

Good Technical Debt

Jon Thornton

LeadDev NYC | March 13-14, 2023

TECH DEBT

A photograph of a desk completely overwhelmed by a chaotic mess of cables. In the background, a computer monitor with the brand name 'HANNspree' is visible. The desk surface is covered with various electronic components, including what appears to be a power supply unit, a network switch, and other peripheral devices. The floor in the foreground is also covered in a dense, tangled web of black, white, and blue cables, some of which are bundled together. The overall scene conveys a sense of disarray and technical complexity.

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TECH DEBT

A photograph of a desk completely overwhelmed by a chaotic mess of cables. In the background, a computer monitor with the brand name 'HANNspree' is visible. The desk surface is covered with various pieces of electronic equipment, including what appears to be a power supply unit, a network switch, and other peripheral devices. The floor in front of the desk is also cluttered with a dense network of black, white, and blue cables, some bundled together and others hanging loosely. The overall scene conveys a sense of technological complexity and disorganization, which is the visual metaphor for '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	(First)	JOHN	(Middle Initial)		Home Telephone	1111 - 1111
Address (Mailing Address)	12345 MAIN STREET	(City)	ANYWHERE	(State)	22	Other Telephone	22 22 2222
E-Mail Address	JQPJQPJQP@JQPJQP	APPLICANT IS UNDER REVIEW					

Services needed

UNDER REVIEW

Current Income

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

Military (Most recent first)

Credits Earned
Quarterly or Other (Specify)

Graduate

Major or Subject

APPROVED



Agenda

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



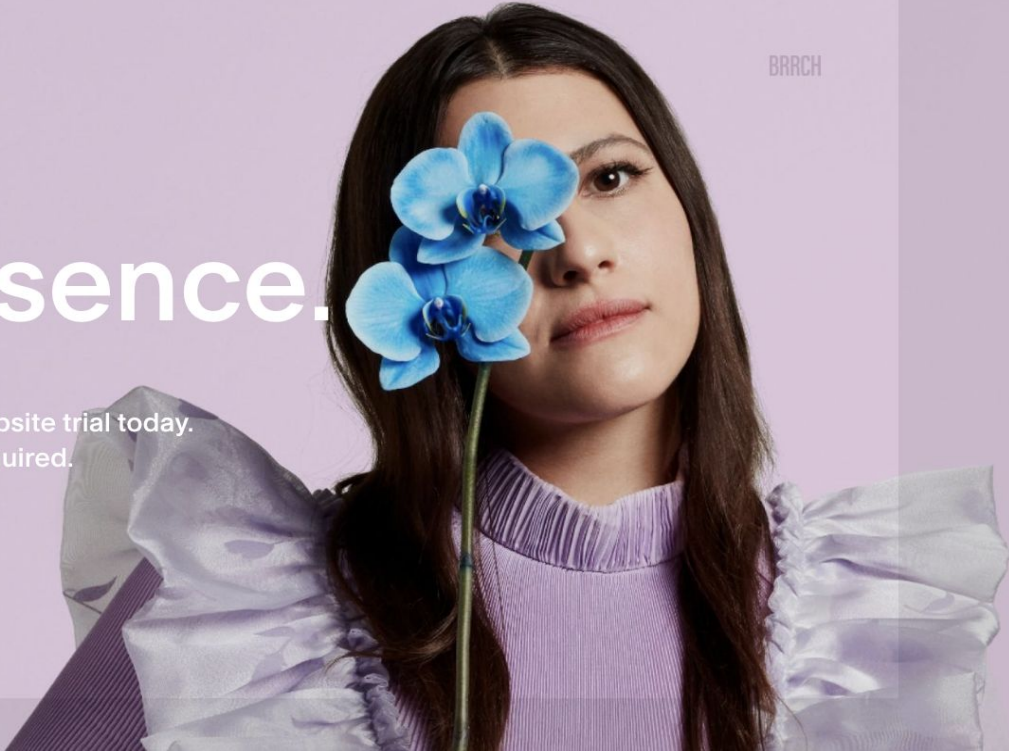


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Frontend

Renderer

UI

Backend

Analytics

List Manager

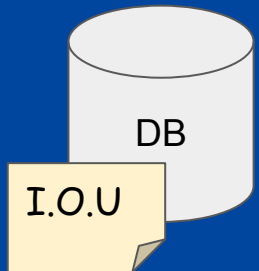
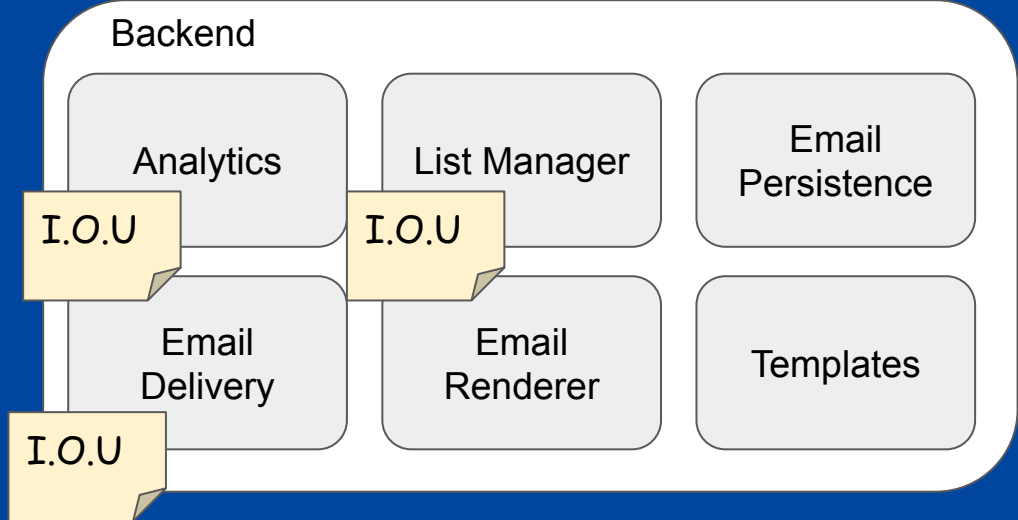
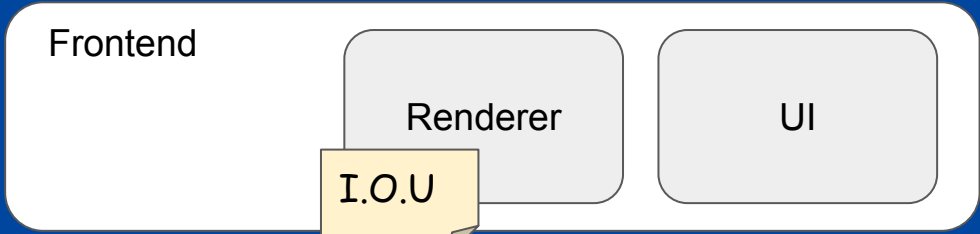
Email
Persistence

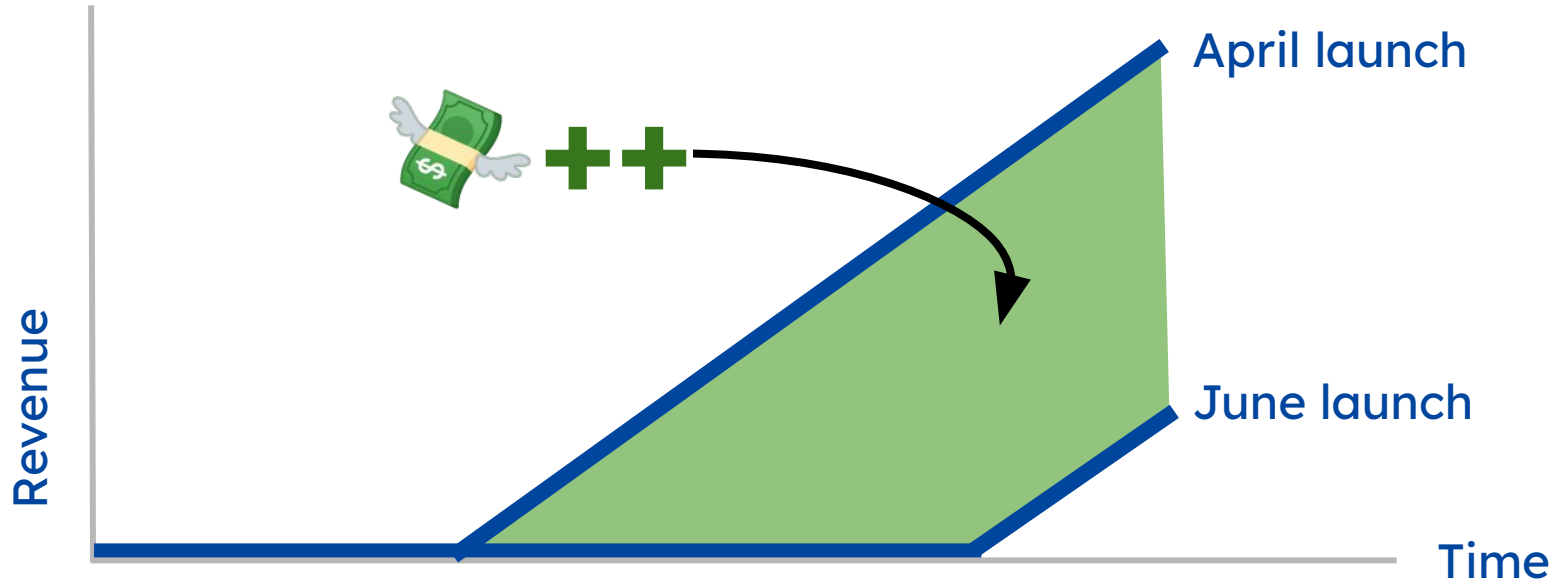
Email
Delivery

Email
Renderer

Templates

DB





EMAIL MARKETING

Email marketing

Squarespace Email Campaigns offer a unique way for you to grow and communicate with your audience while staying true to your brand and design.

