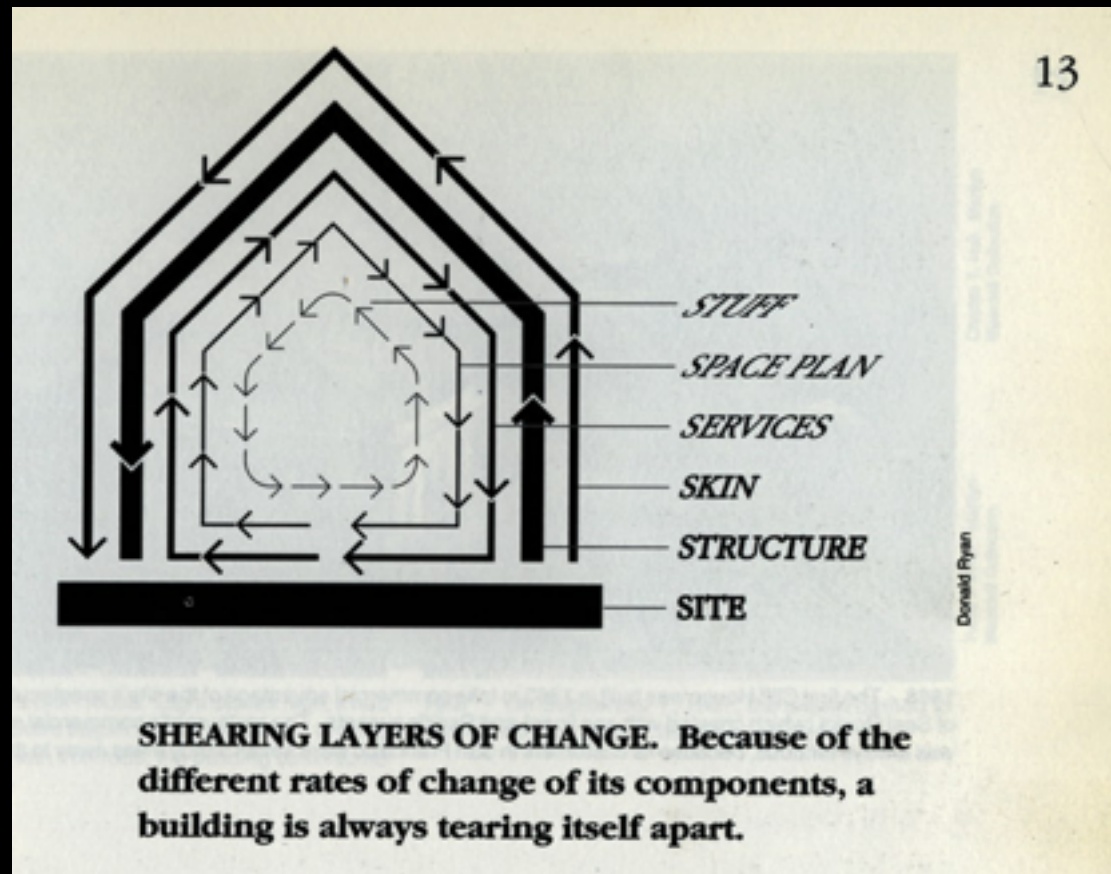
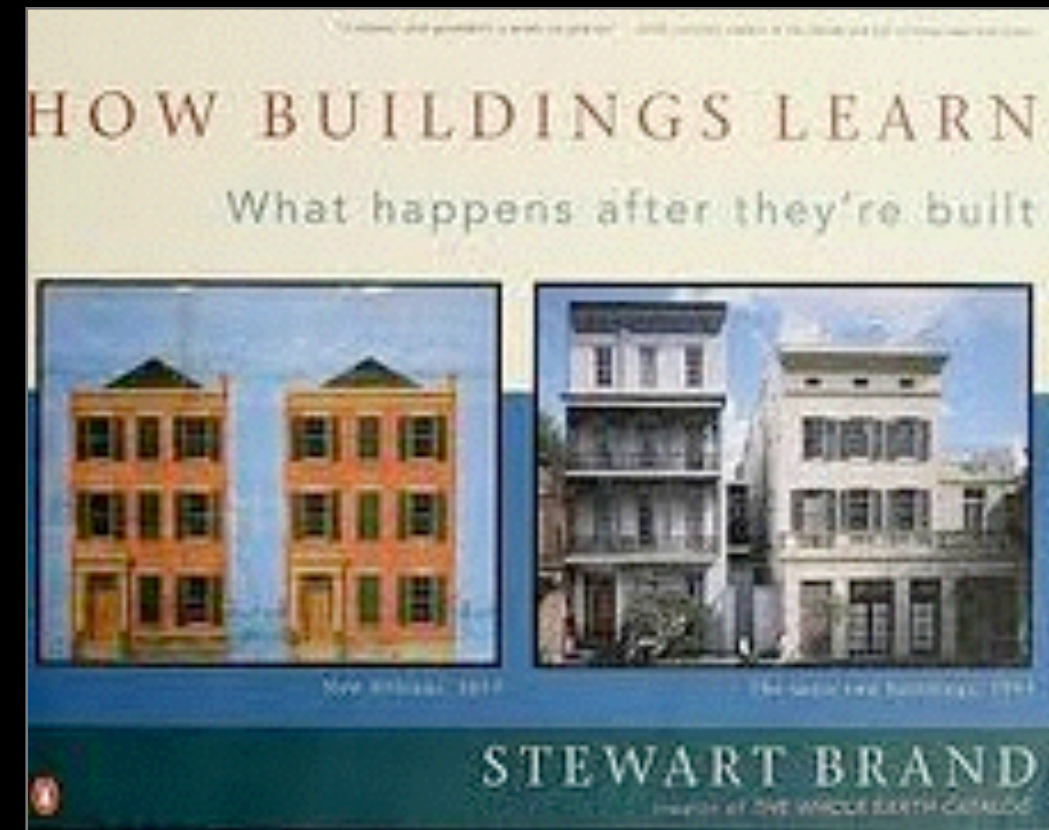
Our software is always tearing itself apart
(or should be)

