

# Good Technical Debt

**Jon Thornton**

LeadDev NYC | March 13-14, 2023

# TECH DEBT





“Shipping first time code is like going into **debt**. A little debt speeds development so long as it is paid back promptly...”

— Ward Cunningham, 1992

# LOAN APPLICATION

## Personal Information

Name (Last)

PUBLIC

Address (Mailing Address)

12345 MAIN STREET

E-Mail Address

JQPJQPJQP@JQP.JQP

## Services needed

UNDER REVIEW

## Current Income

High School Graduate Or General Education (GED) Test Passed? Yes No

the highest grade completed

Local Military (Most recent first)

Years Earned

Graduate

Major or Subject

APPROVED



# Agenda

1. Under-abstracting
2. Under-scaling
3. Throwaway code



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EDIT

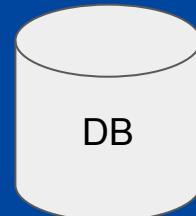
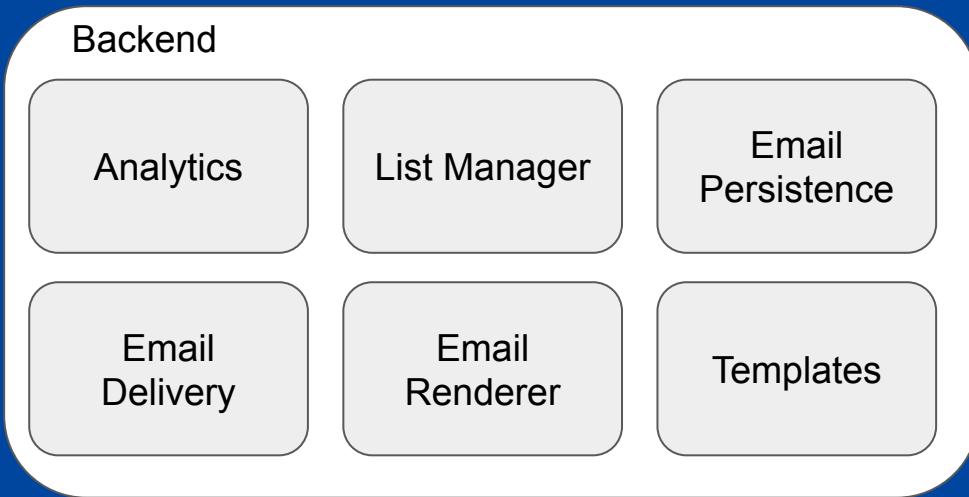
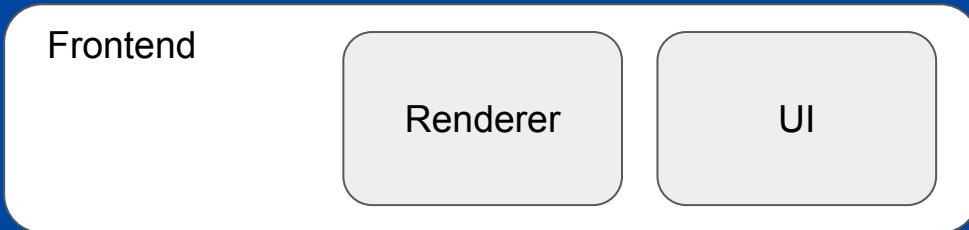
Home  
Page · Published

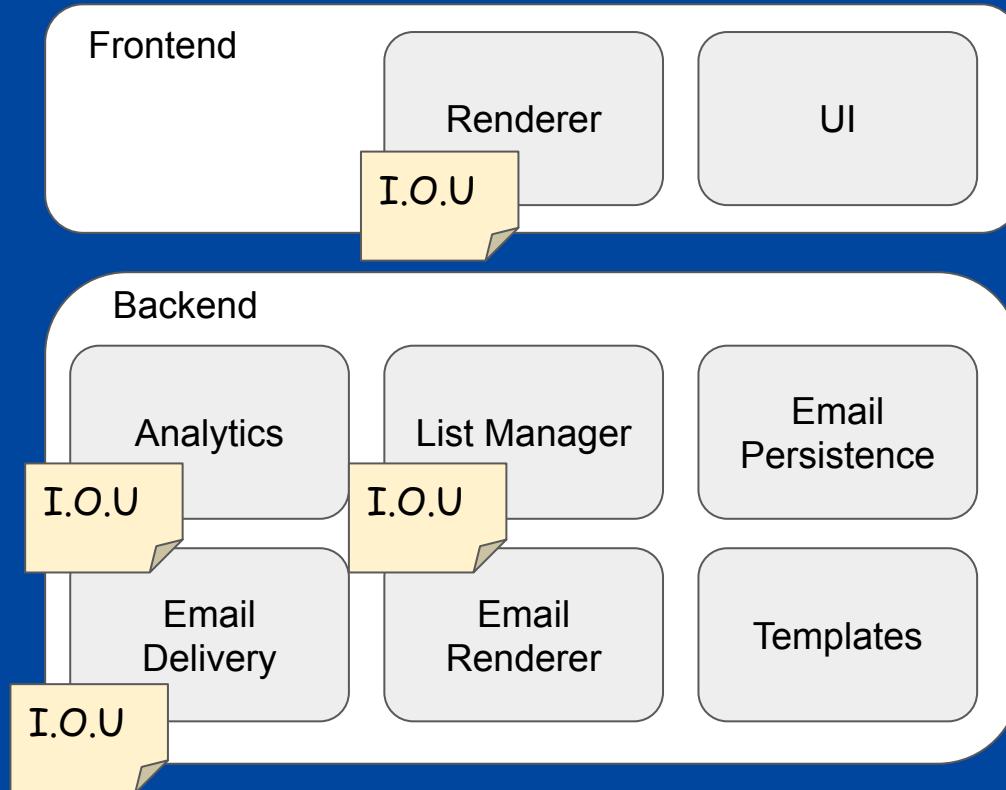
# Build your online presence.

