



Andrea Falcone  
Verily Life Sciences

# Iterative Mobile Development



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@ASFalcone



crashlytics



fabric



Firebase



verily

Would your  
customers rather get:  
1 complete feature or  
3 half done features?

Would developers  
rather deliver:  
1 complete feature or  
3 half done features?

# Iterative Mobile Development - Key Points

- Product innovation process
- Team setup for iterative success
- Tools of the trade
- Progress principle
- Iterating your way to customer happiness

Product  
development  
process and  
customer  
focus

Software  
development  
process and  
team focus

Tiny piece of  
the puzzle

Innovation

Team

Tools

Progress

Iteration

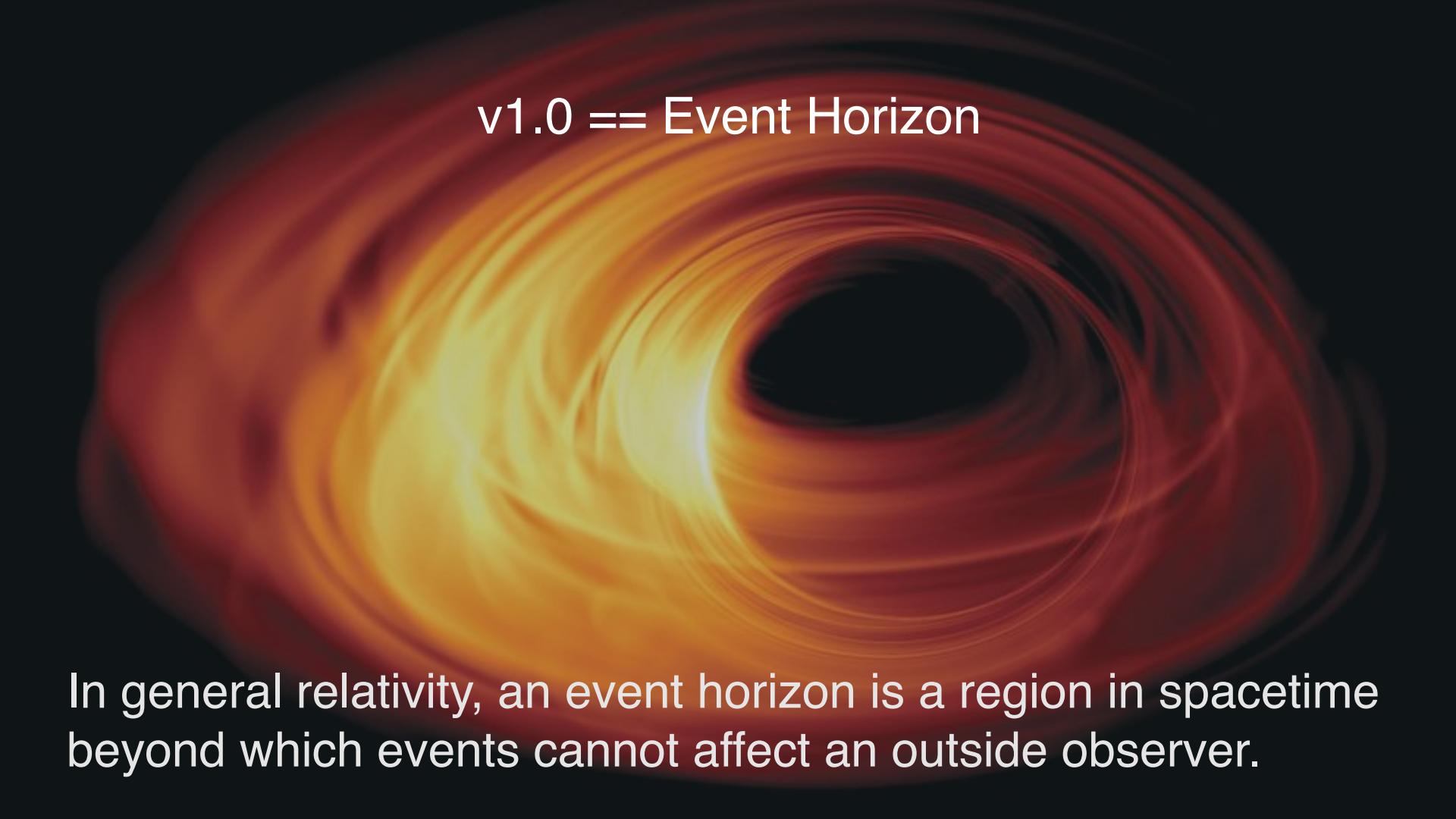
# Product innovation process

v1.0



The team can't even see  
v1.0 from where they are.

