





### 1. LEARNING LOOPS WERE LONG



# 1. LEARNING LOOPS WERE LONG 2. SOFTWARE ADOPTION WAS SLOW



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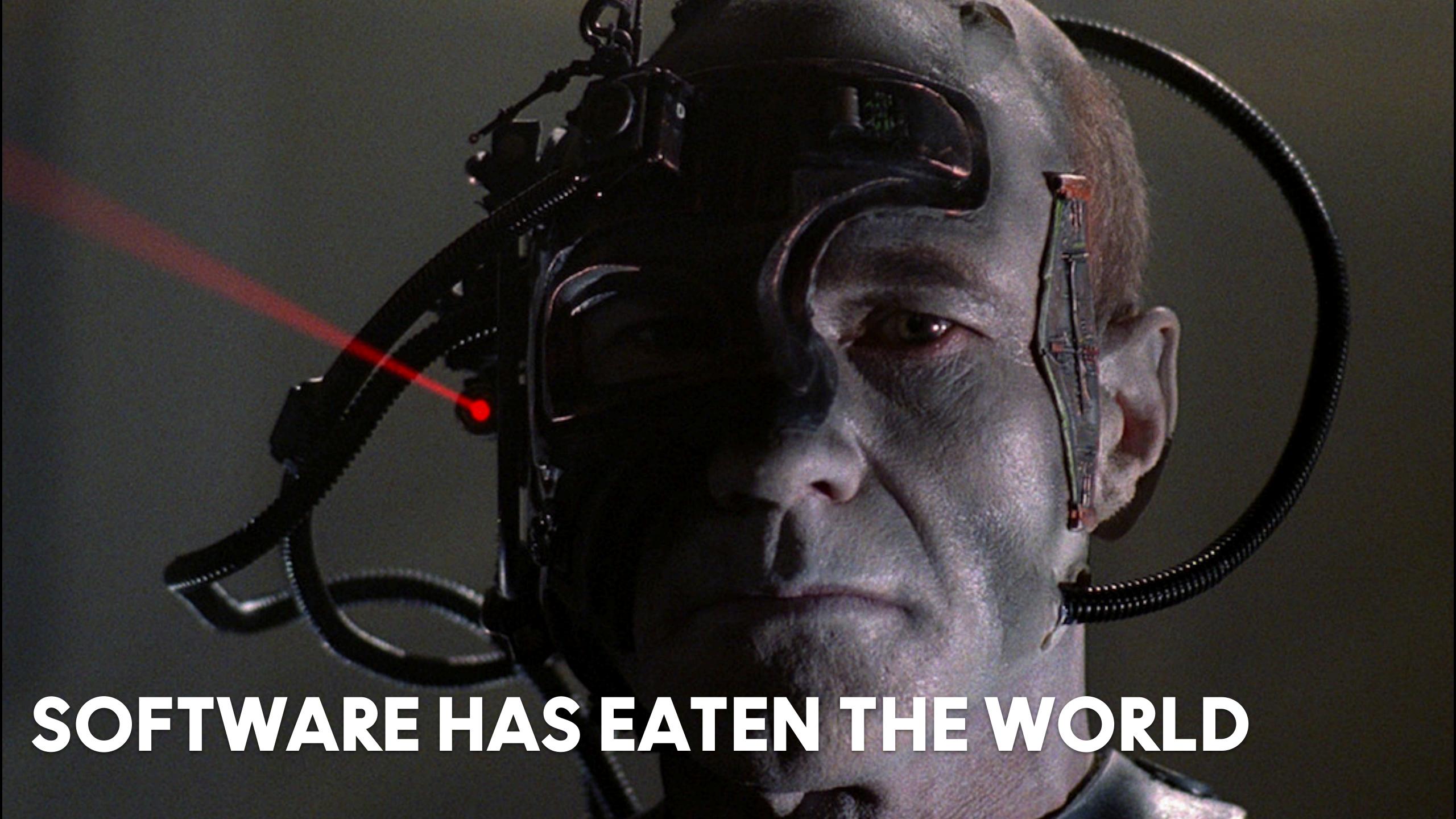