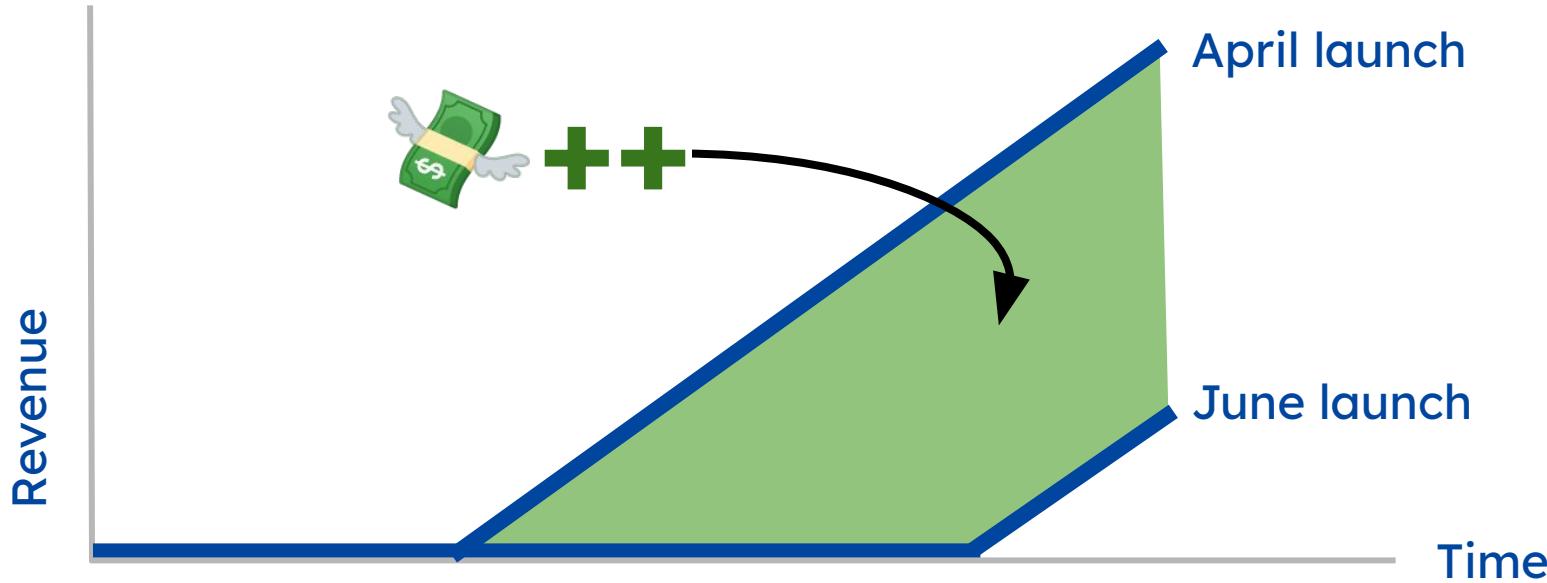
[GET STARTED](#)

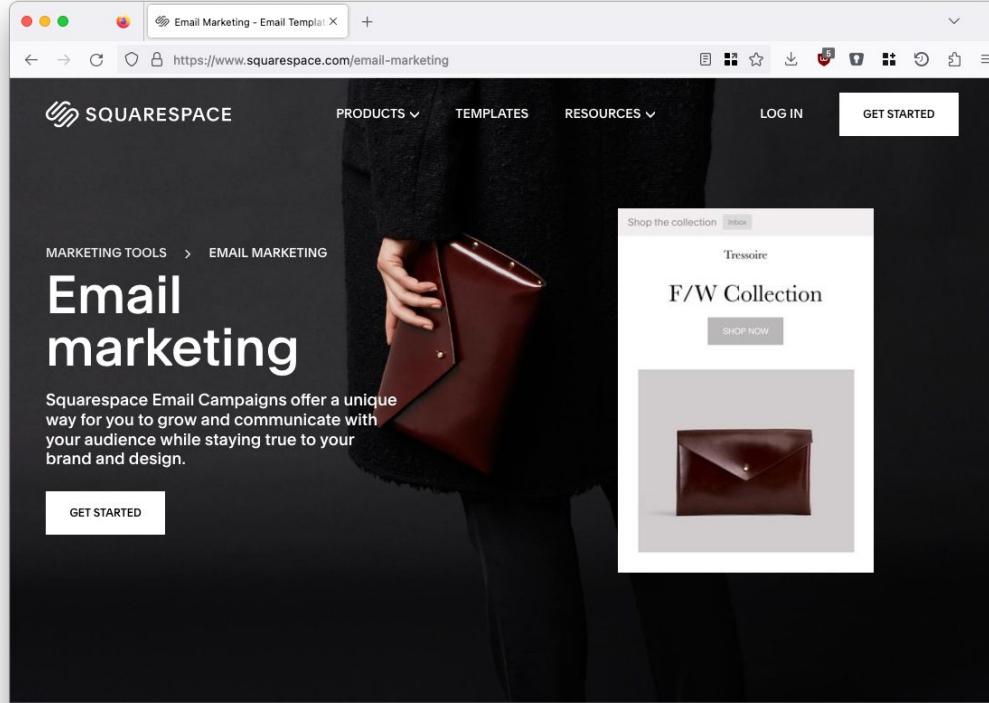
Start your free website trial today.  
No credit card required.











The screenshot shows the Squarespace website for 'Email Marketing'. The top navigation bar includes 'SQUARESPACE', 'PRODUCTS', 'TEMPLATES', 'RESOURCES', 'LOG IN', and a 'GET STARTED' button. The main heading 'Email marketing' is displayed with a sub-copy: 'Squarespace Email Campaigns offer a unique way for you to grow and communicate with your audience while staying true to your brand and design.' A 'GET STARTED' button is located below the heading. To the right, a promotional box for 'Tressoire F/W Collection' is shown, featuring a dark leather clutch bag and a 'SHOP NOW' button. The background of the main content area is a dark image of a person's hand holding a leather wallet.

## Email layouts

Just like Squarespace has curated stunning website designs for every purpose, there's an email layout for any audience.



# Cut the right corners: the difference between good and bad debt



VS



# Good tech debt: Under-abstracting by hardcoding



Squarespace Campaigns

Marketing

Email Campaigns [Create](#)