Recognize that different layers change at
different velocities

experiences must adapt

All buildings are predictions.
All predictions are wrong.
There's no escape from this grim
syllogism, but it can be softened.

Stewart Brand



Our software is always tearing itself apart
(or should be)

Recognize that different layers change at
different velocities

most organizations biggest challenge is moving

**most organizations biggest challenge is moving
from a culture of delivery to a**

**most organizations biggest challenge is moving
from a culture of delivery to a
culture of learning**

a tale of two trains



a tale of two trains



departs infrequently

“gotta get my features on this train
or I will have to wait a long time”

a tale of two trains



departs infrequently

“gotta get my features on this train
or I will have to wait a long time”



departs all the time

“if I miss this train another one comes
in a few minutes”



the netflix culture

continuous customer feedback (GOOB)

customer metrics drive everything

think it. build it. ship it. tweak it

fail fast. learn fast.

lots of experimentation... build/measure/learn

**designing & engineering for
experimentation**

@netflix: engineered for learning



netflix chose html5 for mobile (iOS, android) and for game consoles, blu-ray players, hd-tvs, etc.

more recently moved to react native variant (JS) to drive native experiences without the DOM

in both cases why?

path to build/measure/learn

enable prototyping in the engineering stack



because engineering teams are not trying to solve the learning problem, they see prototyping as outside the engineering discipline

this is a real engineering challenge

engineer for the “living spec”

enable prototyping in the engineering stack



because engineering teams are not trying to solve the learning problem, they see prototyping as outside the engineering discipline

this is a real engineering challenge

engineer for the “living spec”

make prototyping a first class member of tech stack

github
SOCIAL CODING



2. democratize innovation

“If you can’t feed a team with two pizzas, it’s too large.”