LEARNING LOOPS WERE LONG
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 WORKS AS DESIGNED WAS THE GOAL



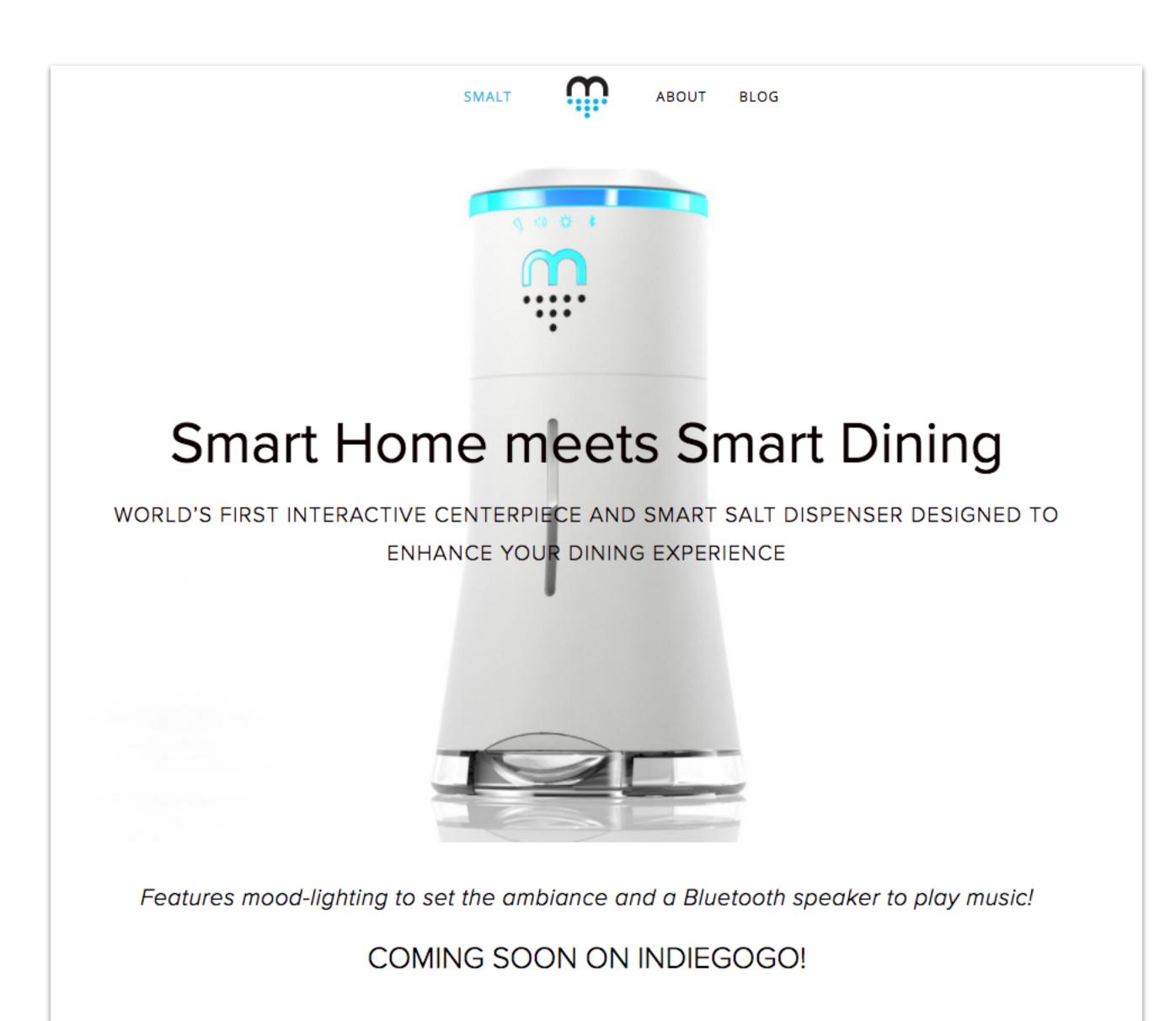
1. LEARNING LOOPS WERE LONG 2. SOFTWARE ADOPTION WAS SLOW 3. IMPACT WAS LIMITED TO THE TECH-SAVVY 4. WORKS AS DESIGNED WAS THE GOAL 5. SHIPPING SOFTWARE WAS SUCCESS



















"We are witnessing the emergence of Big Data technology, the Internet of Things is taking off and Artificial Intelligence is still in the early stage. We are therefore competing in a race that has no finish line or predetermined route. Not even a set of rules to guide us in our efforts",

— BBVA Group Executive Chairman, Francisco González







### Microsoft



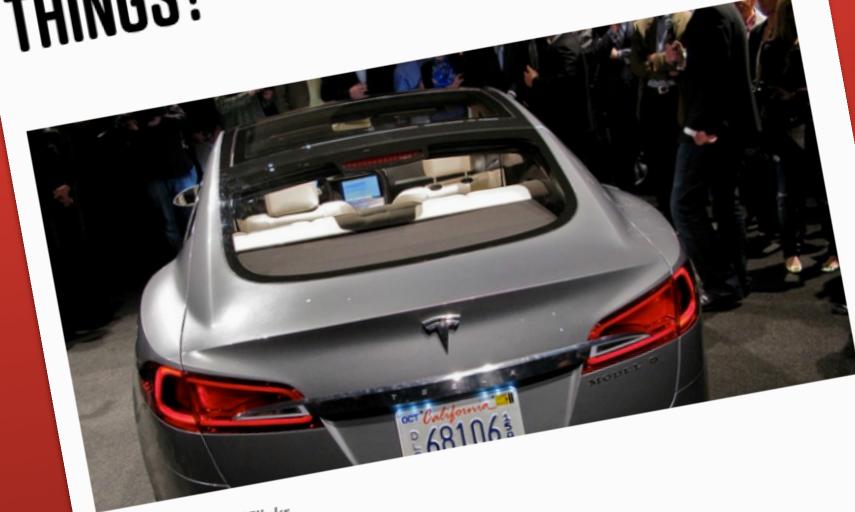
## Wicrosoft WINDOWS 2000 Professional

**Built on NT Technology** 





# TESLA'S OVER-THE-AIR FIX: BEST EXAMPLE YET OF THE INTERNET OF THINGS?



THE NATIONAL HIGHWAY Traffic Safety Administration recently published two recall announcements, one from Tesla Motors and one from GM. Both are related to problems that could cause fires. Tesla's fix can be conducted as an "over the air" software update and doesn't require owners to in care to the dealer. For that reason, we have a new







#### Opinion: One day, all companies might be in the software business

Published: Feb 7, 2017 12:07 p.m. ET







Enter Tesla TSLA, +0.39% Spawned from the brain of tech entrepreneur Elon Musk, the luxury electric-vehicle maker is leveraging the business of software to redefine how the car business operates. The most recent example is a telling one: A frustrated customer tweeted about inconsiderate Tesla owners hogging spots at charging stations, leaving their cars parked long after their charge had been completed while they were off running errands or eating lunch. Musk saw the tweet and promised to respond.