Drafts

Scheduled 0

Sent 47

Automations 4

Mailing Lists

Sender Profiles

**Whether you have 10 subscribers or 10,000, we have a plan for you.**

SELECT A PLAN →

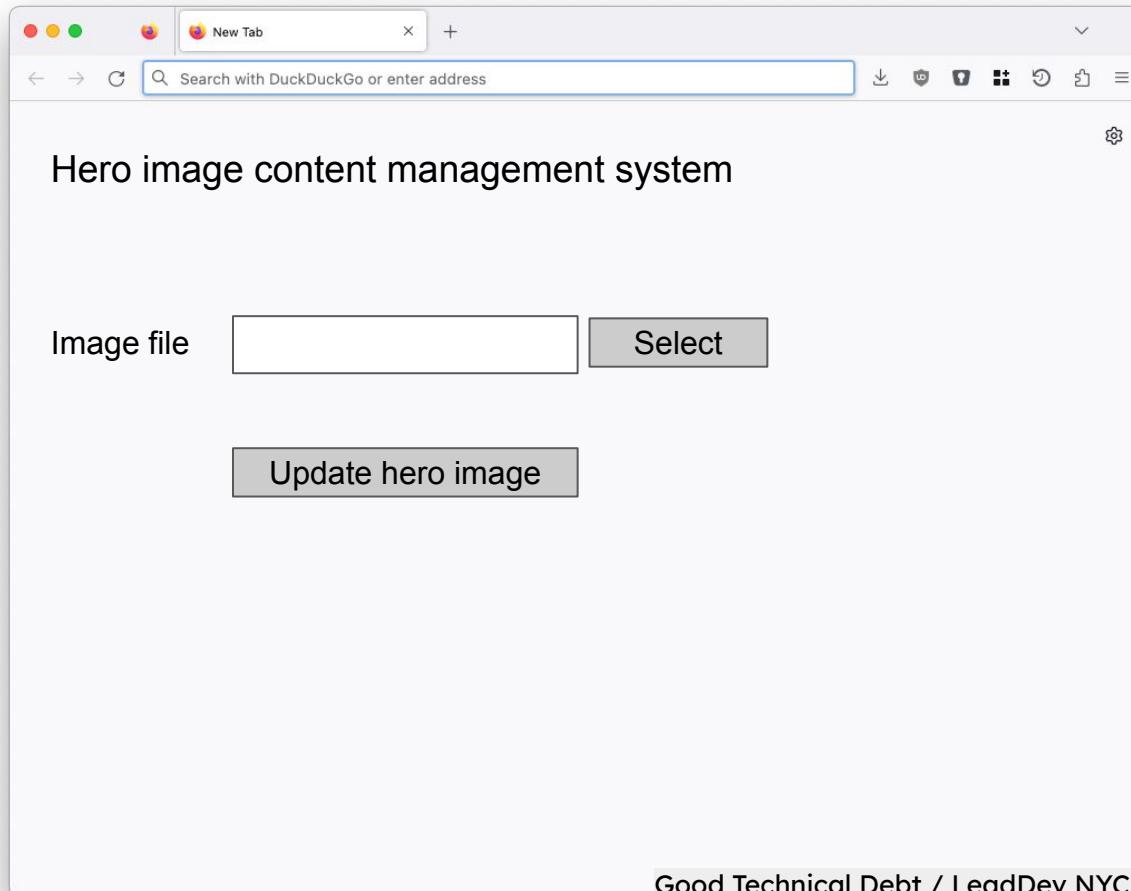
Last Campaign Performance

	1	1	0
Delivered	100%	100%	Clicked
Opened			
Clicked			

Squarespace Internal Site

Email Campaigns is comped for this site.

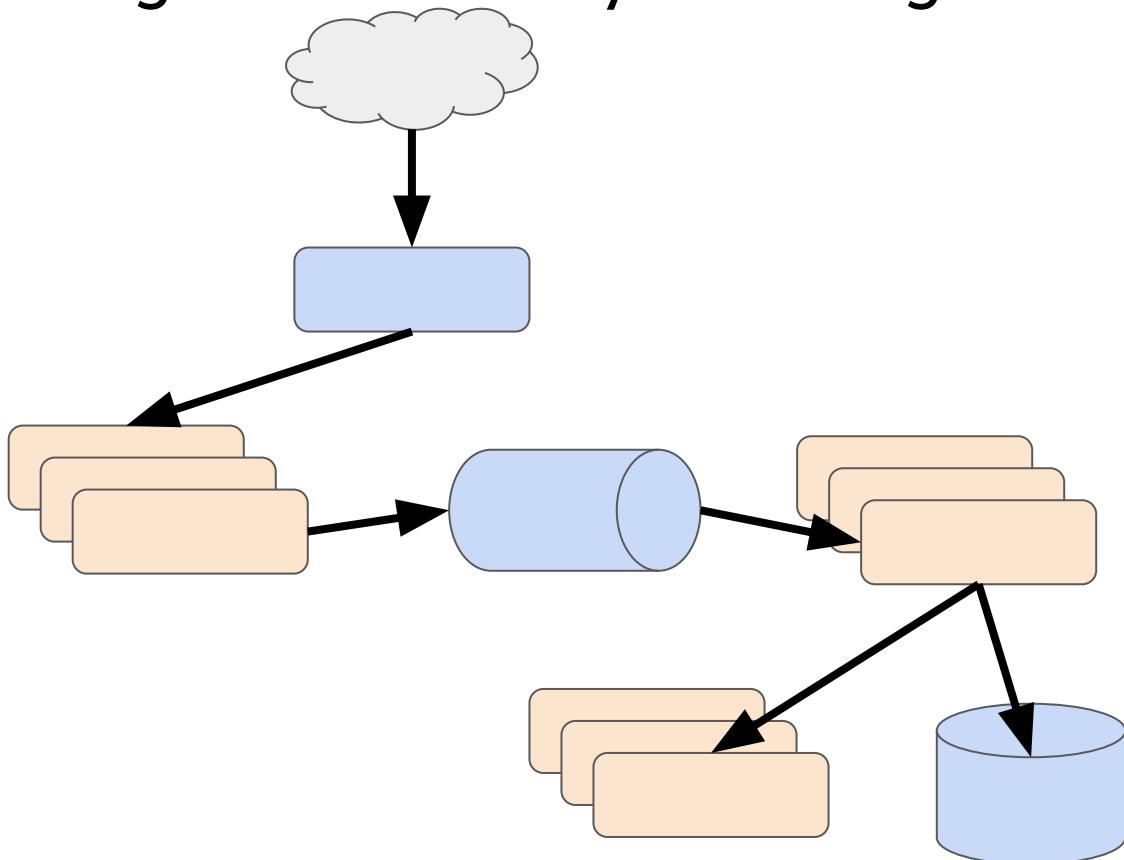
# Simple Content Management System (CMS) mockup



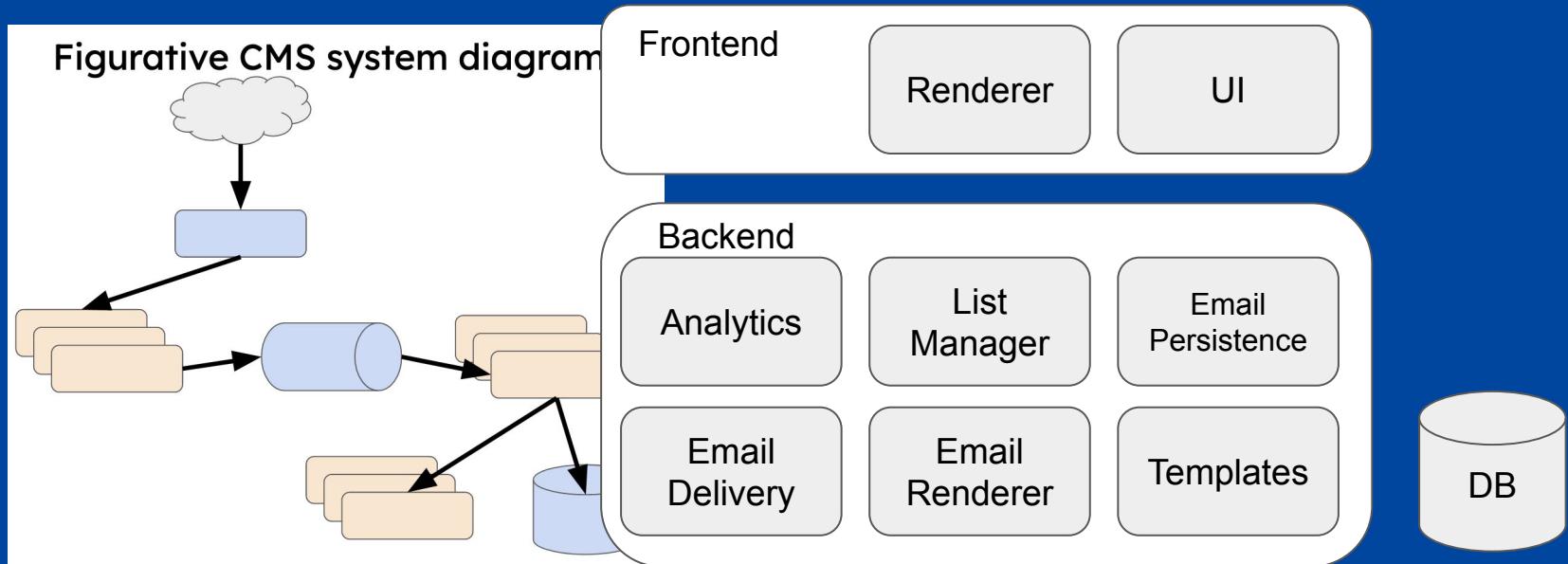
# Figurative CMS system diagram

## Content management system requirements

- Backend REST APIs
- Frontend (React?)
- File upload validation
- Image storage
- Authentication
- Permissions
- Logs, metrics, and alerting
- Runbooks
- Tests
- Error handling



## Figurative CMS system diagram





**Jeremy D. Miller**

@jeremydmiller · [Follow](#)



Reminder, any extensibility point that's never used isn't just wasted effort, it's likely to also get in your way as well

10:42 AM · Feb 20, 2015



113



[Copy link](#)

[Read 8 replies](#)



Maintenance  
cost over time

Value

# You aren't gonna need it (YAGNI)

IT TOOK SOME EXTRA WORK TO BUILD, BUT NOW WE'LL BE ABLE TO USE IT FOR ALL OUR FUTURE PROJECTS.