GET STARTED

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Tressoire

F/W Collection

SHOP NOW

Email layouts

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

Brand Name

Enjoy 15% Off with code GIFTGUIDE15

Your Logo

Your Logo

Without you, there is no Site Title.

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



VS



Good tech debt: Under-abstracting by hardcoding



Squarespace Campaigns

https://newsletters-prod.squarespace.com/config/marketing/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.

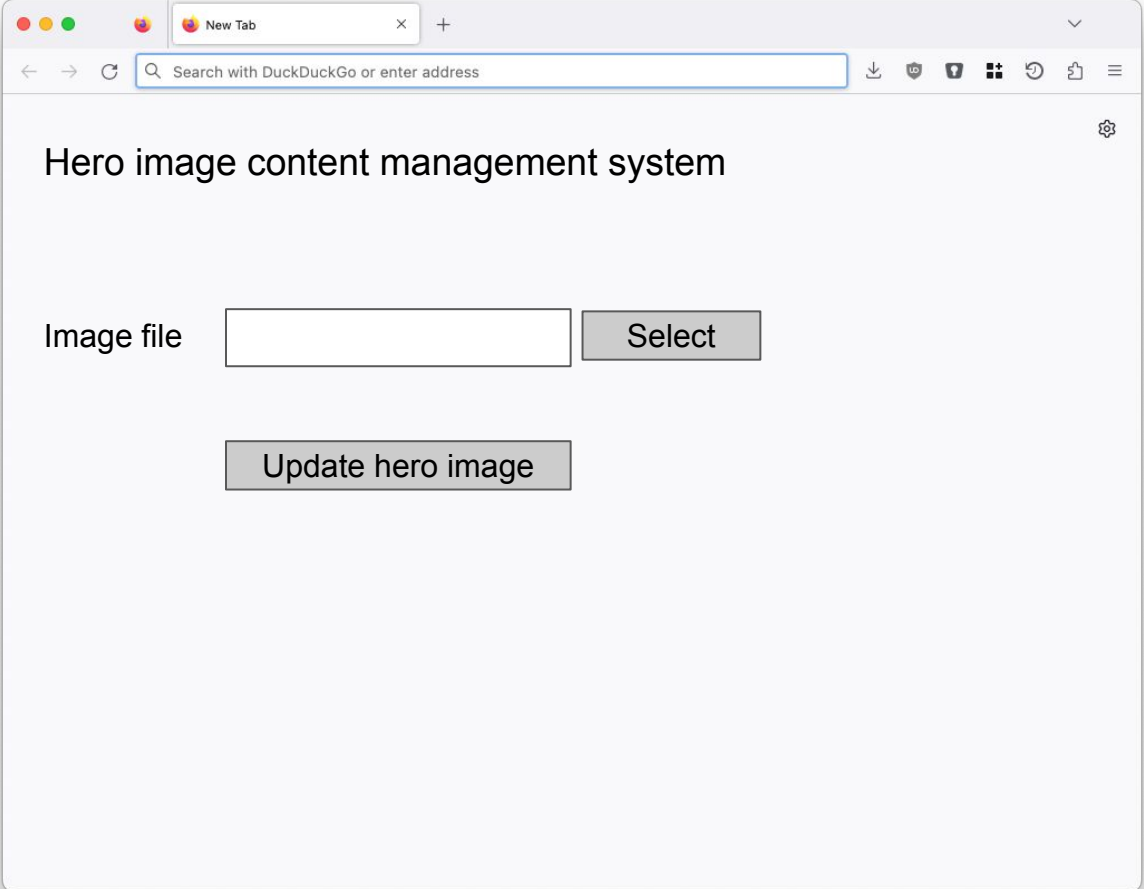
[SELECT A PLAN →](#)

Last Campaign Performance

1	1	
100%	100%	0
Delivered	Opened	Clicked

Squarespace Internal Site
Email Campaigns is comped for this site.

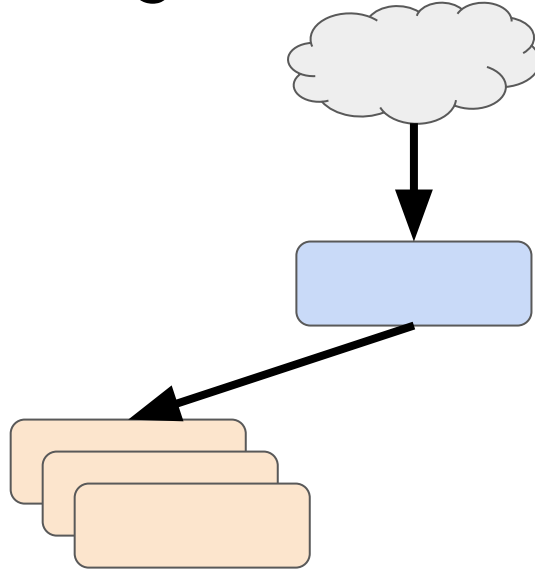
Simple Content Management System (CMS) mockup



Figurative CMS system diagram

Content management system requirements

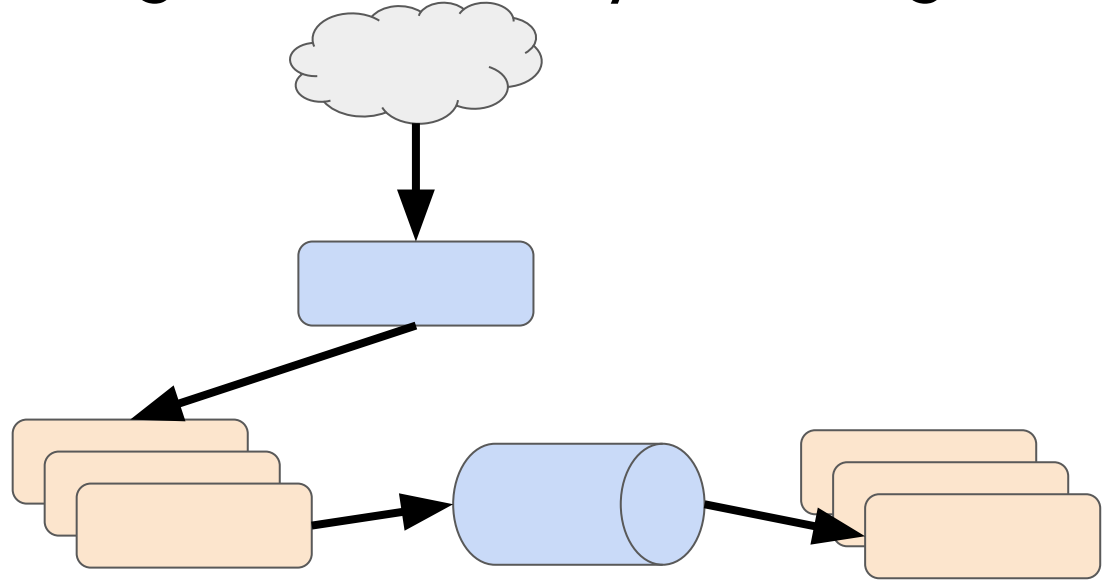
- Backend REST APIs
- Frontend (React?)



Figurative CMS system diagram

Content management system requirements

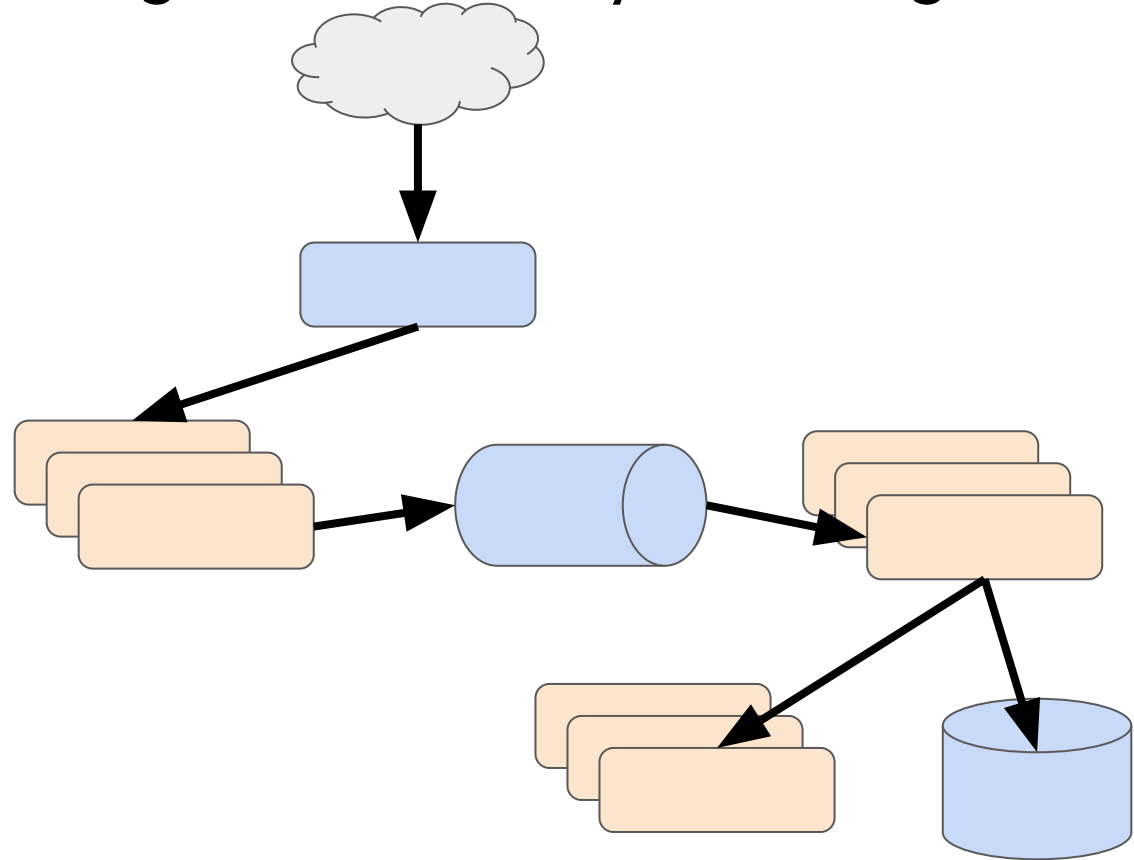
- Backend REST APIs
- Frontend (React?)
- File upload validation
- Image storage
- Authentication
- Permissions