#### Loic Le Meur @loic · 1h

@elonmusk the San Mateo supercharger is always full with idiots who leave their tesla for hours even if already charged.









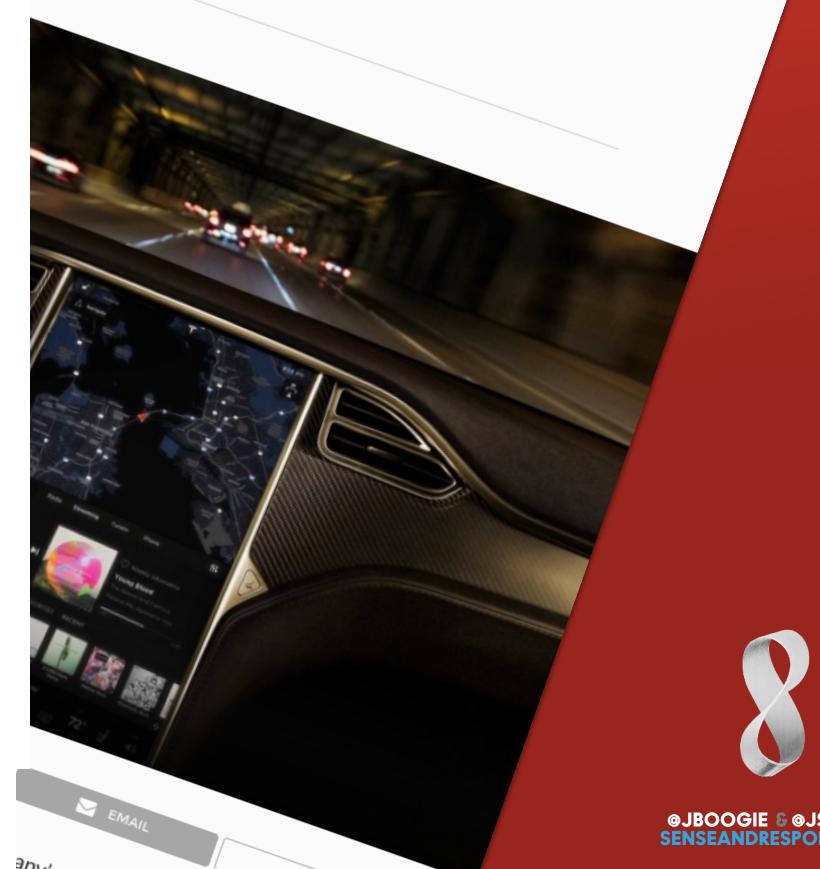


#### Elon Musk @elonmusk · 1h

@loic You're right, this is becoming an issue. Supercharger spots are meant for charging, not parking. Will take action.

Six days later, Tesla released a new feature, implemented via the Tesla app, that would discourage parking at charging stations by imposing a per-minute fee on idle owners once their charge was complete.