HOW TO ENSURE YOUR CODE IS NEVER REUSED

LET'S NOT OVERTHINK IT; IF THIS CODE IS STILL IN USE *THAT* FAR IN THE FUTURE, WE'LL HAVE BIGGER PROBLEMS.



HOW TO ENSURE YOUR CODE LIVES FOREVER

– Randall Munroe <https://xkcd.com/2730/>

```
if (Date.now() >= NEW_CONTENT_DATE) {  
    return 'new-content.png'  
} else {  
    return 'old-content.png'  
}
```

# Under-abstracting by hardcoding

Does it help us YAGNI?

Is Git an acceptable UI?

Is the build and deploy  
pipeline fast?



**“If it hurts, do it more frequently, and bring the pain forward.”**

- Write tests
- Document things
- Keep the build fast
- Finish migrations
- Have good alerting

— Jez Humble

*Continuous Delivery: Reliable Software Releases Through Build, Test, and Deployment Automation*  
2010

# Good tech debt: Under-scaling



Squarespace

Frontend Without Apollo - Go...

Squarespace

The Grit and Polish

Back

Sent

Happy Friday + Our Garden Project

Sent on May 17 at 1:00pm

Actions

This week on the Grit and Polis...  
10% Opened, 4.1% Clicked  
Jul 12

This Week on the Grit and Polis...  
47% Opened, 28% Clicked  
Jul 5

This week on the Grit and Polis...  
44% Opened, 22% Clicked  
Jun 28

This Week on the Grit and Polis...  
50% Opened, 26% Clicked  
Jun 21

This Week on the Grit and Polish  
51% Opened, 25% Clicked  
Jun 14

What our Garden Cost, a Poplar...  
45% Opened, 27% Clicked  
Jun 7

White Kitchen Inspiration + Ha...  
46% Opened, 25% Clicked  
May 31

Our Garden Patio (and a givea...  
46% Opened, 24% Clicked  
May 24

Happy Friday + Our Garden Pr...  
46% Opened, 25% Clicked  
May 17

We're Buying Another House! ...  
50% Opened, 31% Clicked  
May 10

Happy Friday + Our Laundry R...  
17% Opened, 25% Clicked  
May 3

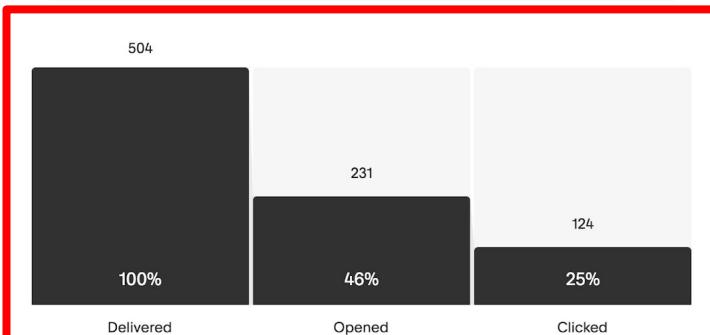
the GRIT and POLISH  
old houses // family renovations // DIY everything

TAKE ME TO THE BLOG

Mailing Lists

Total Subscribers 505

Newslett...



Category	Value
Delivered	504
Opened	231
Clicked	124

100%  
46%  
25%

Delivered  
Opened  
Clicked

CAMP-4761

As a user, maybe this  
will work?



13



“A great decision is the result of a good process, and that process must include an attempt to accurately represent our own state of knowledge. That state of knowledge, in turn, is some variation of ‘I’m not sure.’”

— Annie Duke

*Thinking In Bets*

2018





36%

64%





36%

64%



```
return {  
  messageCount: db.countMessagesWithoutCaching(),  
  deliveredCount: db.countDeliveredWithoutCaching(),  
  openedCount: db.countOpenedWithoutCaching(),  
}
```

# Good tech debt: Under-scaling

Test the limits

A+ observability

Understand the  
path to scaling



A photograph of a hand with red-painted fingernails reaching for a pile of poker chips on a green table. Next to the chips is a hand of playing cards fanned out, showing an Ace, King, Queen, Jack, and Ten of hearts. The background is a solid green.