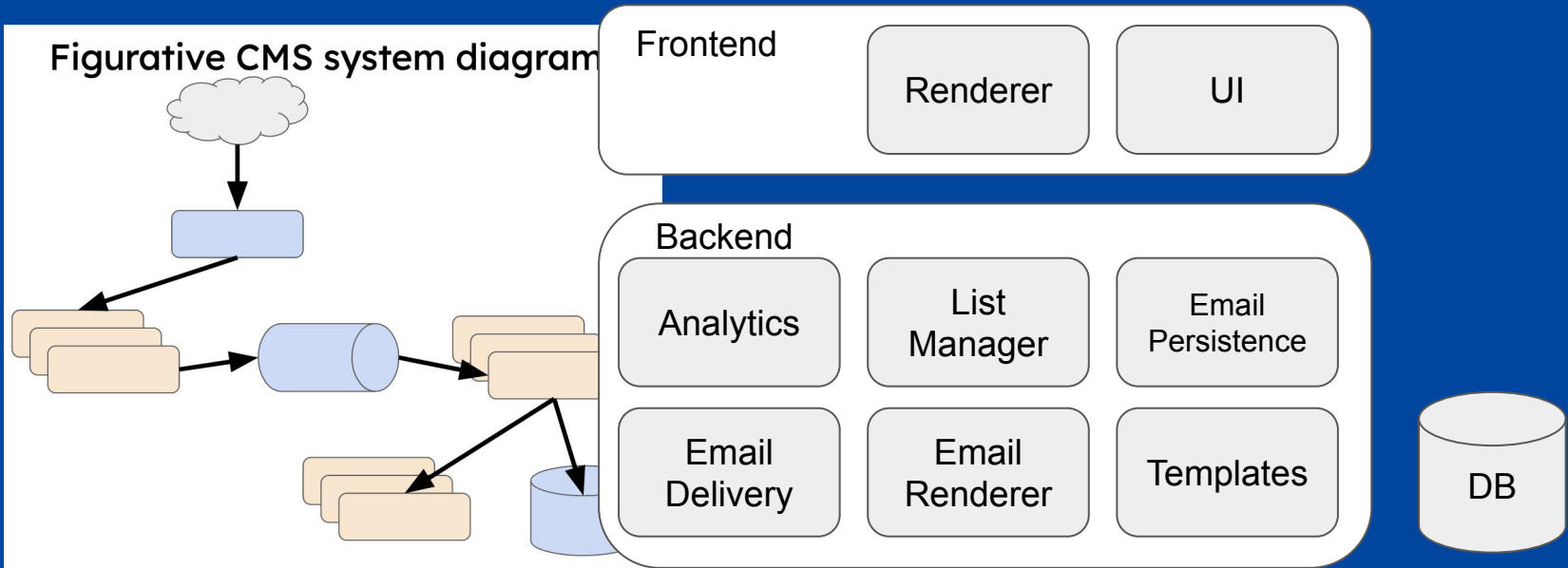
Figurative CMS system diagram

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



Squarespace Campaigns

https://newsletters-prod.squarespace.com/config/marketing/campaigns

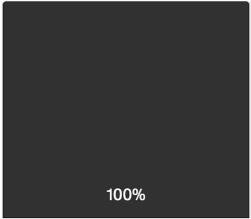


Marketing

- Email Campaigns **Create**
- Drafts
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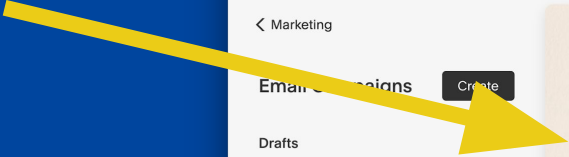
[SELECT A PLAN →](#)

Last Campaign Performance

1	1	
		
100%	100%	0
Delivered	Opened	Clicked

Squarespace Internal Site

Email Campaigns is comped for this site.





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

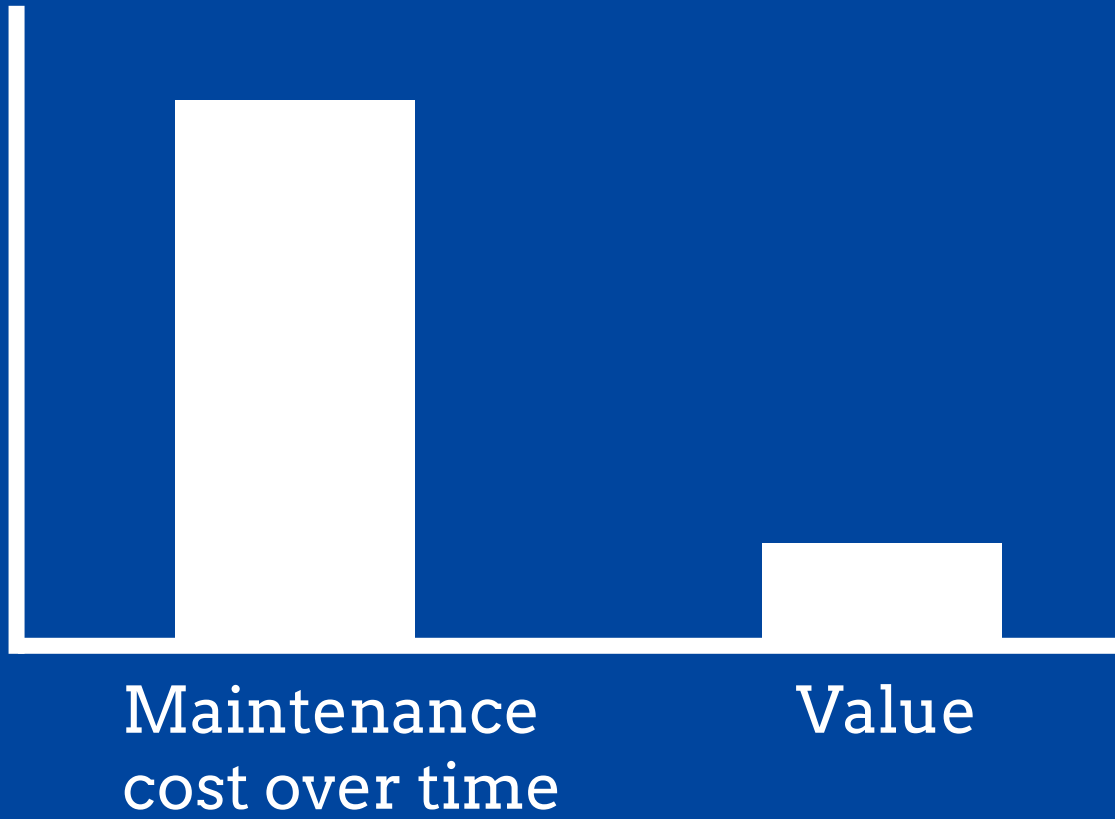


113

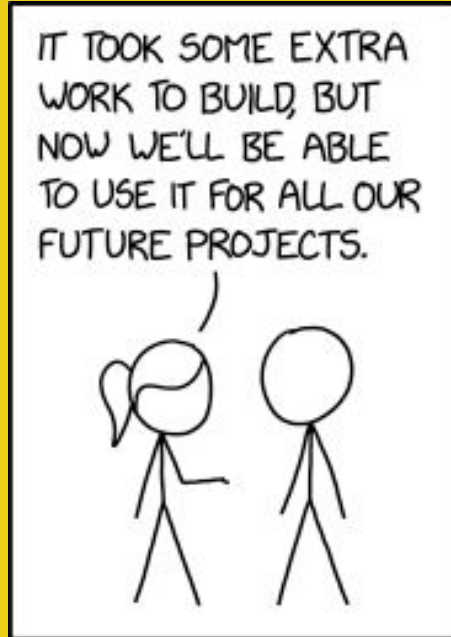


Copy link

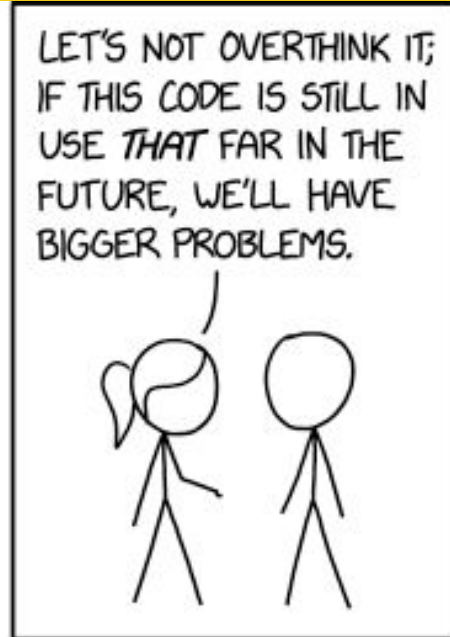
[Read 8 replies](#)



You aren't gonna need it (YAGNI)



HOW TO ENSURE YOUR CODE IS NEVER REUSED



HOW TO ENSURE YOUR CODE LIVES FOREVER

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

Under-abstracting by hardcoding



Under-abstracting by hardcoding

Does it help us YAGNI?