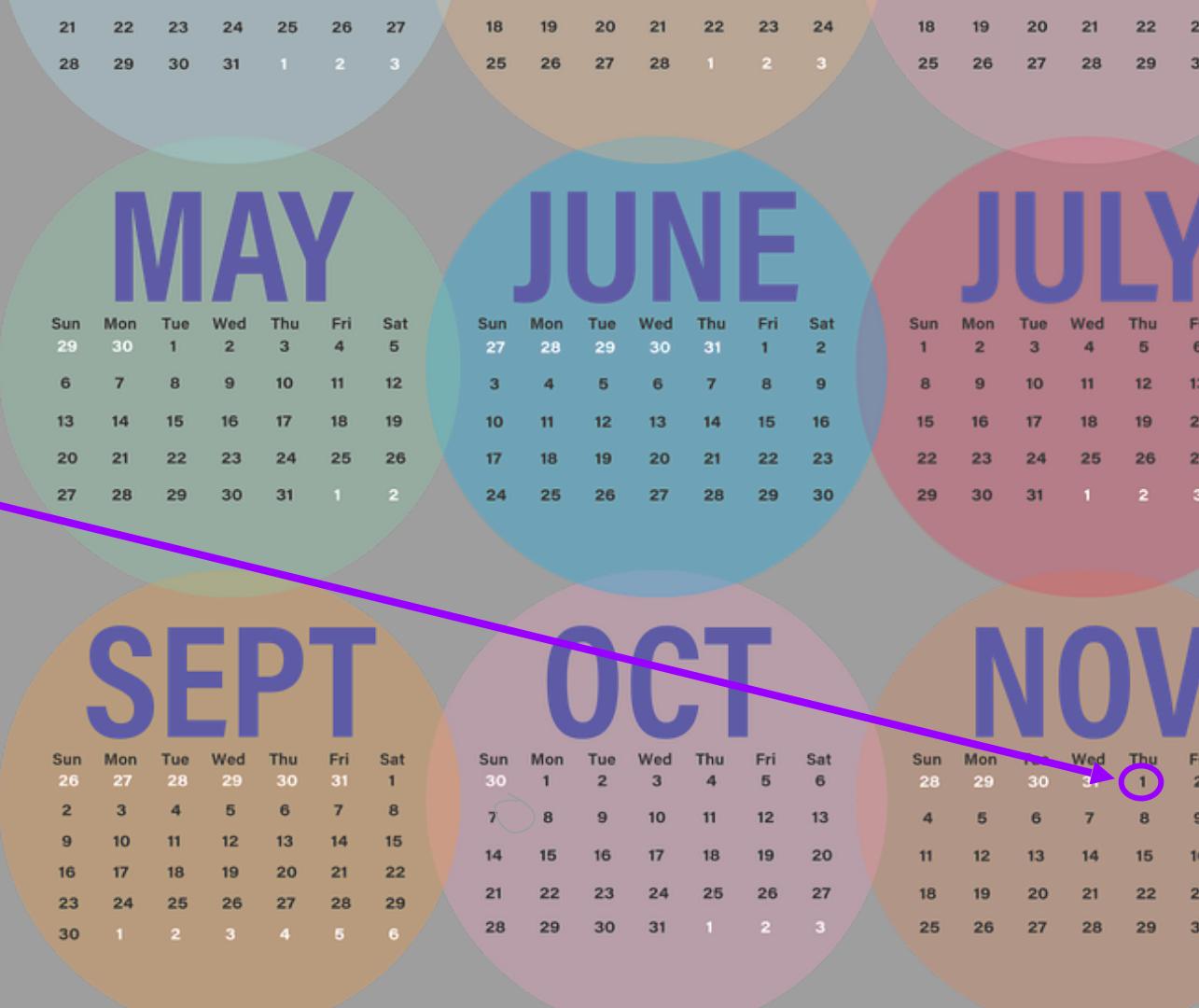


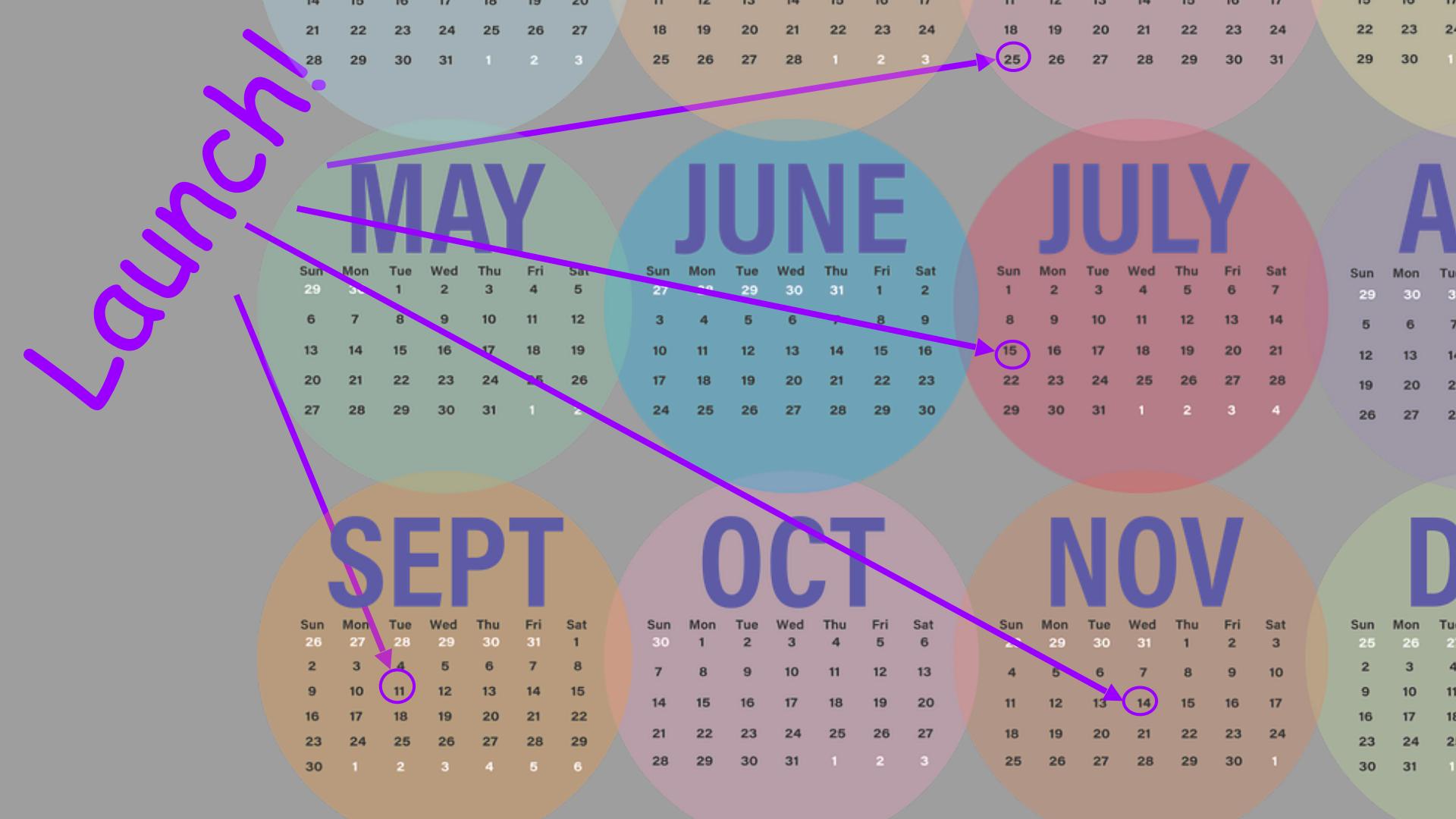
A black hole with concentric event horizons.

v1.0 == Event Horizon

In general relativity, an event horizon is a region in spacetime beyond which events cannot affect an outside observer.

**Launch!**





Shipping  
hardware  
is  
different



# Team setup for iterative success

# Key Points

- Investigate Kanban and Lean process
- Allow team to focus on getting fewer things done well
- Work as a team to deliver some value to customers instead of none

# Kanban

1. Visualize the work
2. Limit work in progress
3. Manage flow
4. Make policies explicit
5. Use feedback loops
6. Evolve through experimentation

# Lean

1. Eliminate waste
2. Amplify learning
3. Decide as late as possible
4. Deliver as fast as possible
5. Empower the team
6. Build integrity in
7. See the whole