# Sometimes you get lucky

Frontend

Renderer

UI

Backend

Analytics

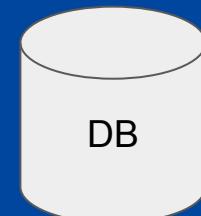
List Manager

Email  
Persistence

Email  
Delivery

Email  
Renderer

Templates



# Project Timeline

Frontend editor

Templates

Persistence

Backend rendering

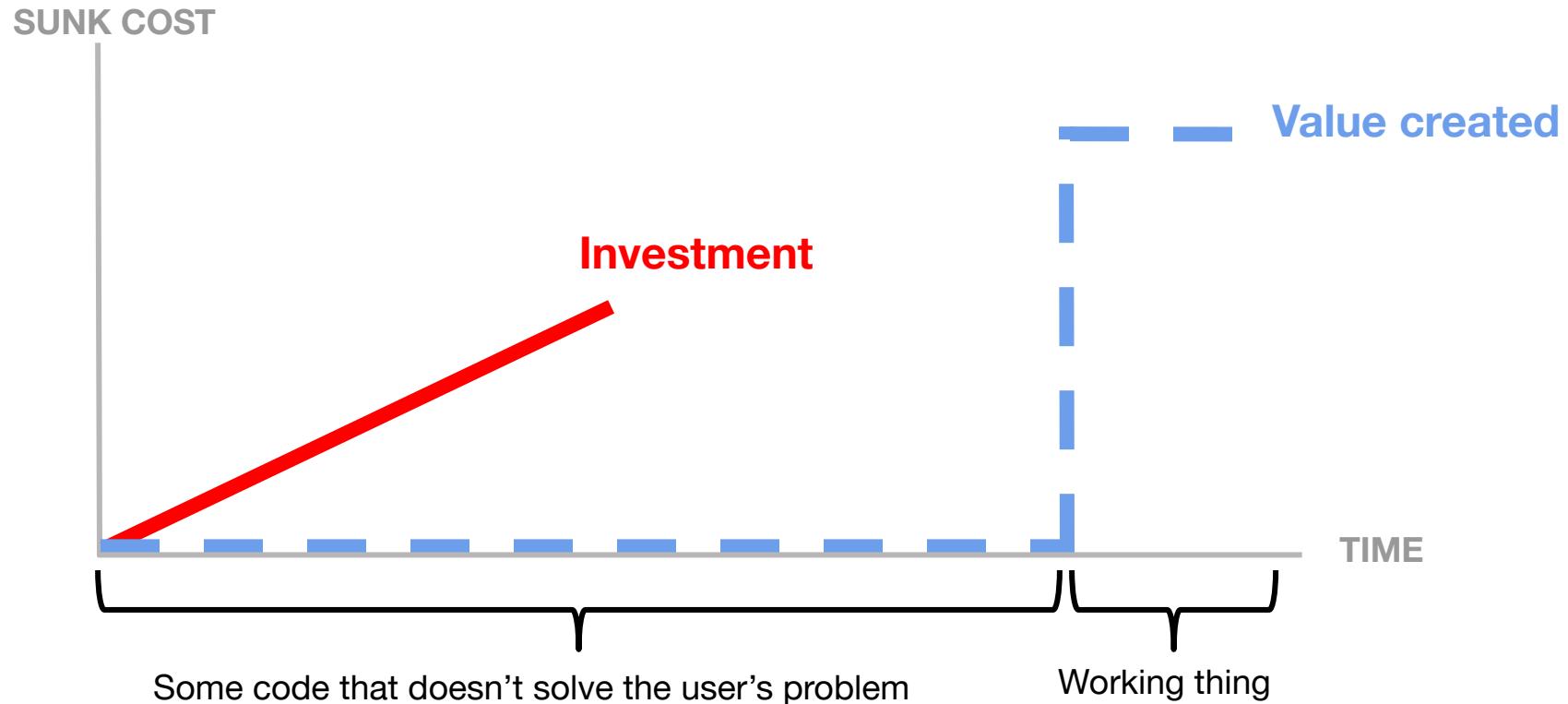