Under-abstracting by hardcoding

Does it help us YAGNI?

Is Git an acceptable UI?



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.”

— Jez Humble

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

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

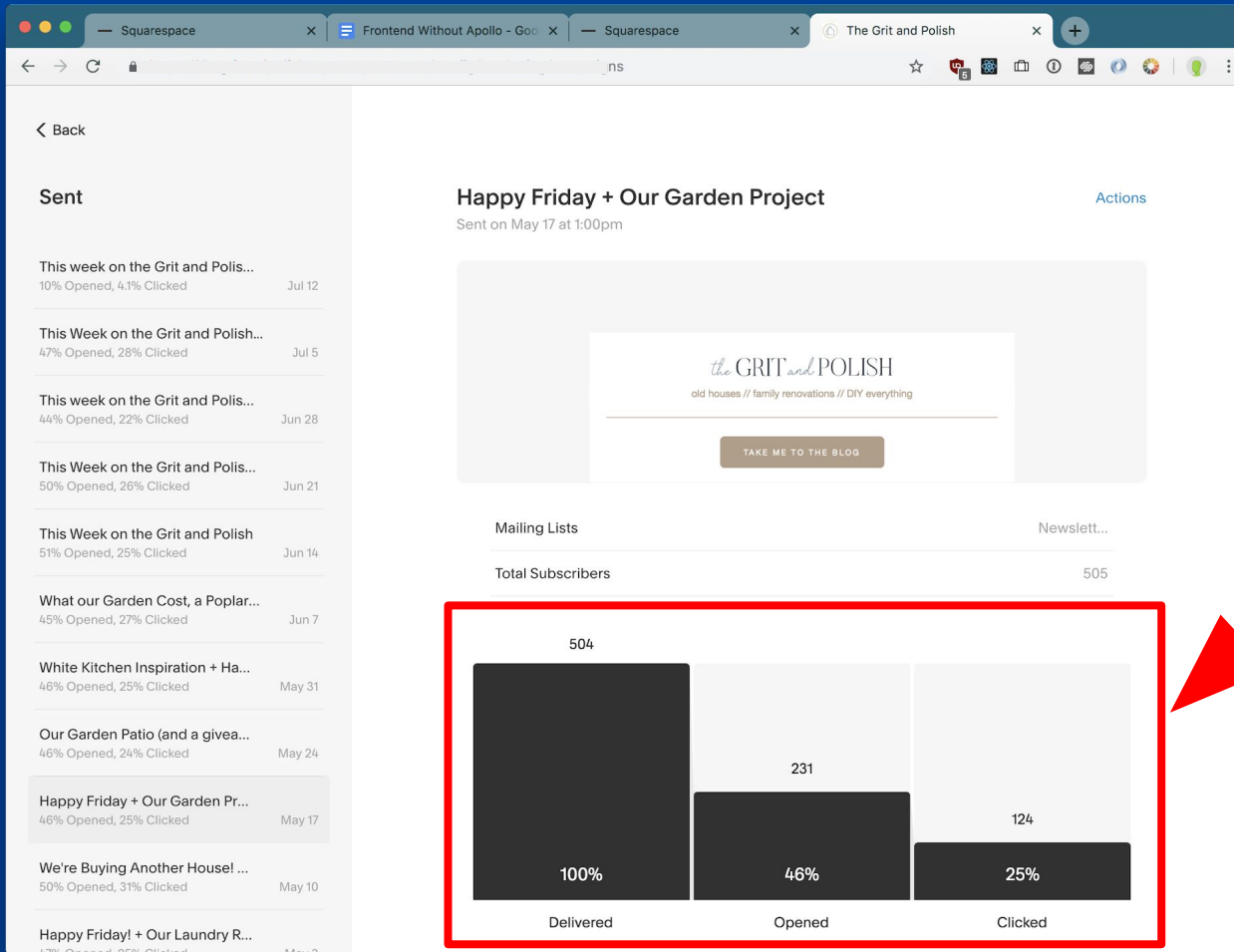
- Write tests
- Document things
- Keep the build fast
- Finish migrations
- Have good alerting

— Jez Humble

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

Good tech debt: Under-scaling





CAMP-4761

As a user, maybe this
will work?



13

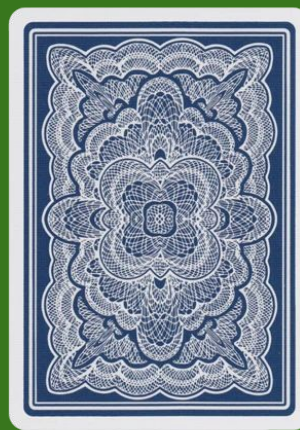
“A great decision is the result of a good process, and that process must include an attempt to accurately represent our own state of knowledge. That state of knowledge, in turn, is some variation of ‘I’m not sure’.”

— Annie Duke
Thinking In Bets
2018

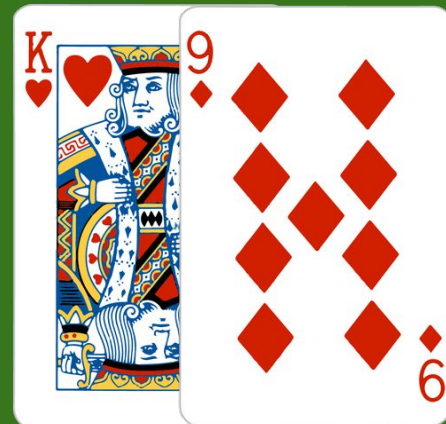




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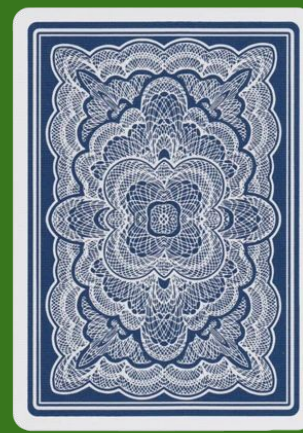


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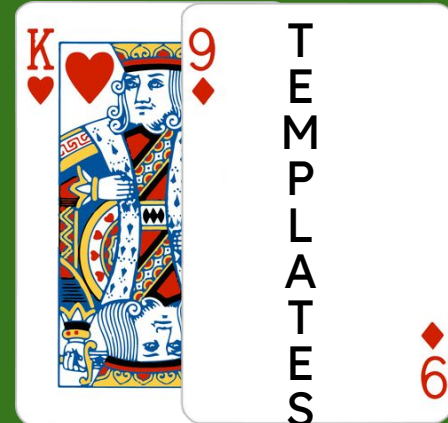