re Tesla software Pilot and UI



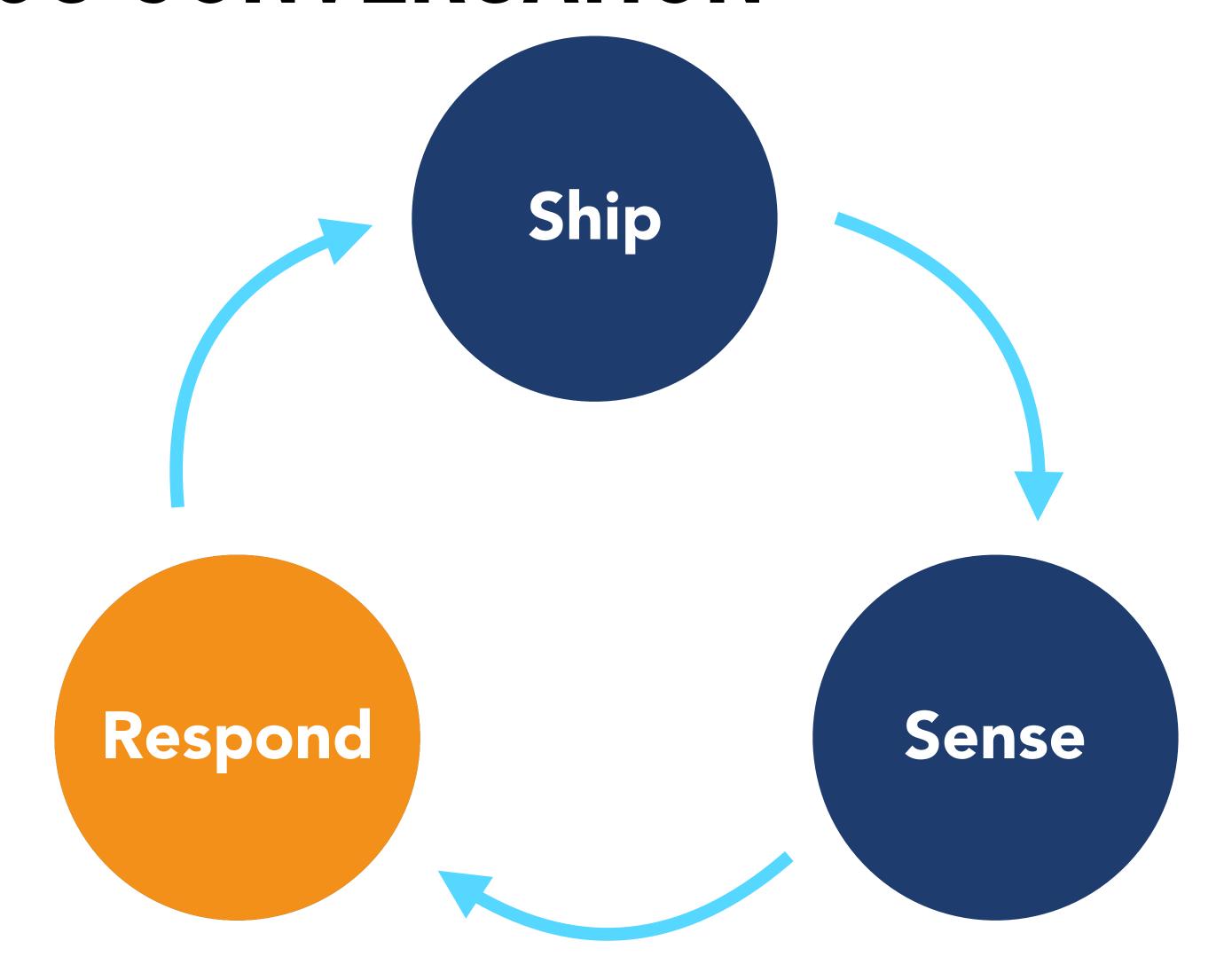




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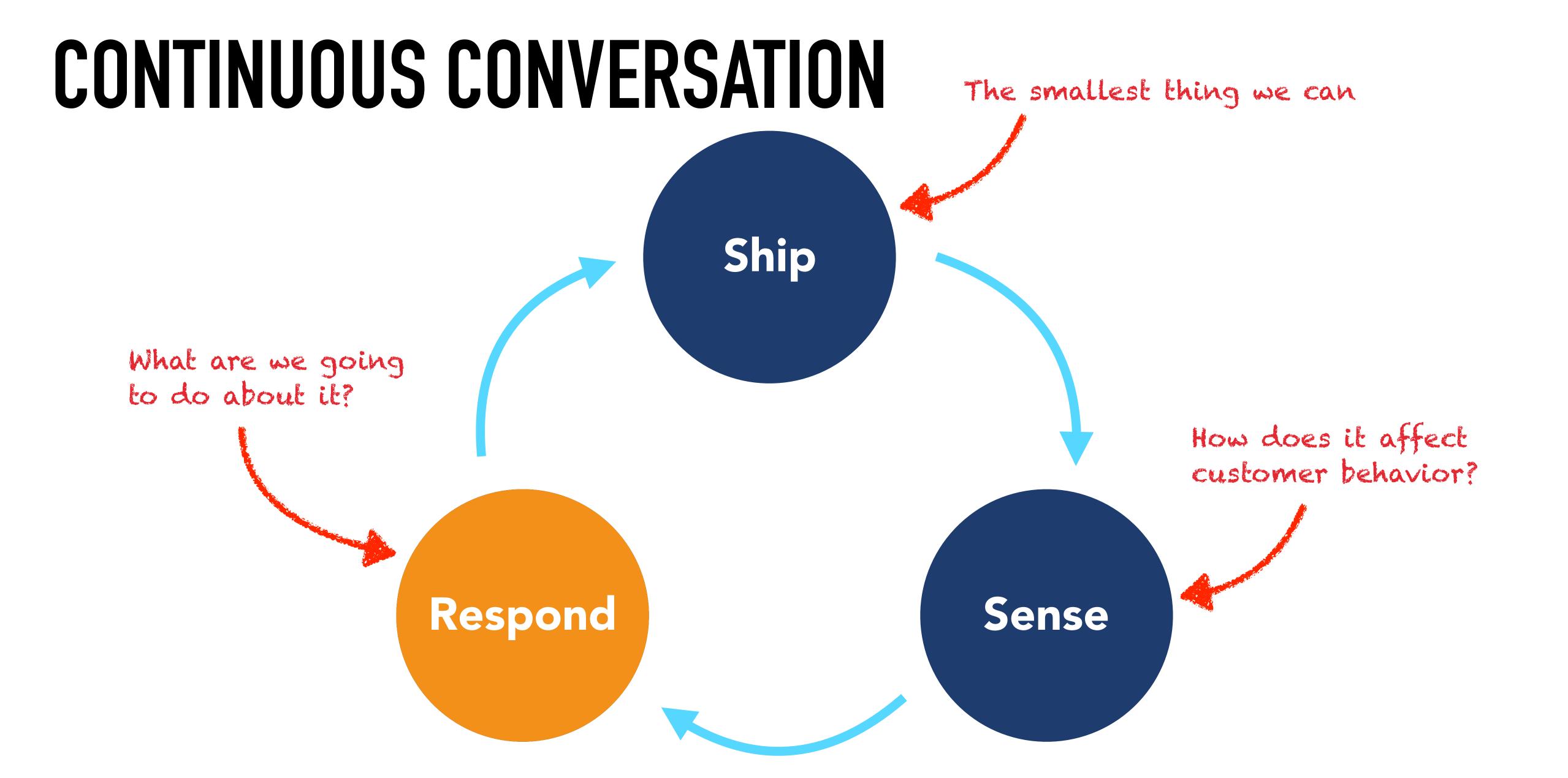
# WITH THIS AMAZING CAPABILITY COMES TREMENDOUS OPPORTUNITY