Mailing lists

Email sender

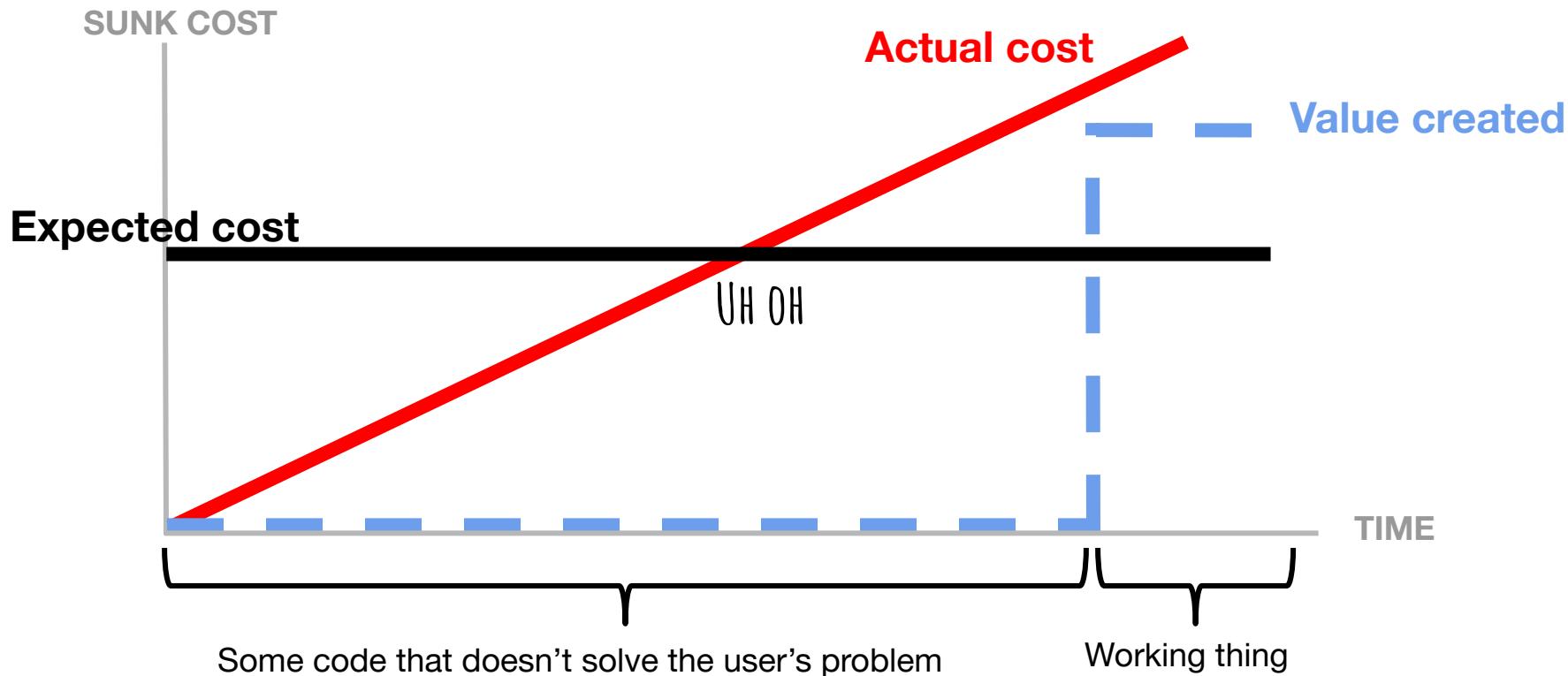
Analytics

Time

# The waterfall trap



# The waterfall trap

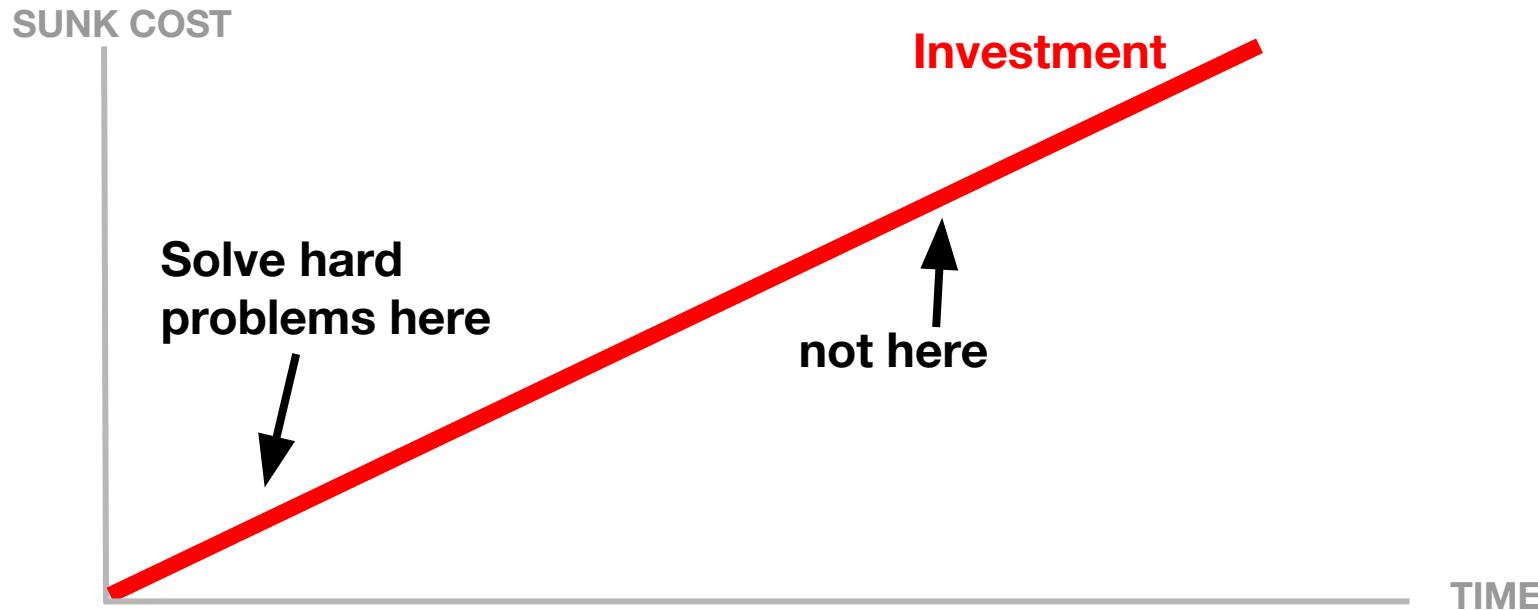






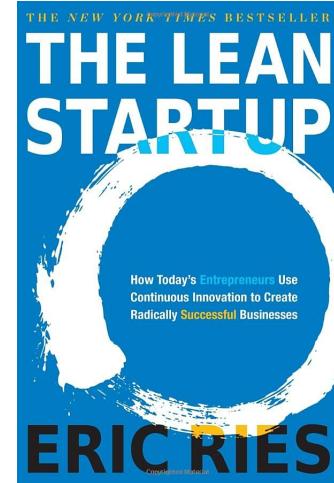
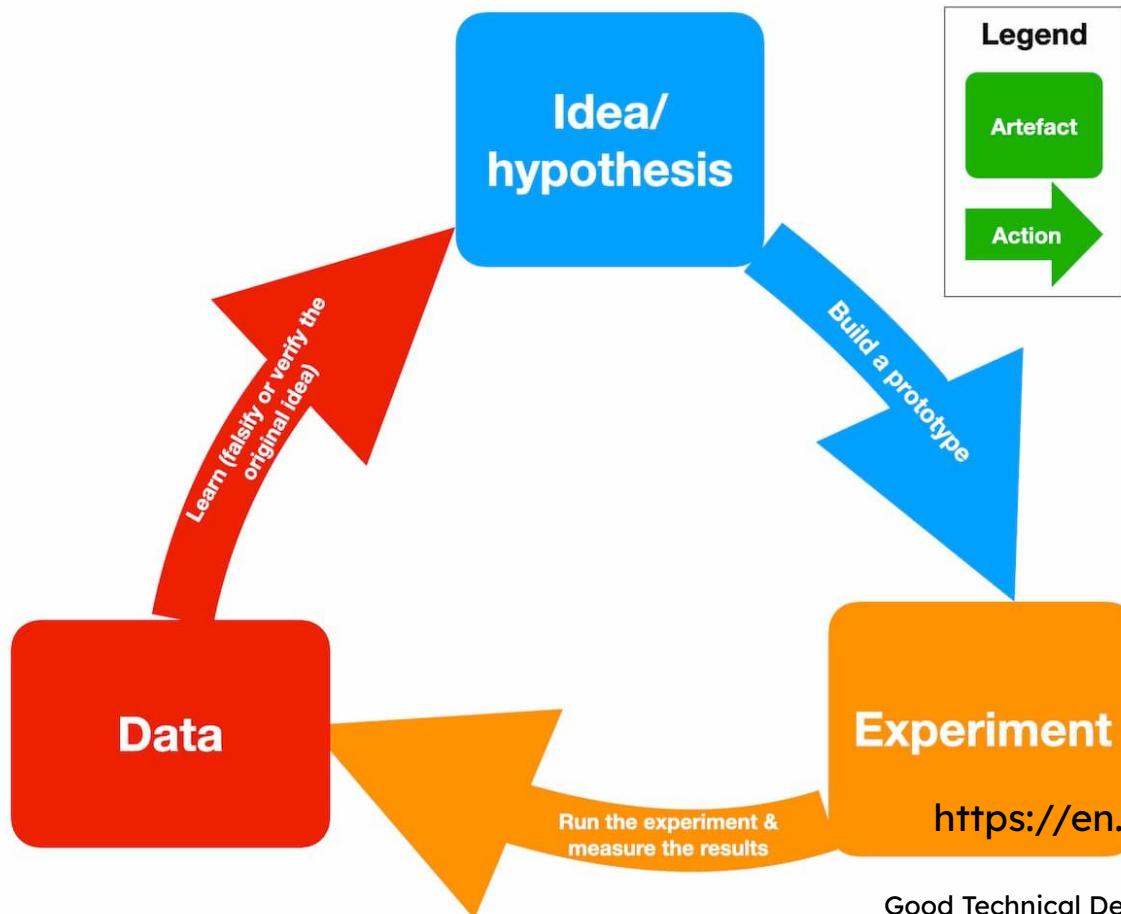
*Tackle the Monkey First*  
**Astro Teller**