36%



64%



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


Good tech debt: Under-scaling

Test the limits



Good tech debt: Under-scaling

Test the limits

A+ observability



Good tech debt: Under-scaling

Test the limits

A+ observability

Understand the
path to scaling



Sometimes you
get lucky



Frontend

Renderer

UI

Backend

Analytics

List Manager

Email
Persistence

Email
Delivery

Email
Renderer

Templates

DB

Project Timeline

Frontend editor

Templates

Persistence

Backend rendering

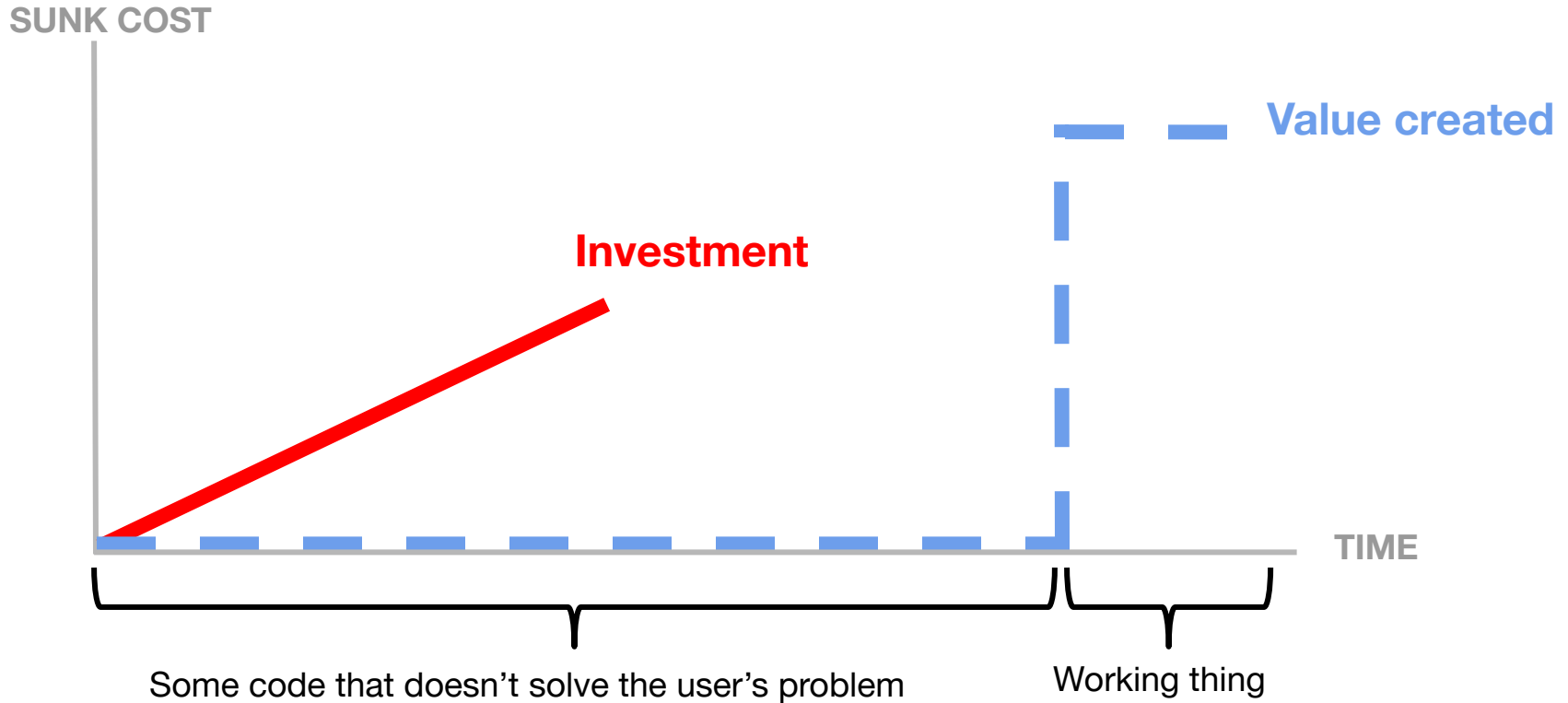
Mailing lists

Email sender

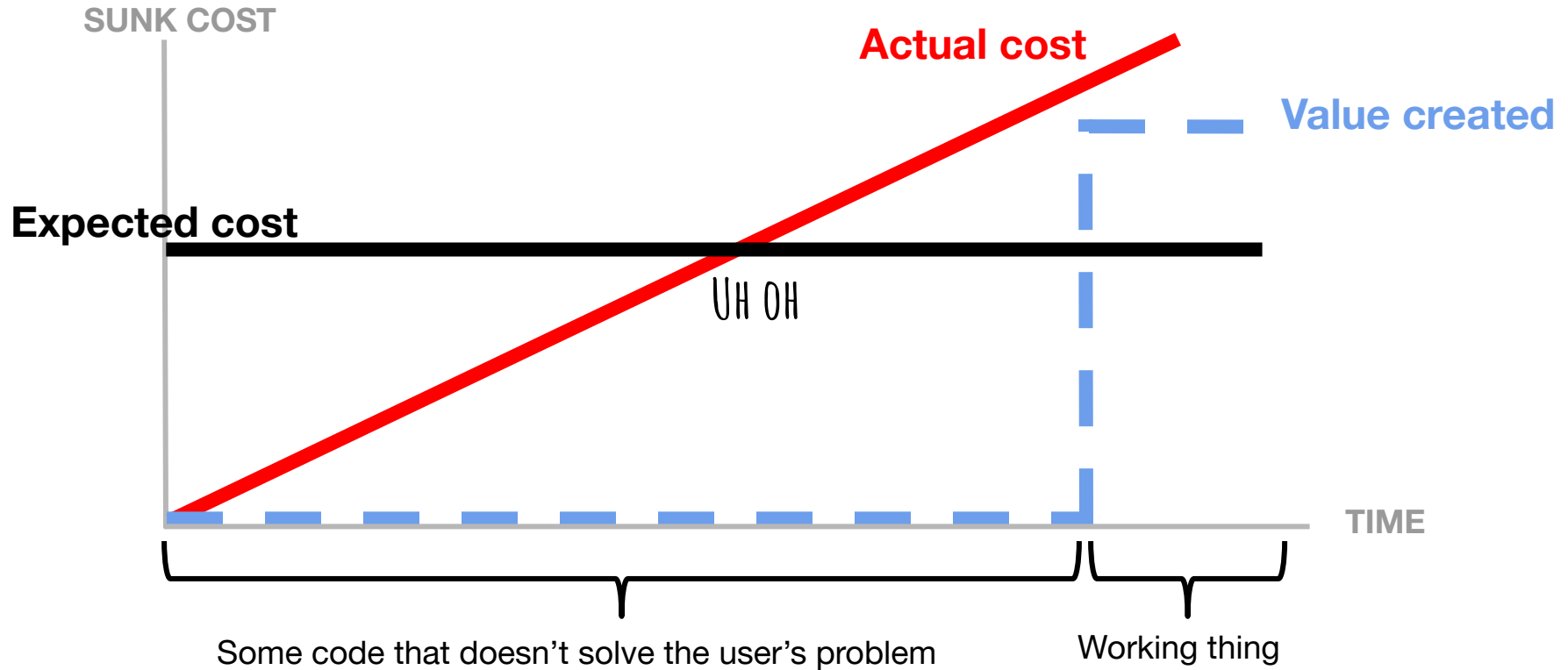
Analytics