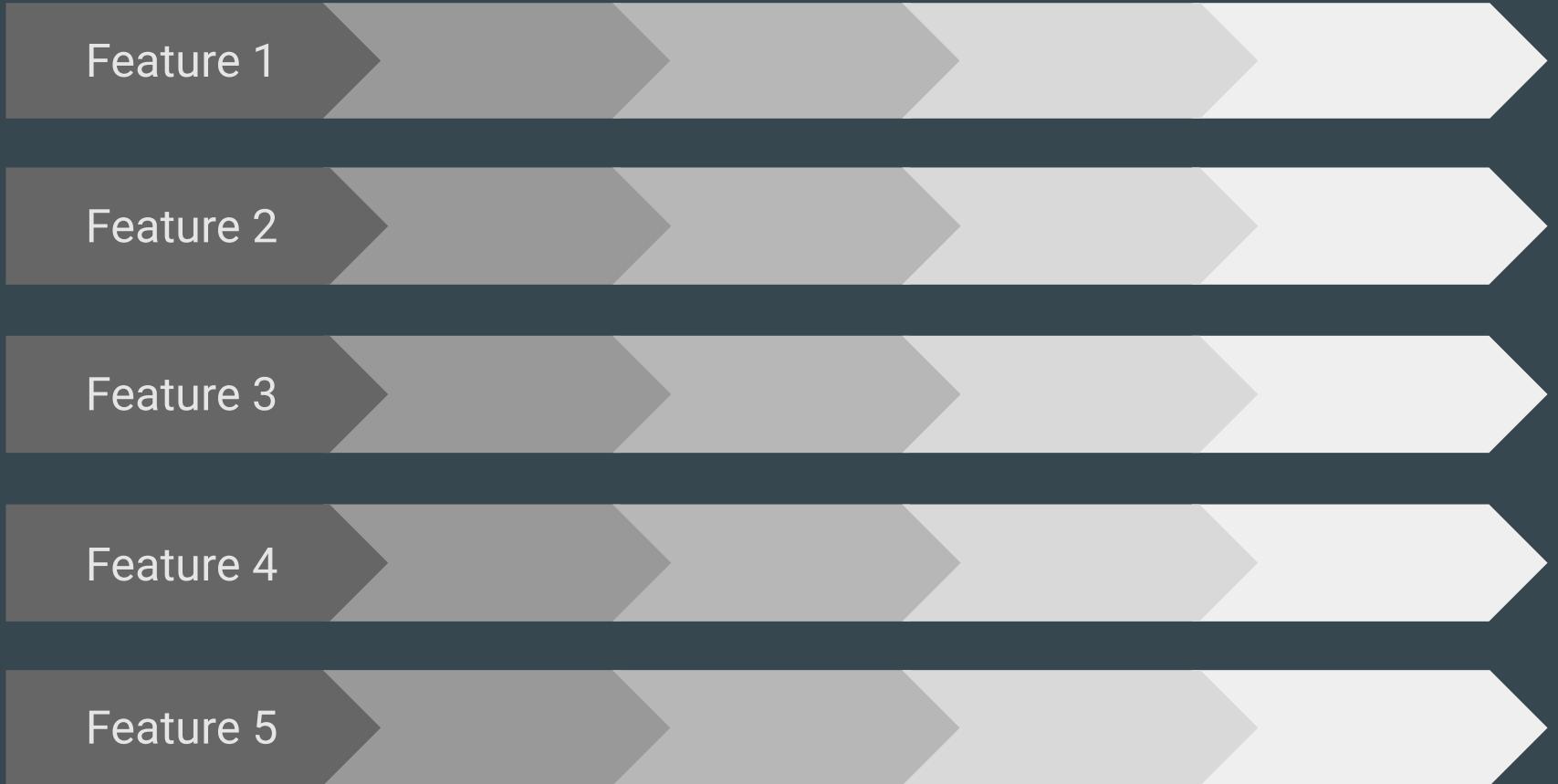
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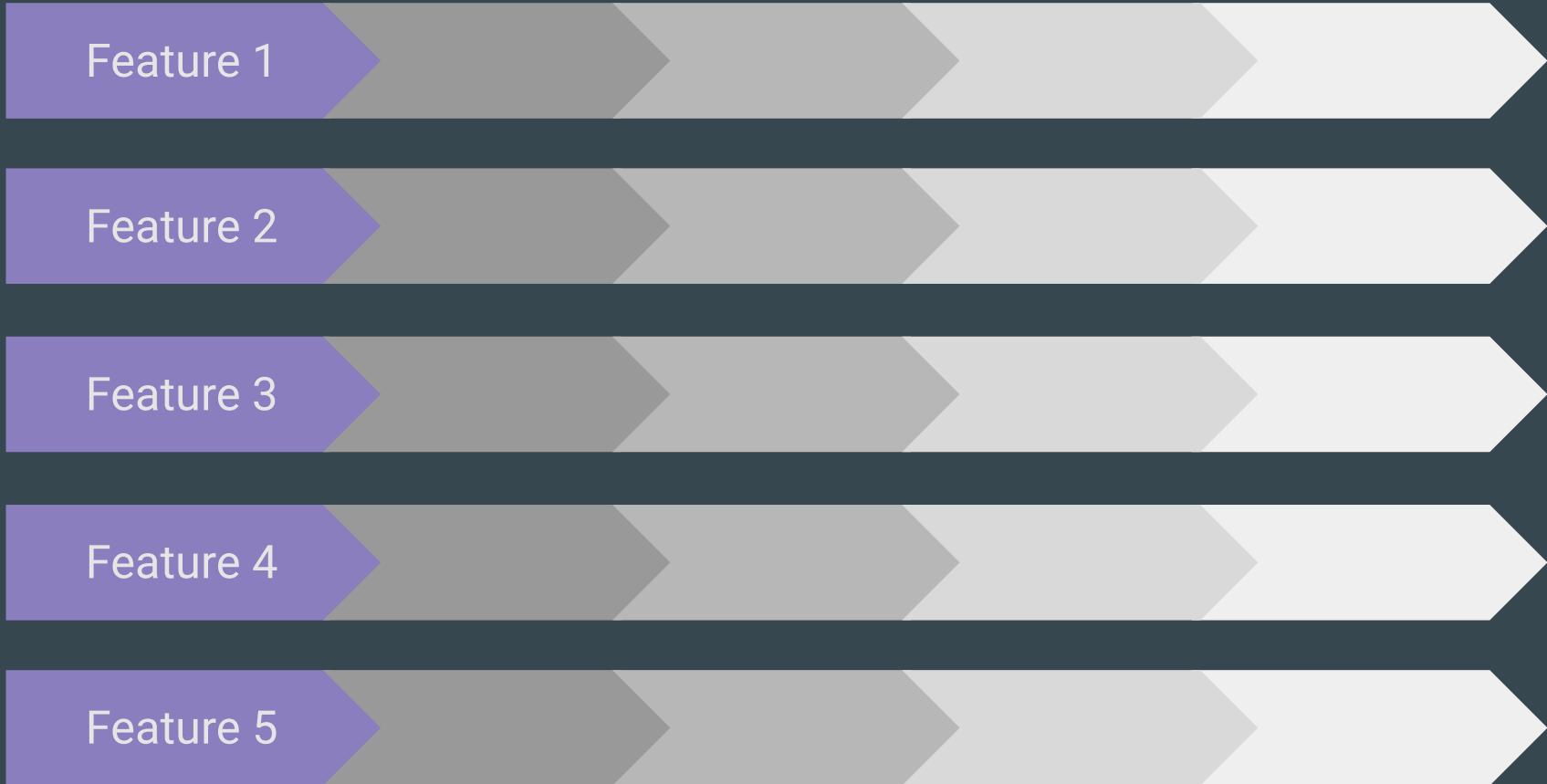
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# PRODUCT DEVELOPMENT TEAM