<https://x.company/blog/posts/tackle-the-monkey-first-2016>

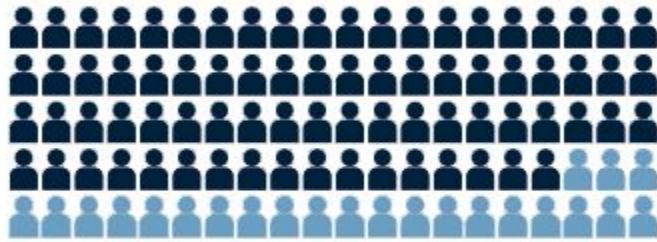




# The Build-Measure-Learn Loop

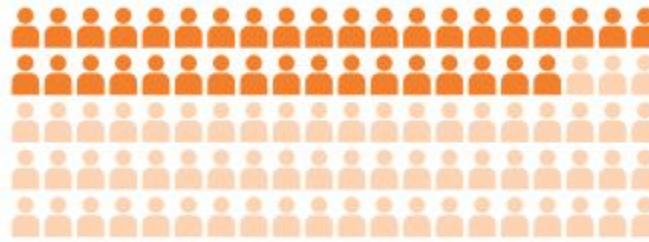


## What people say



**77%** of adults say they plan to visit the dentist within the next year.

## What people do



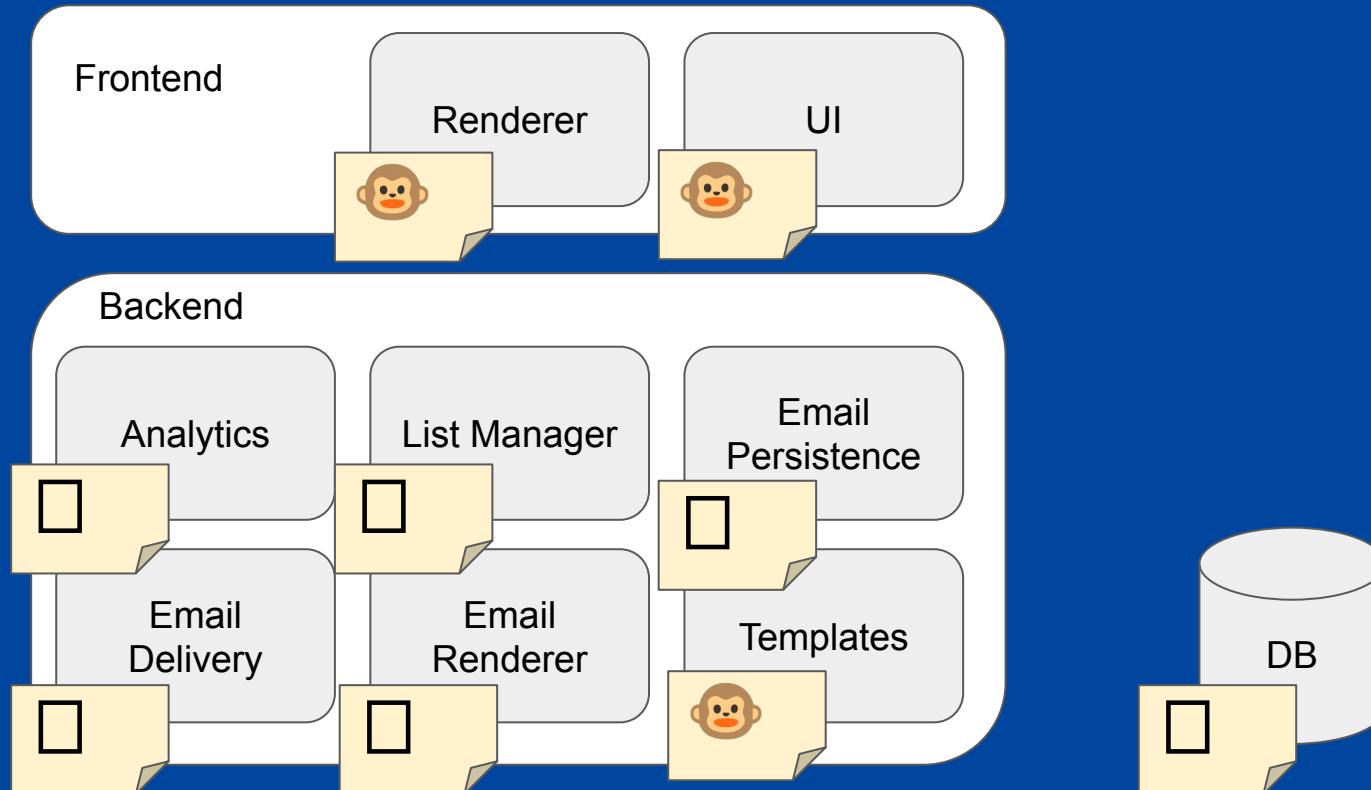
**37%** of adults actually visited the dentist within the last year.

Chart: <https://bettertennessee.com/report-card-dental-health-in-tennessee/say-vs-do/>





# Identify the monkeys and pedestals



Squarespace Campaigns <https://newsletters-prod.squarespace.com/config/marketing/campaigns/composer/5d2bd...>

Weather Office Map Composer Delivery Distribution Memberships HR Tools Reference Monitoring

Dashboard

**The Neffs**

Just wanted to

**SAY**

**THA**

**N K S**

Text

Padding

COLORS

Text

Background

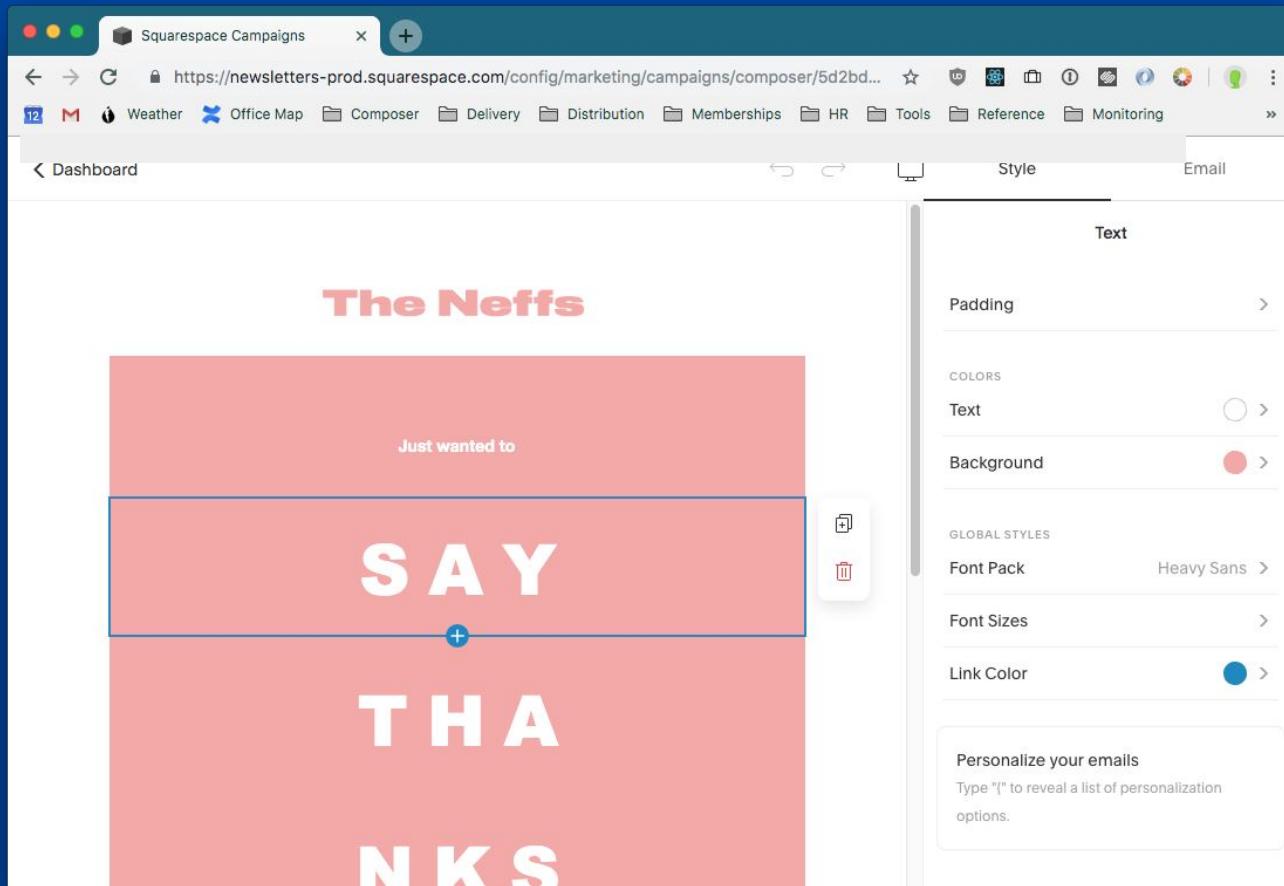
GLOBAL STYLES

Font Pack Heavy Sans

Font Sizes

Link Color

Personalize your emails  
Type "!" to reveal a list of personalization options.