Time

The waterfall trap



The waterfall trap



Frontend

Renderer

UI

Backend

Analytics

List Manager

Email
Persistence

Email
Delivery

Email
Renderer

Templates

DB



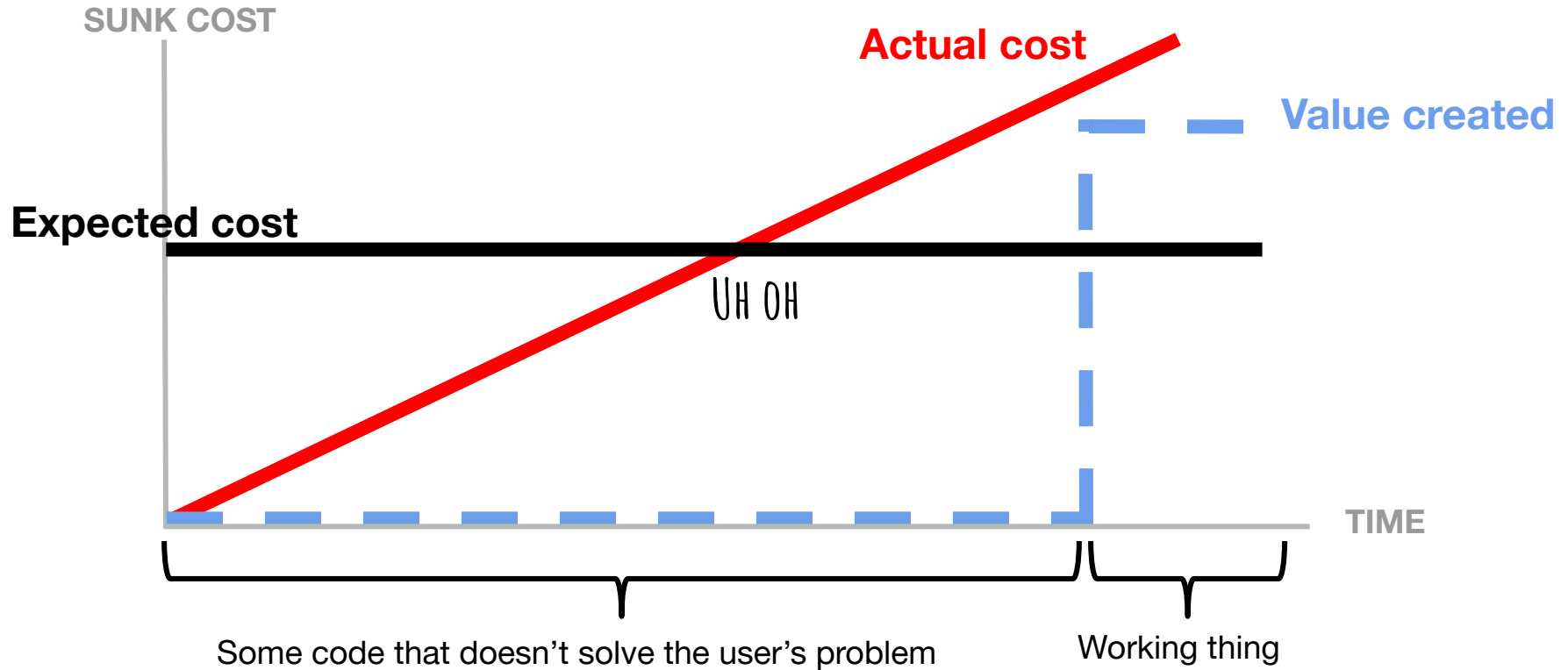


Tackle the Monkey First

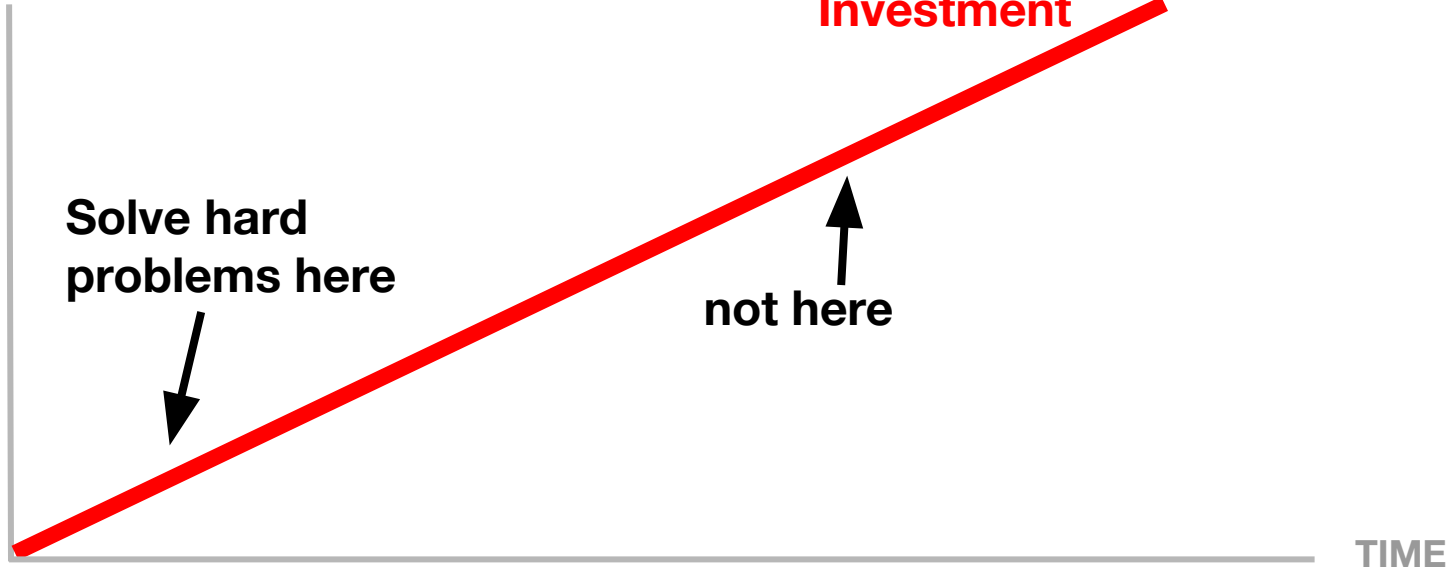
Astro Teller

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

The waterfall trap

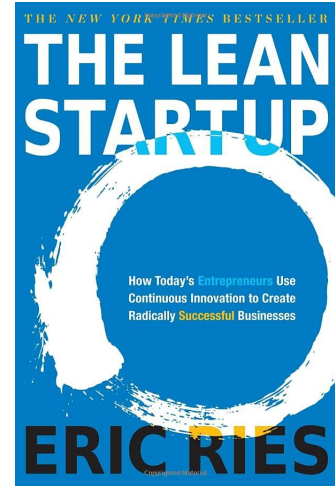
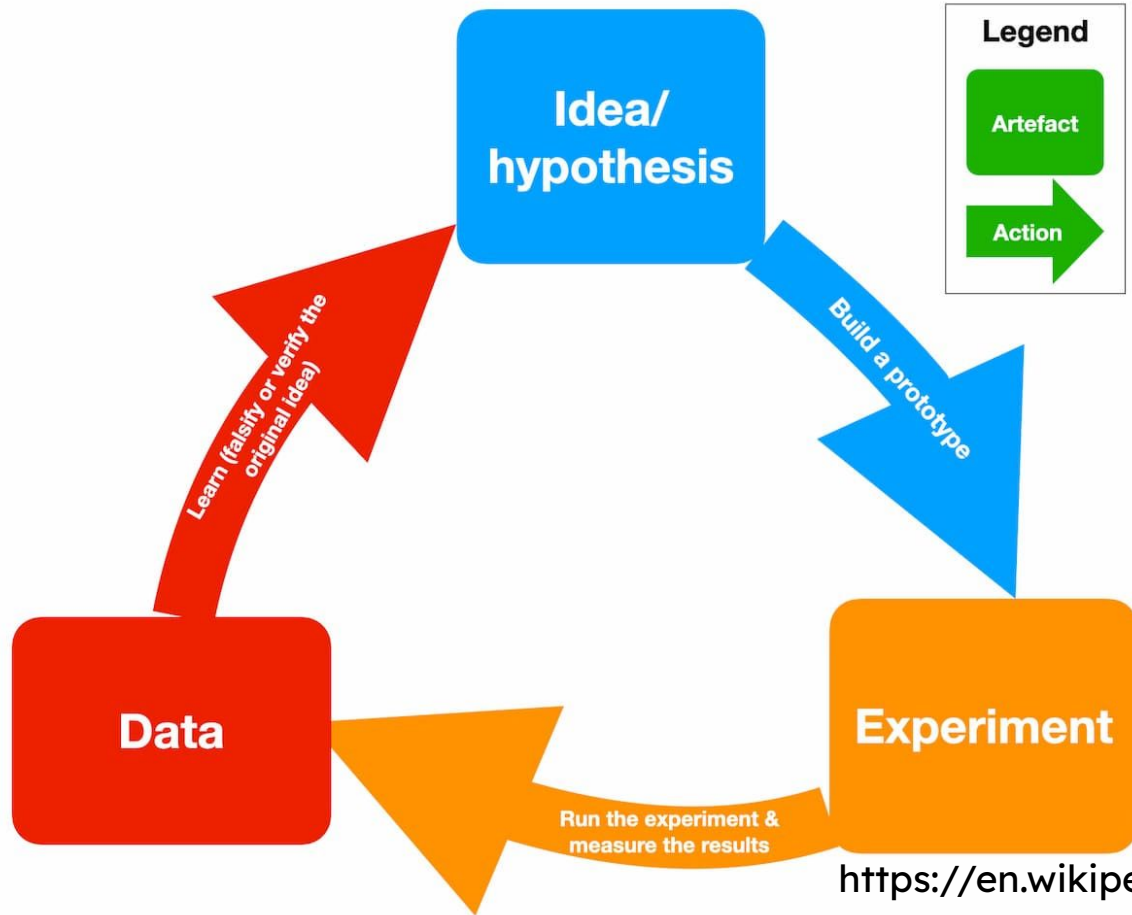


SUNK COST





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

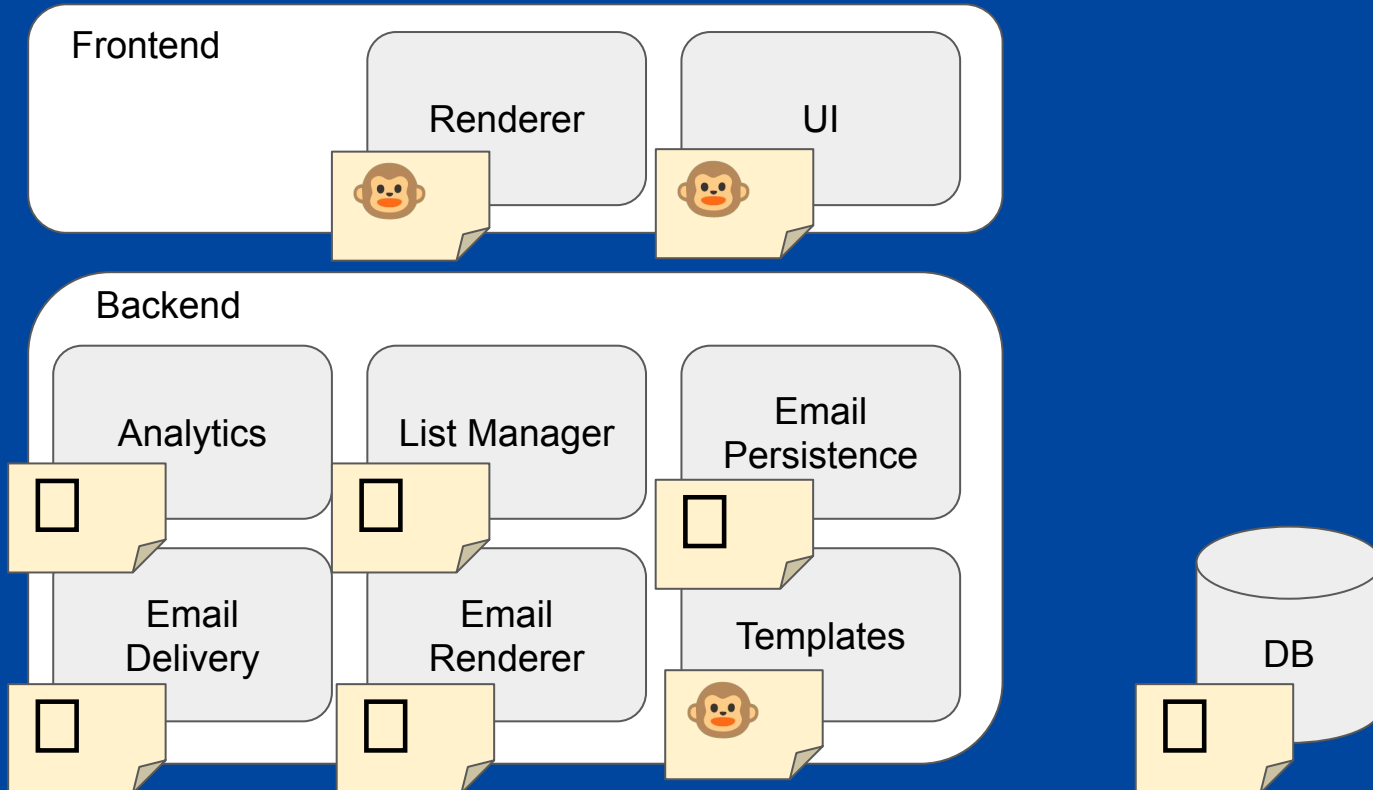


37% of adults actually visited the dentist within the last year.