# YOUR USERS

# PRODUCT DEVELOPMENT TEAM



# YOUR USERS



Feature 1

Writing  
your own  
code



Reviewing  
someone  
else's  
code

## Controversial Opinion:

Code reviews should interrupt coding because they are closer to delivering value to customers.



4GIFS.com

# Tools of the Trade

# Key Points

## Eliminate Waste

- Use *fastlane* to reduce the burden of shipping

## Use feedback loops

- Percentage rollouts
- Alpha and Beta channels
- Remote config

## Build Integrity In

- Actually run the tests
- Firebase Testlab

## Evolve through experimentation

- Monitor crash reporting and analytics

# Andrea is in Oslo this week...

So we will have to **wait until**  
**next week** to do the release





**SHIP  
IT!**

# fastlane

fastlane is an open source platform aimed at simplifying Android and iOS deployment.

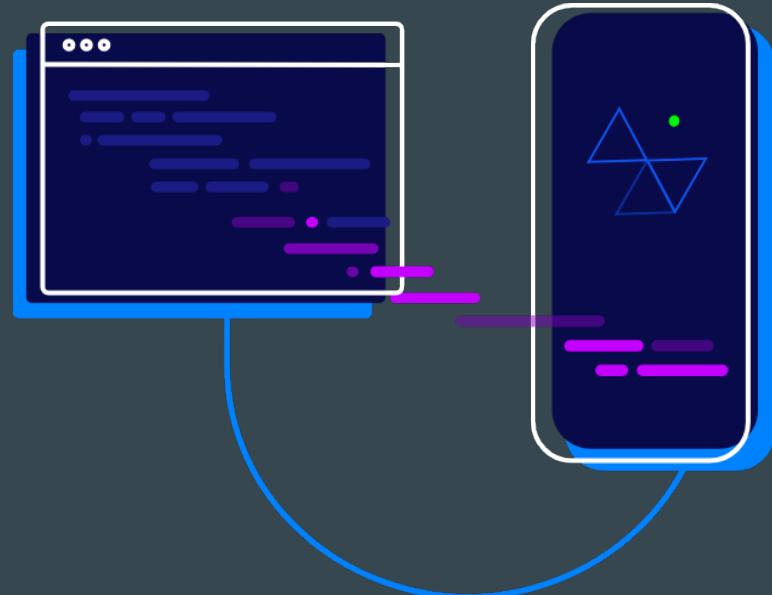
fastlane lets you automate every aspect of your development and release workflow.



# fastlane

Generate localized app store  
screenshots in minutes.

Publish your app to prod or beta  
with the push of a button



```
lane :beta do
  increment_build_number
  build_app
  upload_to_testflight
end
```

```
lane :appstore do
  capture_screenshots
  build_app
  upload_to_app_store
  slack
end
```

```
lane :beta do
  increment_build_number
  gradle(task: 'assemble')
  Upload_to_play_store
    (track: 'beta')
end
```

```
lane :playstore do
  capture_screenshots
  gradle(task: 'assemble')
  upload_to_play_store
  slack
end
```

# Test

Test on your laptop

Test on CI

Test on your users

For the love of god, test

Actually run the tests...

git/hooks/pre-commit

```
// Only run the tests if there are committed iOS changes
diff=`git diff --name-only --staged | grep "appname/ios"`
if [ -z "$diff" ]; then
    exit 0
fi

set -euo pipefail

xcodebuild_cmd="xcodebuild test -workspace
iOS/app.xcworkspace -scheme AppName -destination
'platform=iOS Simulator,name=iPhone 7'"

eval "$xcodebuild_cmd" | xcpretty -t; exit ${PIPESTATUS[0]}
```

# Firebase Test Lab

**Test Android and iOS apps:** runs Espresso and UI Automator 2.0 tests on Android apps, and XCTest tests on iOS apps

**Run on real devices:** find issues that only occur on specific devices, OS versions, and configurations

**Workflow integration:** integrated with the Firebase console, Android Studio, and the command line tools and CI systems



 XCTest, 8/27/18, 4:30 PM ⓘ

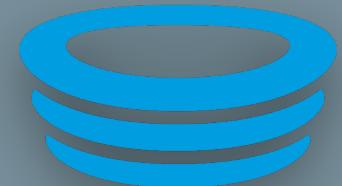
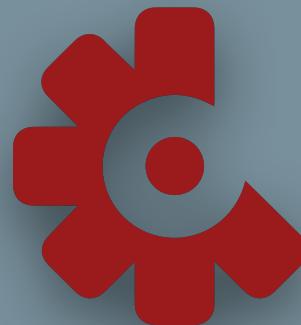
Failed	Passed	Skipped	Inconclusive
0	4	0	0

Test execution	Duration	Locale	Orientation	Issues
 iPhone 8, iOS 11.2	4 min 24 sec	English (United States)	Portrait	—
 iPhone 7, iOS 11.2	53 sec	English (United States)	Portrait	—
 iPhone X, iOS 11.2	1 min 40 sec	English (United States)	Portrait	—
 iPhone 7 Plus, iOS 11.2	1 min 30 sec	English (United States)	Portrait	—

Use beta distribution to  
pre-release app features.