# Project Timeline

Frontend editor

Templates

Persistence

Backend rendering

Mailing lists

Email sender

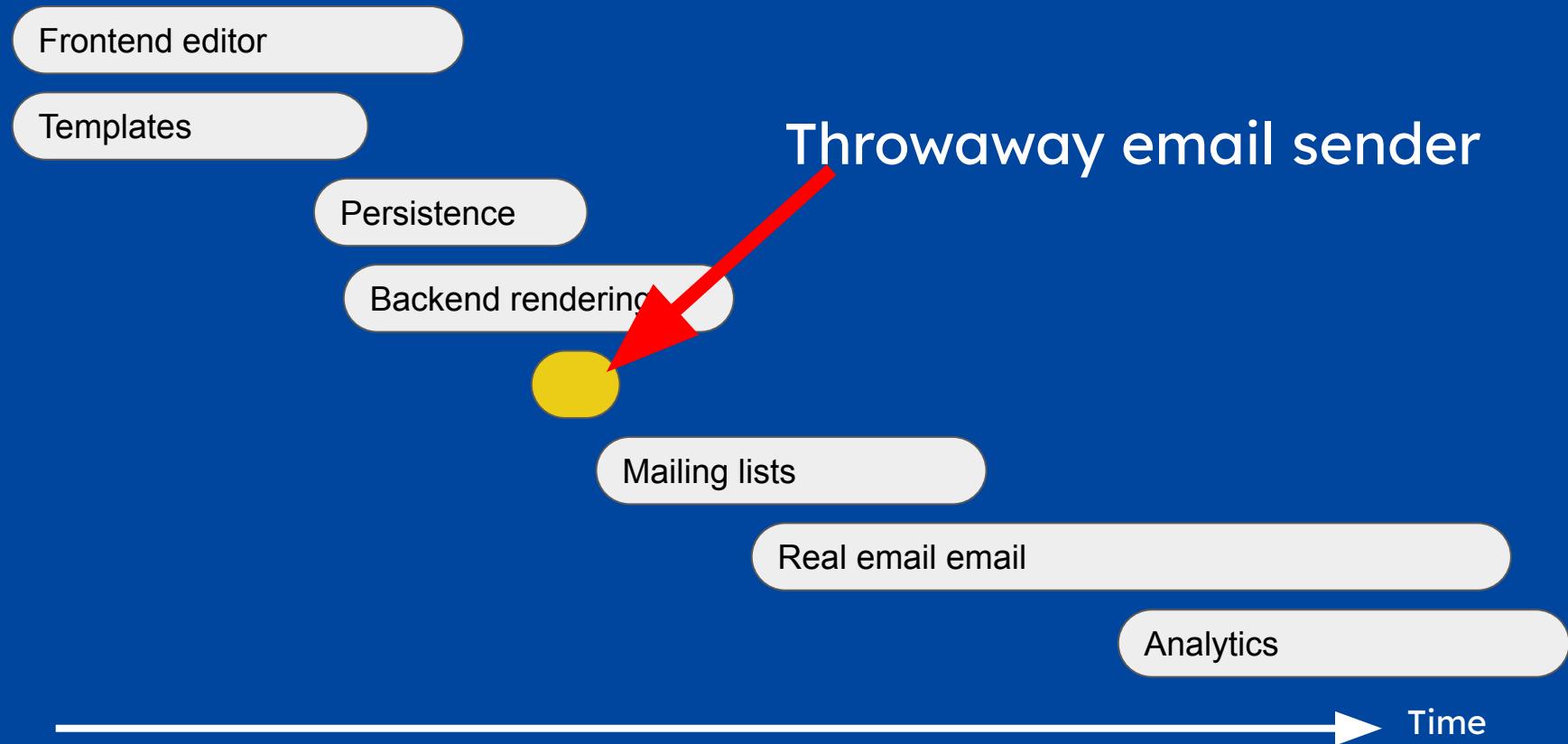
Analytics



Time



# Project Timeline





# Good tech debt: Throwaway code

```
sendNewsletter(newsletter) {  
    recipients = getUsersByGroups(newsletter.mailingLists)  
    for (recipient of recipients) {  
        sendEmailToRecipient(newsletter, recipient)  
    }  
}
```



Time spent building  
email sending      Learnings



# Throwaway code

Commit to an estimate

Design to throw away

Understand limitations

Tell everyone

# Not everyone can tell the difference



# Good tech debt is intentional

- Tell everyone
- Build to throw away
- Don't cut the wrong corners

# Good tech debt archetypes

- Under-abstracting
- Under-scaling
- Throwaway code

# Good tech debt motivations

- Solve hard problems first
- Think in bets
- You aren't gonna need it — YAGNI!

# References

<https://wiki.c2.com/?WardExplainsDebtMetaphor>

<https://wiki.c2.com/?YouArentGonnaNeedIt>

<https://martinfowler.com/bliki/Yagni.html>

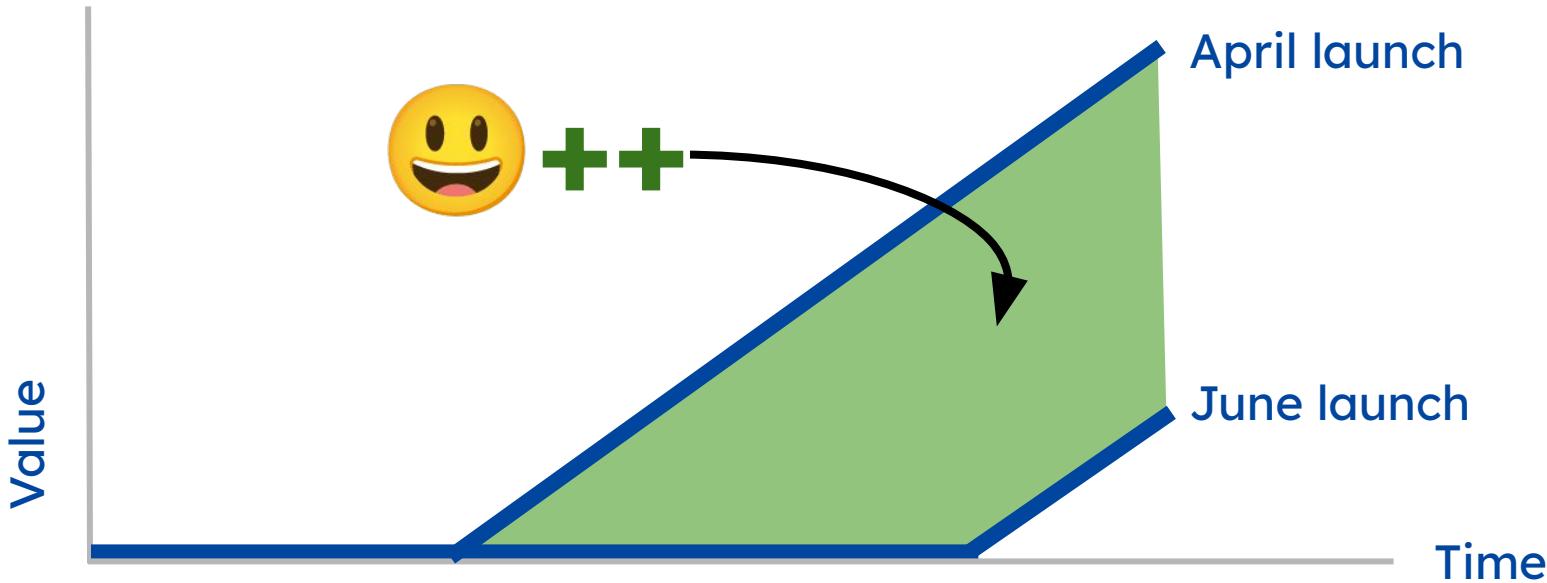
<https://continuousdelivery.com/>

<https://www.indiebound.org/book/9780735216372> (Thinking In Bets)

<https://x.company/blog/posts/tackle-the-monkey-first/>

<https://theleanstartup.com>

# Shipping sooner pays off forever



# Build less to achieve more

**The end | Thanks!**  
<https://jonthornton.com>