Identify the monkeys and pedestals



Squarespace Campaigns x +

https://newsletters-prod.squarespace.com/config/marketing/campaigns/composer/5d2bd...

Dashboard

Style Email

The Neffs

Just wanted to

SAY

+

THA

NKS

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



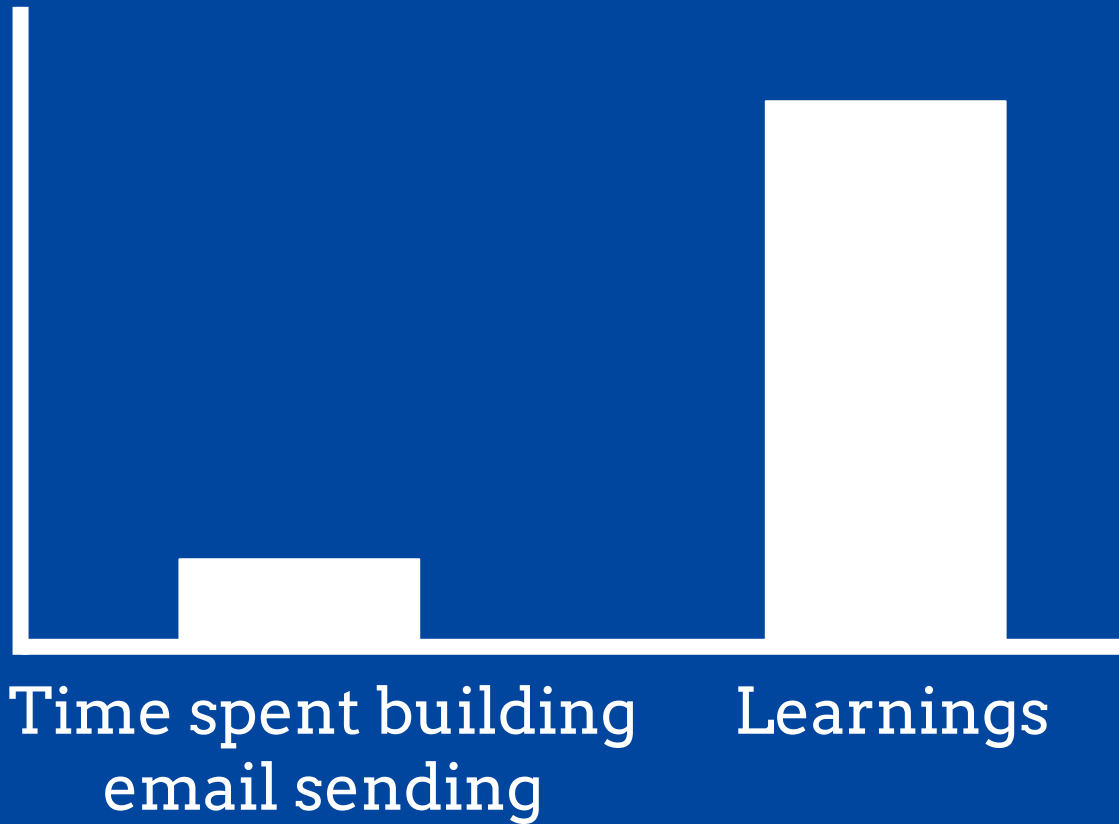
Project Timeline





Good tech debt: Throwaway code

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





Throwaway code



Throwaway code

Commit to an estimate



Throwaway code

Commit to an estimate

Design to throw away



Throwaway code

Commit to an estimate

Design to throw away

Understand limitations



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

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>

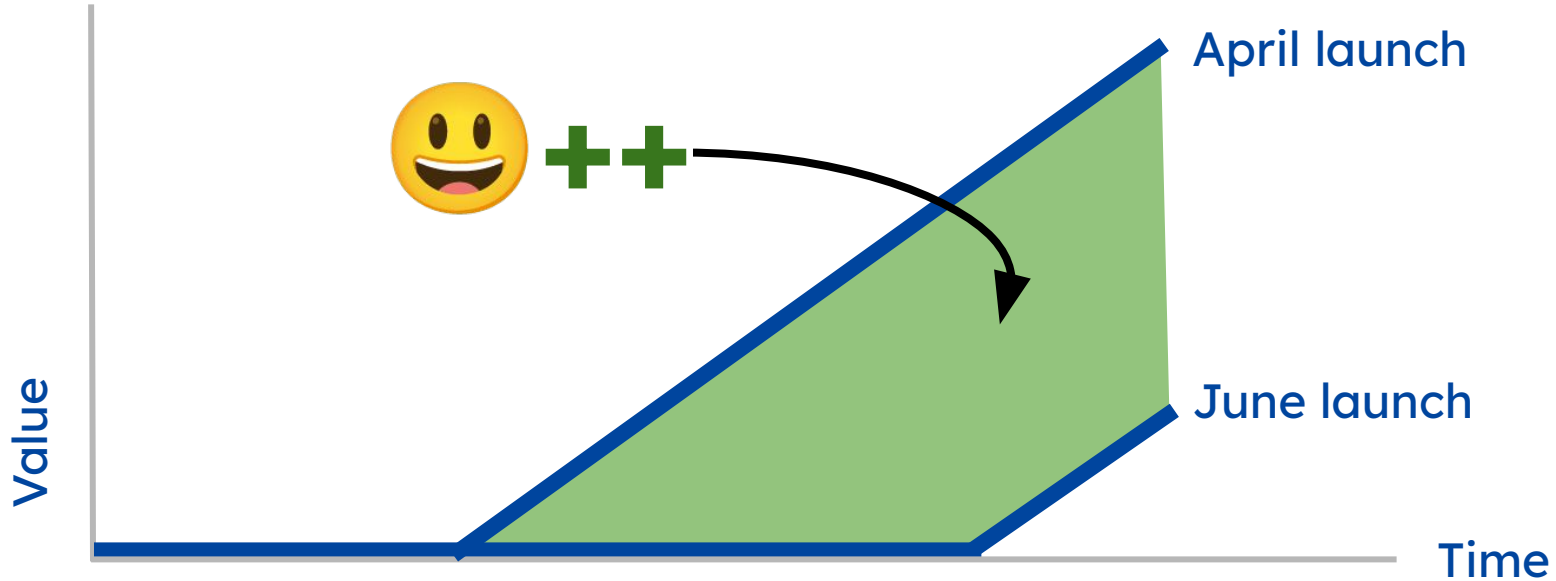
<https://continuousdelivery.com/>

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

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

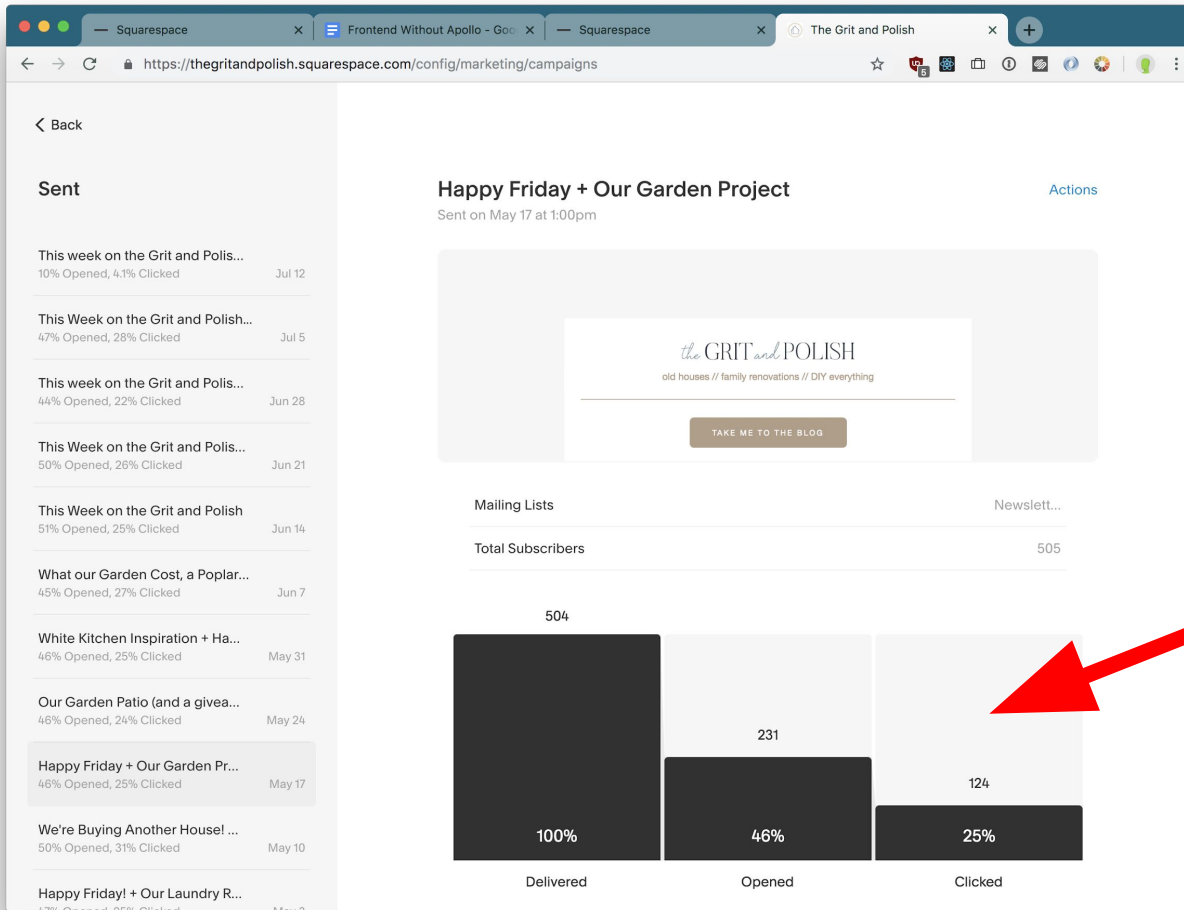
<https://theleanstartup.com>

Shipping sooner pays off forever

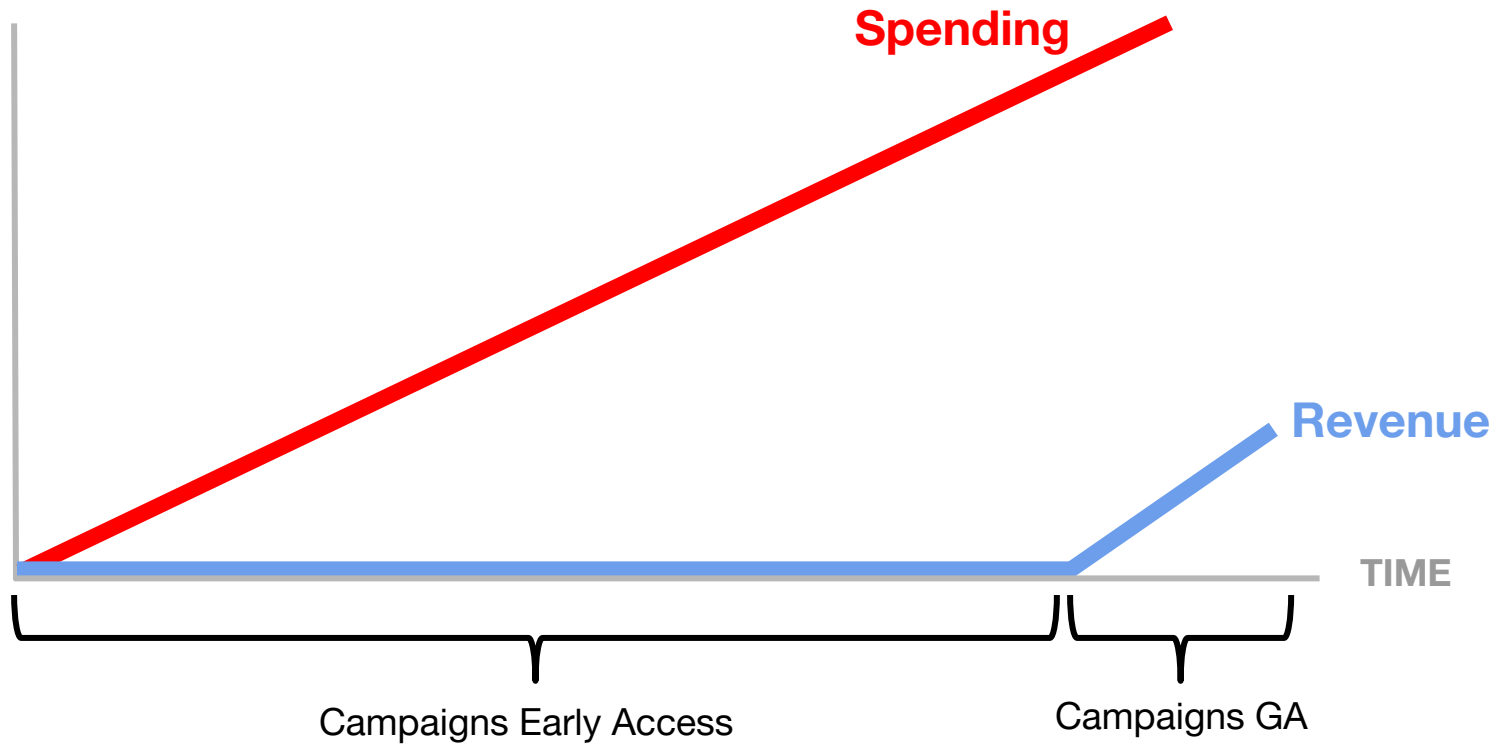




Thanks!
<https://jonthornton.com>



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



LOAN APPLICATION

Personal Information