Small beta releases give you a  
feedback loop to get valuable  
insights from customers.

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Use **staged rollouts** to release app updates to production.

Staged updates help catch any issues you missed during testing before those issues affect **all** your users.



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## Phased Release for Automatic Updates



**Release rollout percentage**

Use Firebase **Remote Config** to change your app's behavior by tuning server side parameters.

Branch your app code so you can flip the switch to enable certain features without waiting for a release.



# Remote Config



Parameters    Conditions



Search parameters, values and conditions

Add parameter



home\_screen\_text

Text for the home screen

10 percent iOS

This is an awesome app



Default value

This is a great app

shiny\_feature\_on

Turn on the feature

Android Users

true

Default value

false

Add condition



## 10 percent iOS

OS type iOS  
User in random percentile less than or equal to 10%

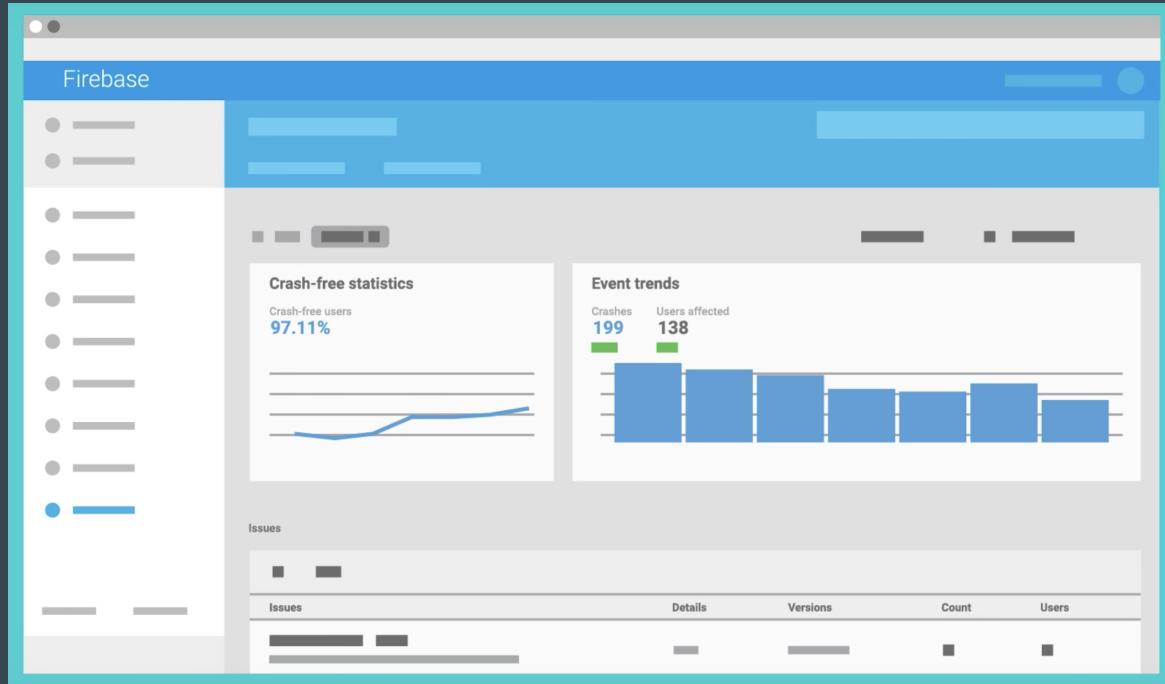
Affects parameter home\_screen\_text

## Android Users

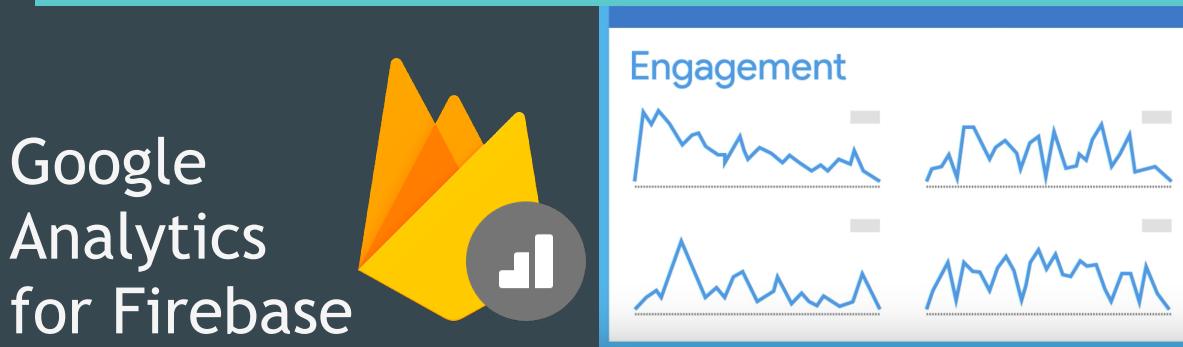
OS type Android

Affects parameter shiny\_feature\_on

The order of conditions determines their evaluation order. Parameter values are determined by the first true condition.