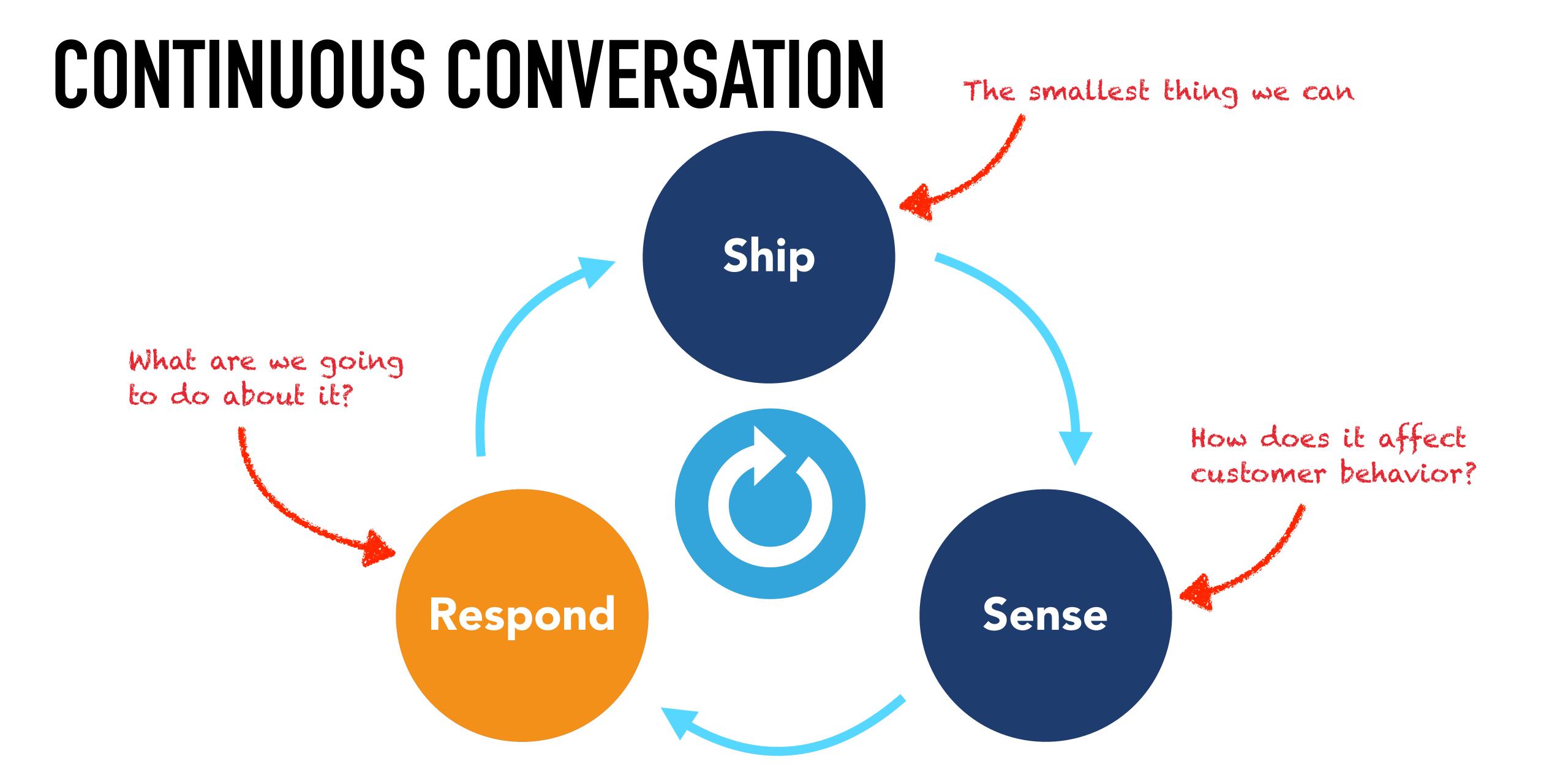
## CONTINUOUS CONVERSATION

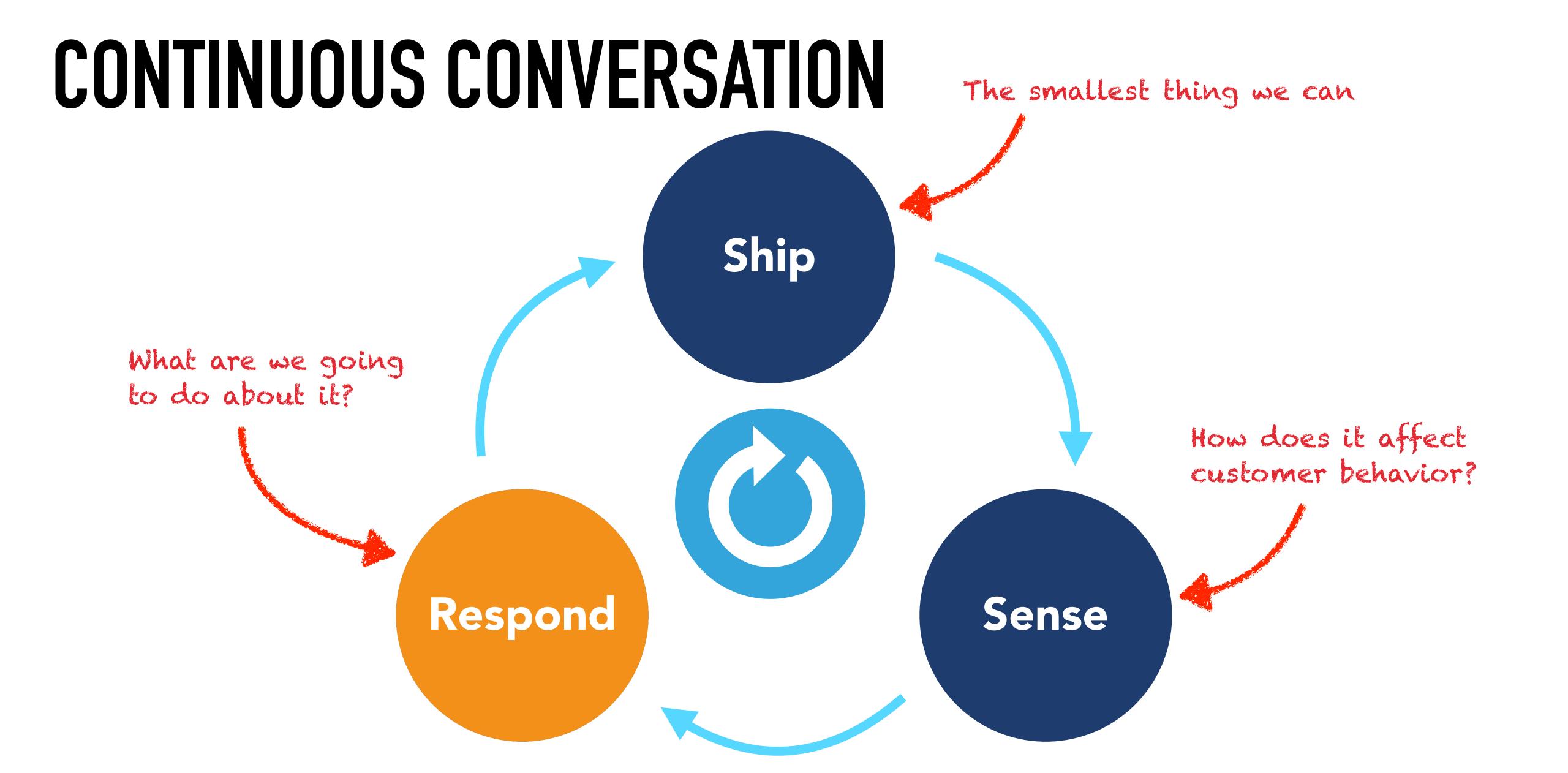


## CONTINUOUS CONVERSATION The smallest thing we can Ship Sense Respond

## CONTINUOUS CONVERSATION The smallest thing we can Ship How does it affect customer