Name (Last)	PUBLIC	(First)	JOHN	(Middle Initial)	1111 - 1111	Home Telephone	1111 - 1111		
Address (Mailing Address)	12345 MAIN STREET	(City)	ANYWHERE	(State)	22	(Zip)	999999	Other Telephone	22 22 2222
E-Mail Address	JQPJQPJQP@JQPJQP	APPLICANT IS UNDER REVIEW							
Services needed	UNDER REVIEW	SUBJECT	REVIEW						

APPROVED

Current Income

High School Graduate Or General Education (GED) Test Passed?	Yes	No
highest grade completed		
Military (Most recent first)		
Quarterly or	Credits Earned	Graduate
	Other (Specify)	Major or Subject



Value now > value later

Invest according to the odds

Write tests

Thanks!
@jthornton



Squarespace Campaigns

https://newsletters-prod.squarespace.com/config/marketing/campaigns/composer/5d2bd...

Dashboard

Style

Email

The Neffs

Just wanted to

SAY

+

THA

NKS

Text

Padding

COLORS

Text

Background

GLOBAL STYLES

Font Pack Heavy Sans


Font Sizes

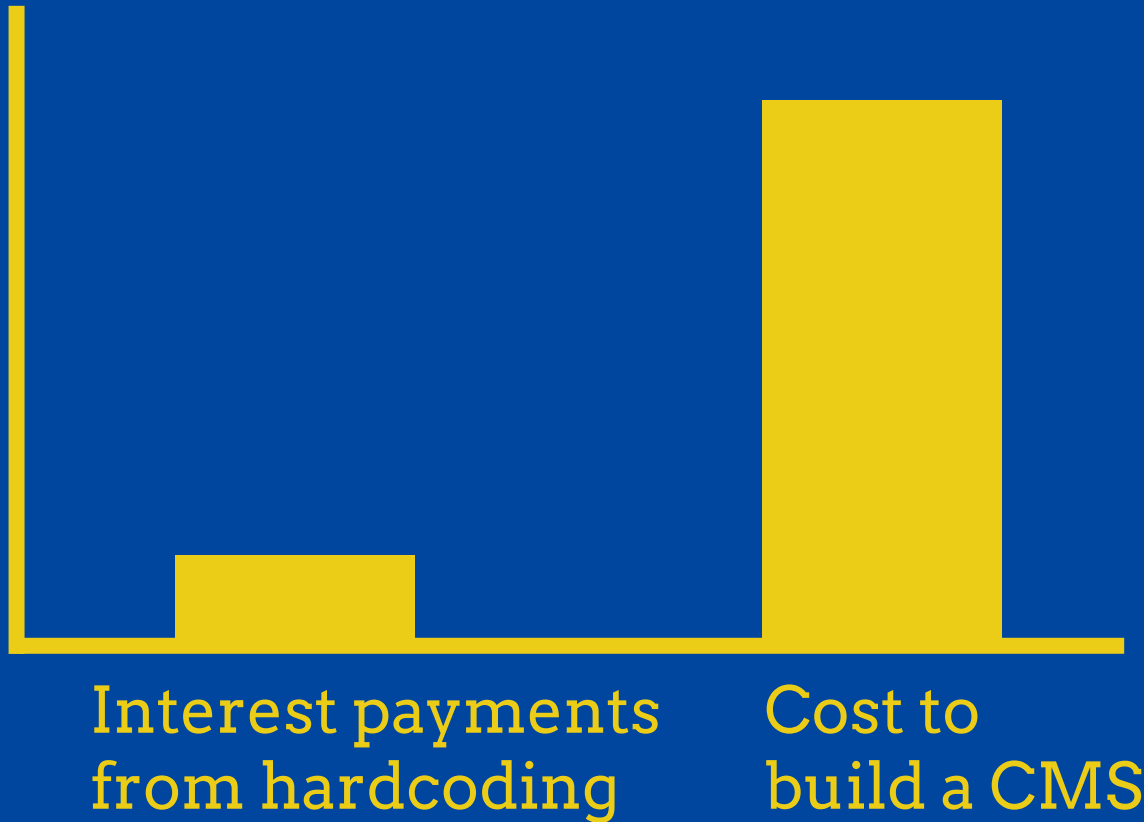
Link Color

Personalize your emails

Type "*" to reveal a list of personalization options.



Silent debt	\$0	\$0	\$0	\$0	\$0	 \$970
Ongoing debt	\$5	\$5	\$5	\$5	\$5	\$5





Silent debt	\$0	\$0	\$0	\$0	\$0	\$0	😱 \$970
Ongoing debt	\$5	\$5	\$5	\$5	\$5	\$5	\$5