# Firebase Crashlytics



Google  
Analytics  
for Firebase

## Retention

	Week 0	Week 1	Week 2	Week 3	Week 4
1	100%	17%	11%	9%	5%
2	100%	19%	10%	7%	
3	100%	20%	14%		
4	100%	22%			
5	100%				

## Average revenue

ARPU	Monthly \$0.46 -10.2%	Weekly \$0.31 +34.5%	Daily \$0.11 -50.5%
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ARPPU	Monthly \$25.75 -14.3%	Weekly \$24.03 +79.7%	Daily \$25.09 +34.3%
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# Progress principle

# The Power of Small Wins

BASED ON THE #1 BREAKTHROUGH IDEA FROM HARVARD BUSINESS REVIEW

## THE PROGRESS PRINCIPLE

USING SMALL WINS TO  
IGNITE JOY, ENGAGEMENT, AND  
CREATIVITY AT WORK



TERESA AMABILE  
STEVEN KRAMER

HARVARD BUSINESS REVIEW PRESS



Yeah, science!

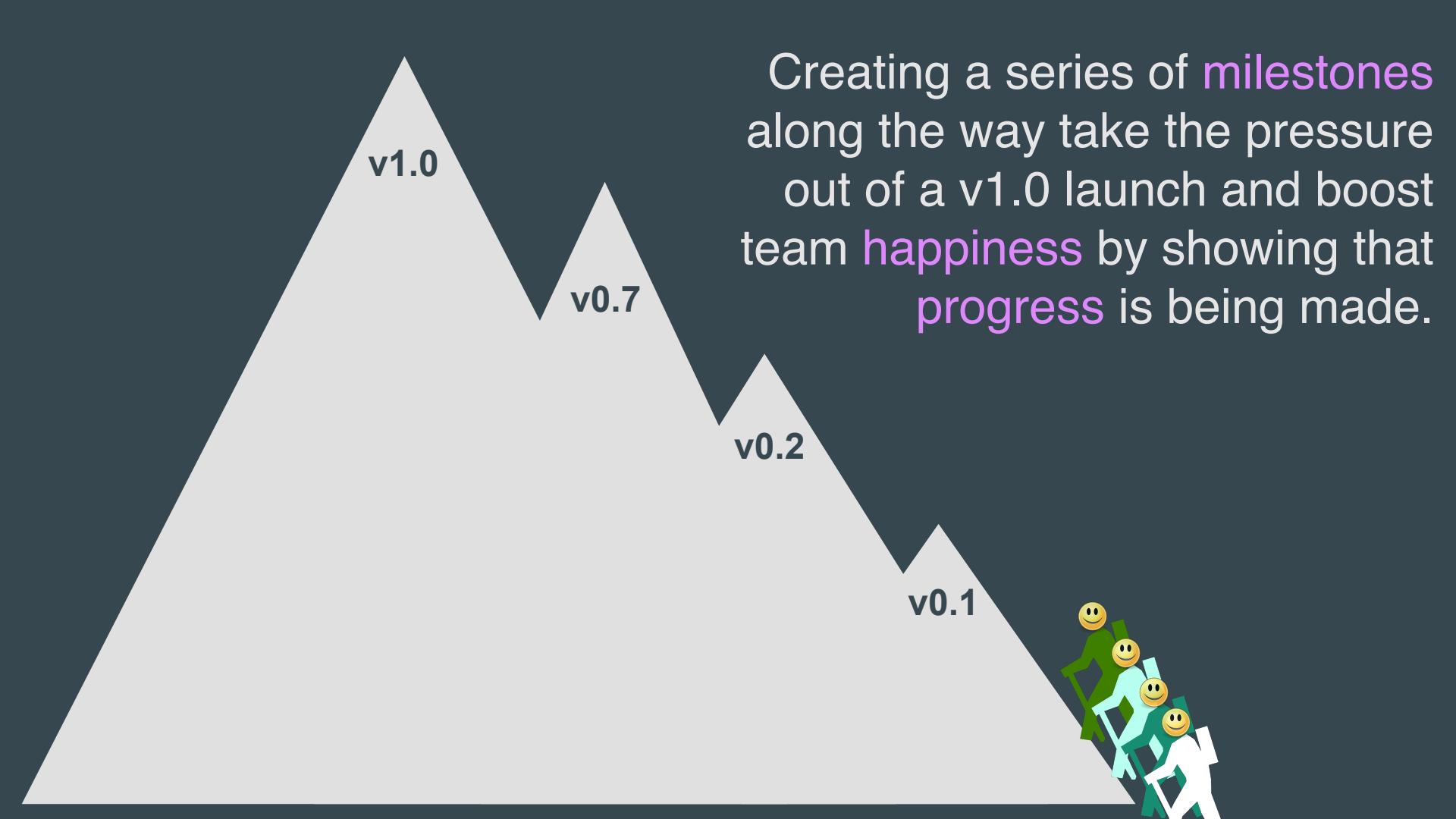
“

Of all the things that can boost inner work life, the most important is making progress in meaningful work.