- *Jeff Bezos*

STARTUPDISPATCH.COM





two pizza team?



keep teams small

democratize the code base

starting to use git repo model for continuous deployment

- marketing pages

- product pages

- content updates & triggers into i18n, l10n, adaptation components

works well with cloud deployment (devops model)

enables the train to be leaving all the time



work in open source model

internal github revolutionizing
our internal development

rapidly replacing centralized
platform teams

innovation democratized

every developer encouraged
to experiment and generate repos
to share as well as to fork/pull request



[Get Started](#)[Documentation](#)[Examples](#)[GitHub](#)[PayPal](#) | [Open Source](#)

Krakenjs

The kraken suite is a secure and scalable layer that extends express by providing structure and convention.

[Get Started](#)

build passing npm module 0.7.1

The kraken suite

Kraken is the main pillar of the framework, but the following modules can also be used independently.



Lusca



Makara



Adaro



Kappa

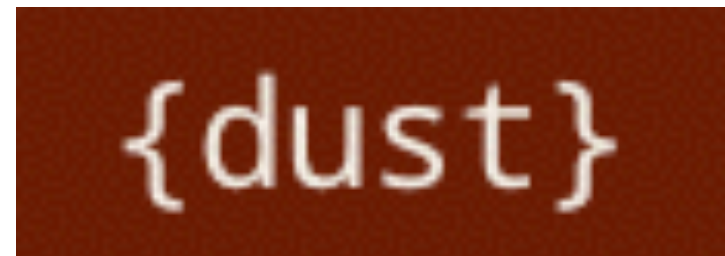
use open source religiously

Bootstrap, from Twitter

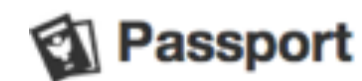


UNDERSCORE.JS

express



async

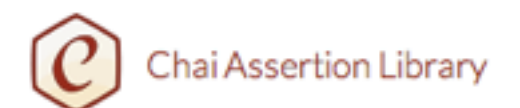


nconf



BOWER

supertest





Lean



Agile

Use LEAN
to give
AGILE a
BRAIN
AGILE is a MACHINE

3. give agile a brain

agile is just a machine

it will crank 'stuff' out

it can be good or bad stuff

please don't waste the machine

have a tight loop with our users

iterate to get experience "in the ballpark"

make it easy to iterate designs ahead of agile sprints

agile is just a machine

it will crank 'stuff' out

it can be good or bad stuff

please don't waste the machine

have a tight loop with our users

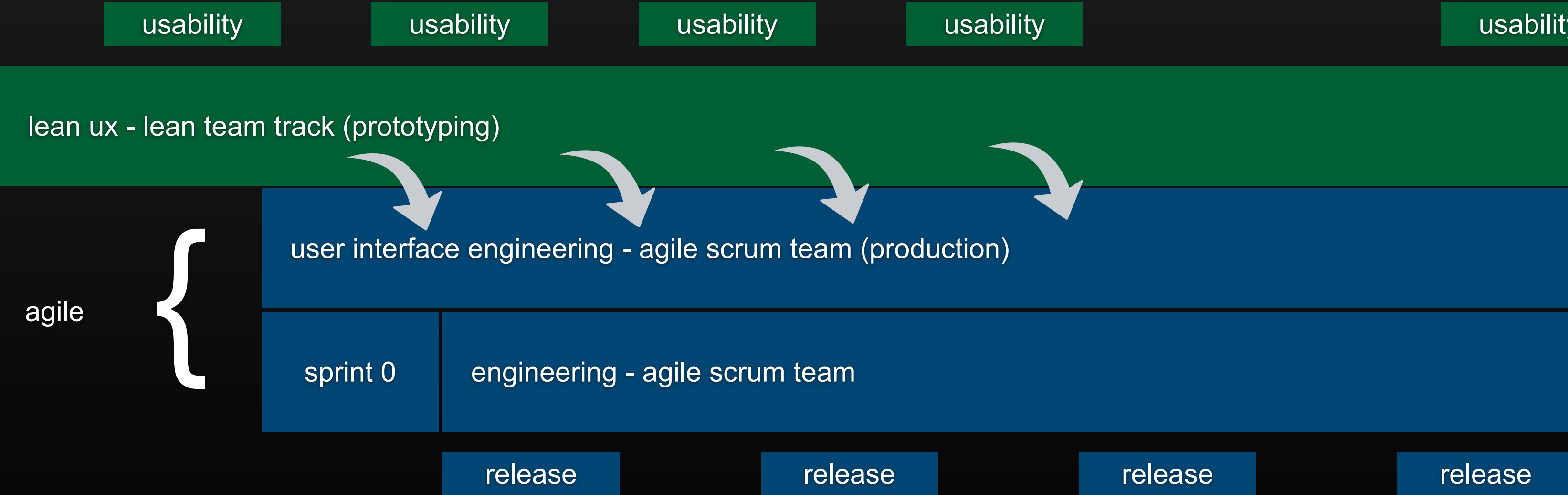
iterate to get experience "in the ballpark"

make it easy to iterate designs ahead of agile sprints

the "brain" is our user

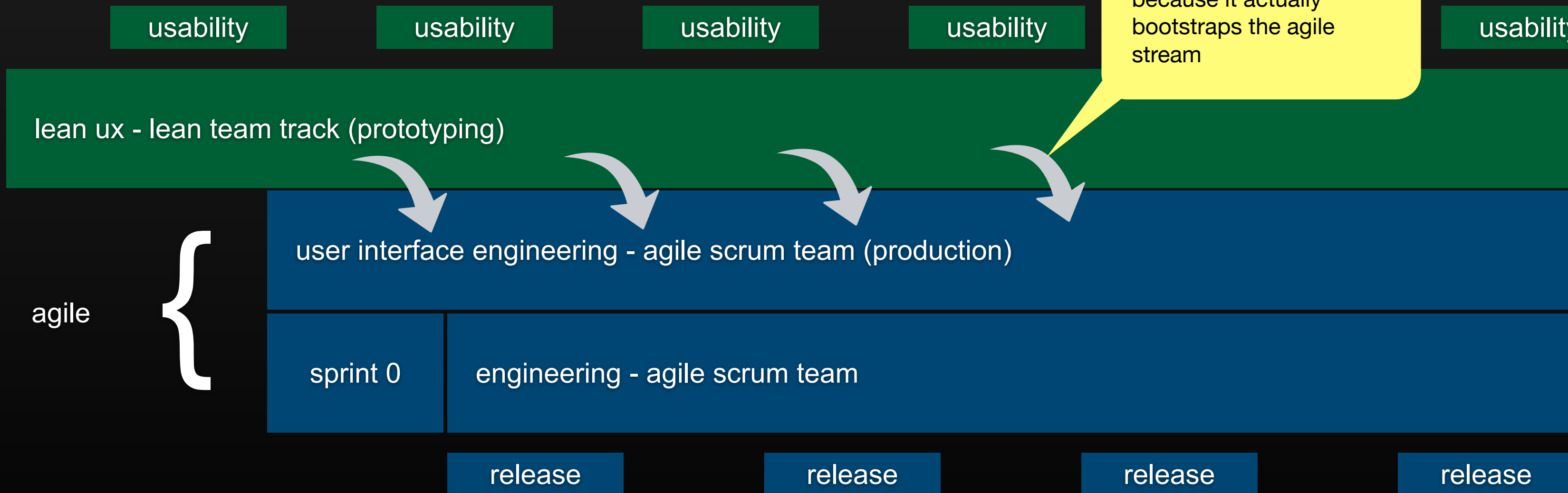
lean ux: enable a brain for agile

version 1.0



lean ux: enable a brain for agile

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how teams get the right mindset

how teams get the right mindset

shared
understanding



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shared
understanding



deep
collaboration



how teams get the right mindset

shared
understanding



deep
collaboration



continuous
feedback



the right mindset for learning

**does your team
“defend the solution” or
“embrace the problem”?**

LEAN ENGINEERING

Engineering for
build/measure/learn

**rethink engineering in the
light of learning**

- 1. engineer for learning**
- 2. democratize engineering**
- 3. give agile a brain**



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Krystal Higgins:

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