Teresa Amabile and Steven J. Kramer

The team can't even see  
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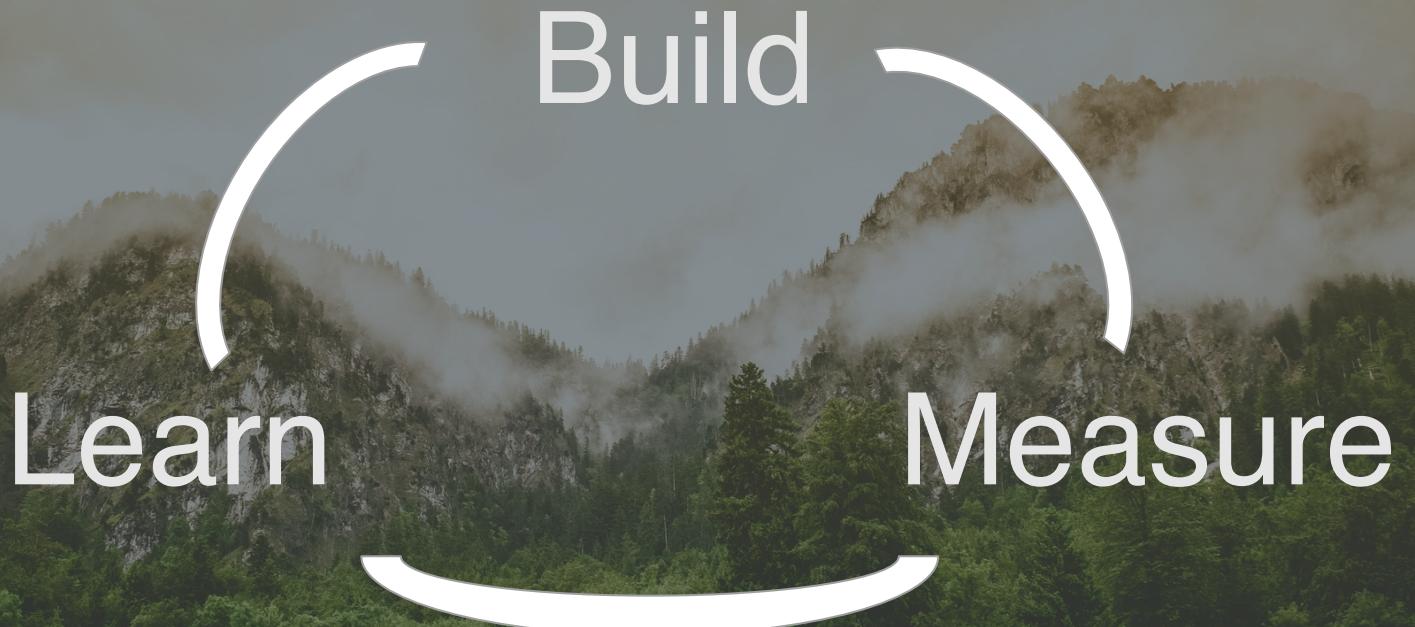


Creating a series of milestones along the way take the pressure out of a v1.0 launch and boost team happiness by showing that progress is being made.

LIFE HACK



Iterating your way to  
customer happiness



## Measure what matters

- Usage Metrics
- Are we meeting user needs?
- What are the next features?

### Does this meet our standards?

- Could this be architected cleaner?
- Are there obvious bugs or areas of poor quality?
- Are we proud of the product?

Prioritize User Stories

Design

Build

Code Review and Test

Usability Testing

Ship

### Does this meet customer expectations?

- What can we learn from customer interviews?
- Are end users excited/confused/satisfied?

Iterate  
based on  
feedback  
& evolving  
priorities

Not like this....



1



2



3



4

---

Like this!



1



2



3



4



5

Henrik Kniberg

# Christmas in July

Still Christmas?



Credit: <https://www.megapixl.com/santa-claus-sitting-under-parasol-with-gifts-on-beach-stock-photo-29666144>

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# References

## **Teresa Amabile and Steven Kramer**

"The Power of Small Wins" <https://hbr.org/2011/05/the-power-of-small-wins>

"The Progress Principle" [http://progressprinciple.com/books/single/the\\_progress\\_principle](http://progressprinciple.com/books/single/the_progress_principle)

## **Henrik Kniberg**

"Lean From the Trenches" <https://pragprog.com/book/hklean/lean-from-the-trenches>

"Making Sense of MVP" <https://blog.crisp.se/2016/01/25/henrikkniberg/making-sense-of-mvp>

## **Eric Ries**

"The Lean Startup" <http://theleanstartup.com/>

# Thank you!

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