behavior? Sense Respond











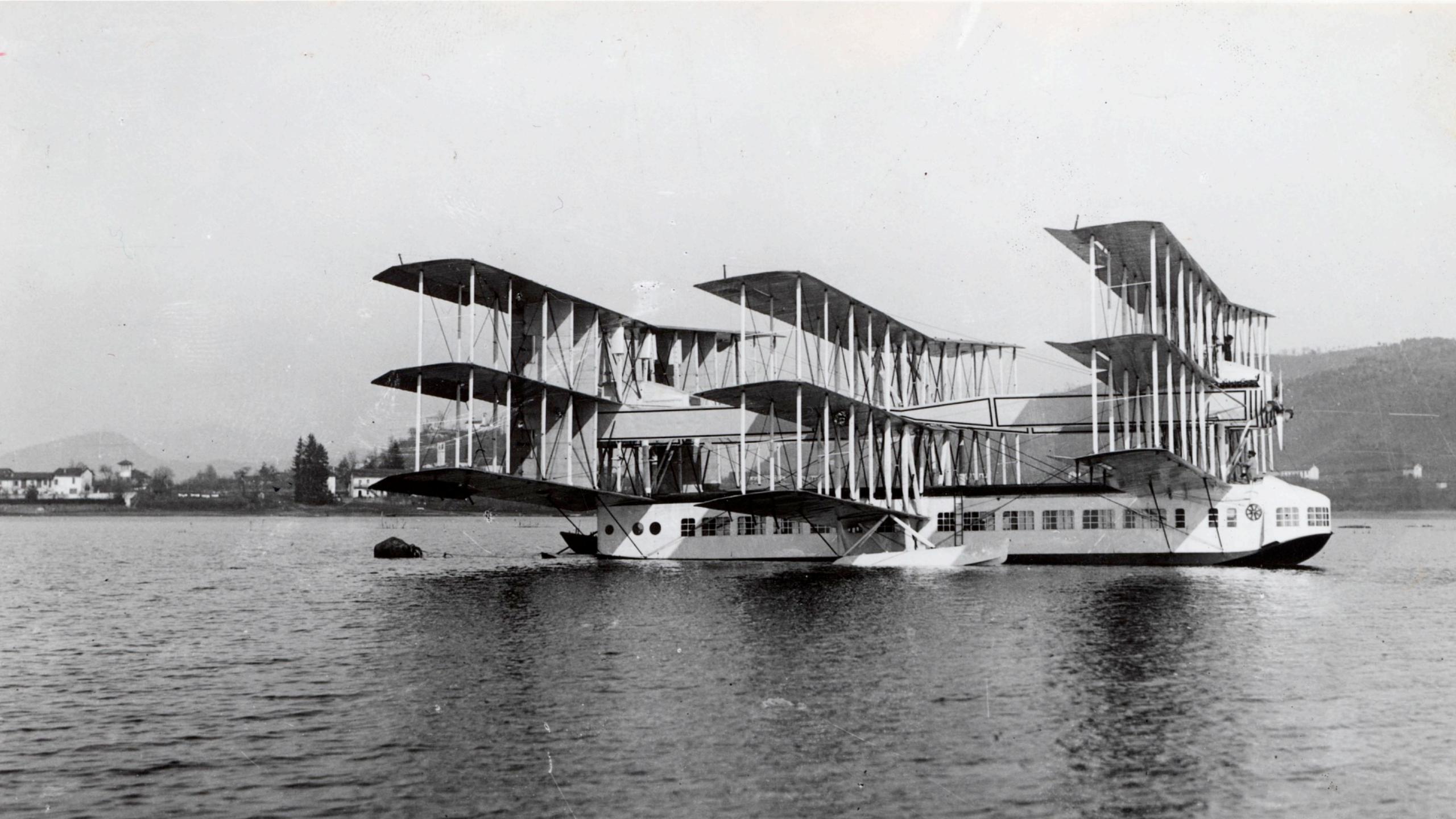




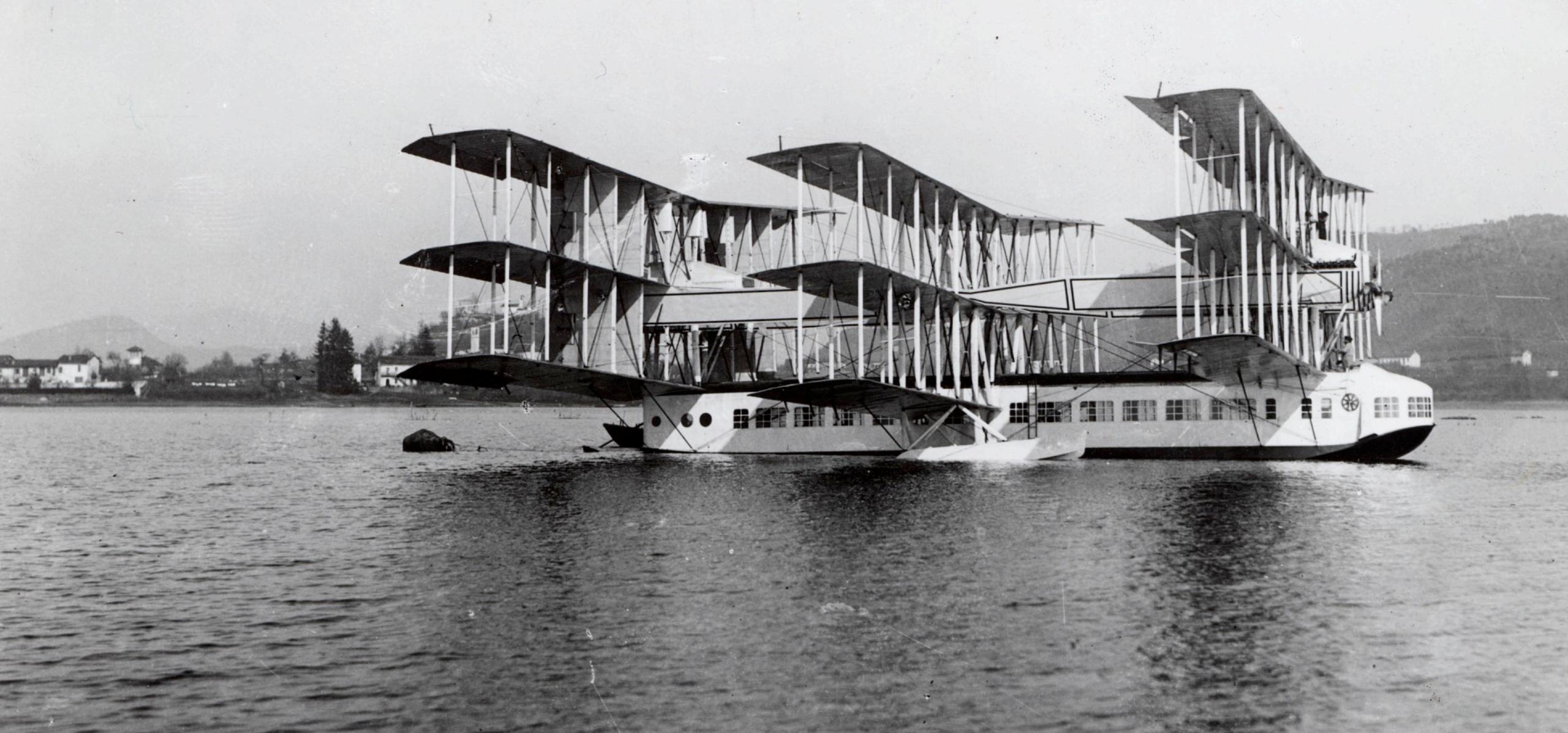








### JUST BECAUSE YOU CAN BUILD IT...



### OUTCOMES: MEASURABLE CHANGES IN USER BEHAVIOR



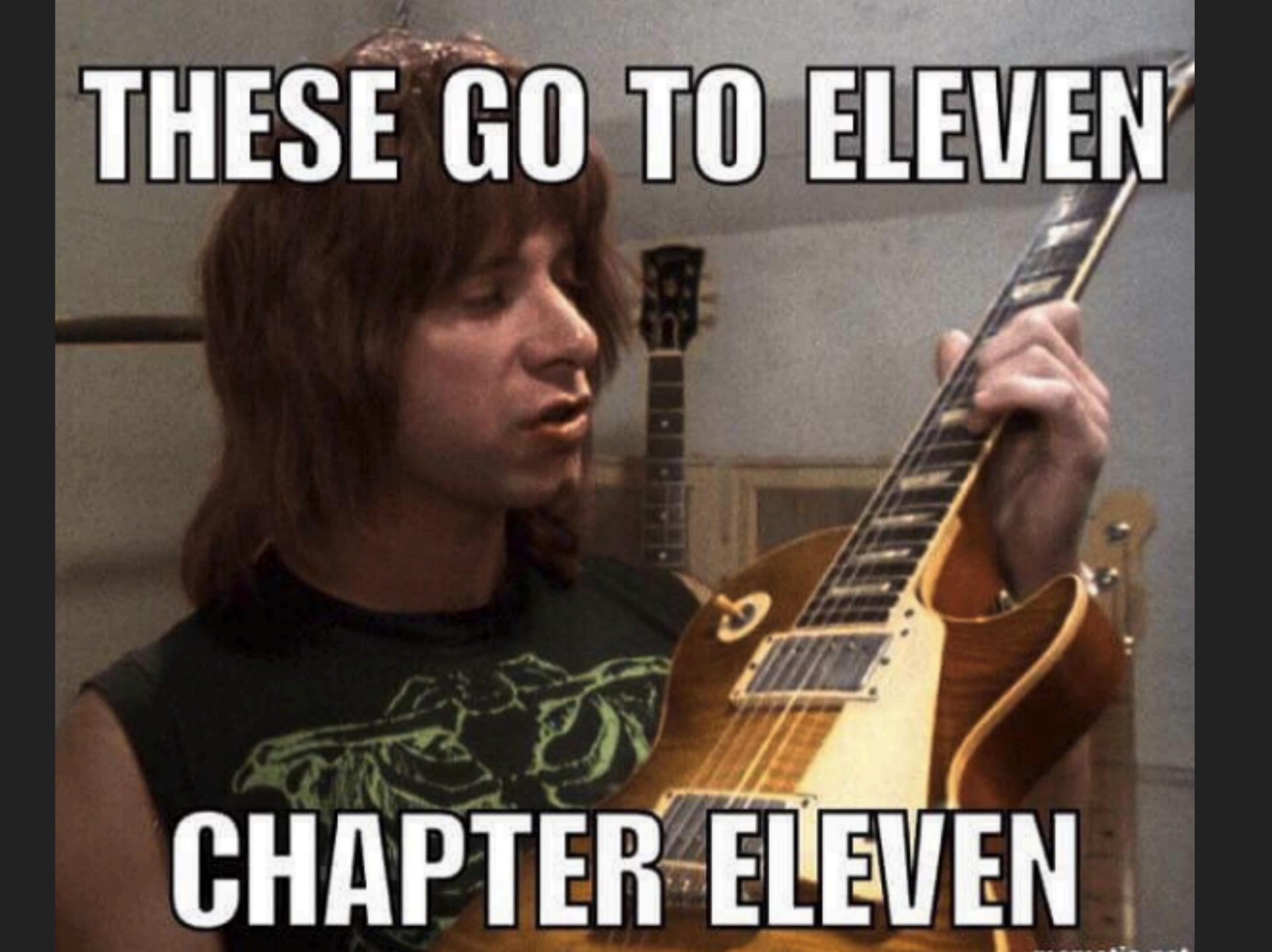
# OUTCOMES TELL US WHEN WE'VE DELIVERED CUSTOMER VALUE



## OUTCOMES TELL US WHEN WE'VE DELIVERED CUSTOMER VALUE

### OUTCOMES TELL US WHEN WE'RE DONE













### Slash Appointed as Gibson's First Global Brand Ambassador

THE FENDER FEED

PLAY #play #basics



Tips to Nudge Yourself Towards Practice

GEAR



The 11 Essential Tools for Any Guitarist

GEAR

#electric #modshop #telecaster #stratocaster #precisionbass #jazzbass

Search

#accessories #tune #strings #beginner



## THE PROBLEM: WE CAN'T PREDICT BEHAVIOUR











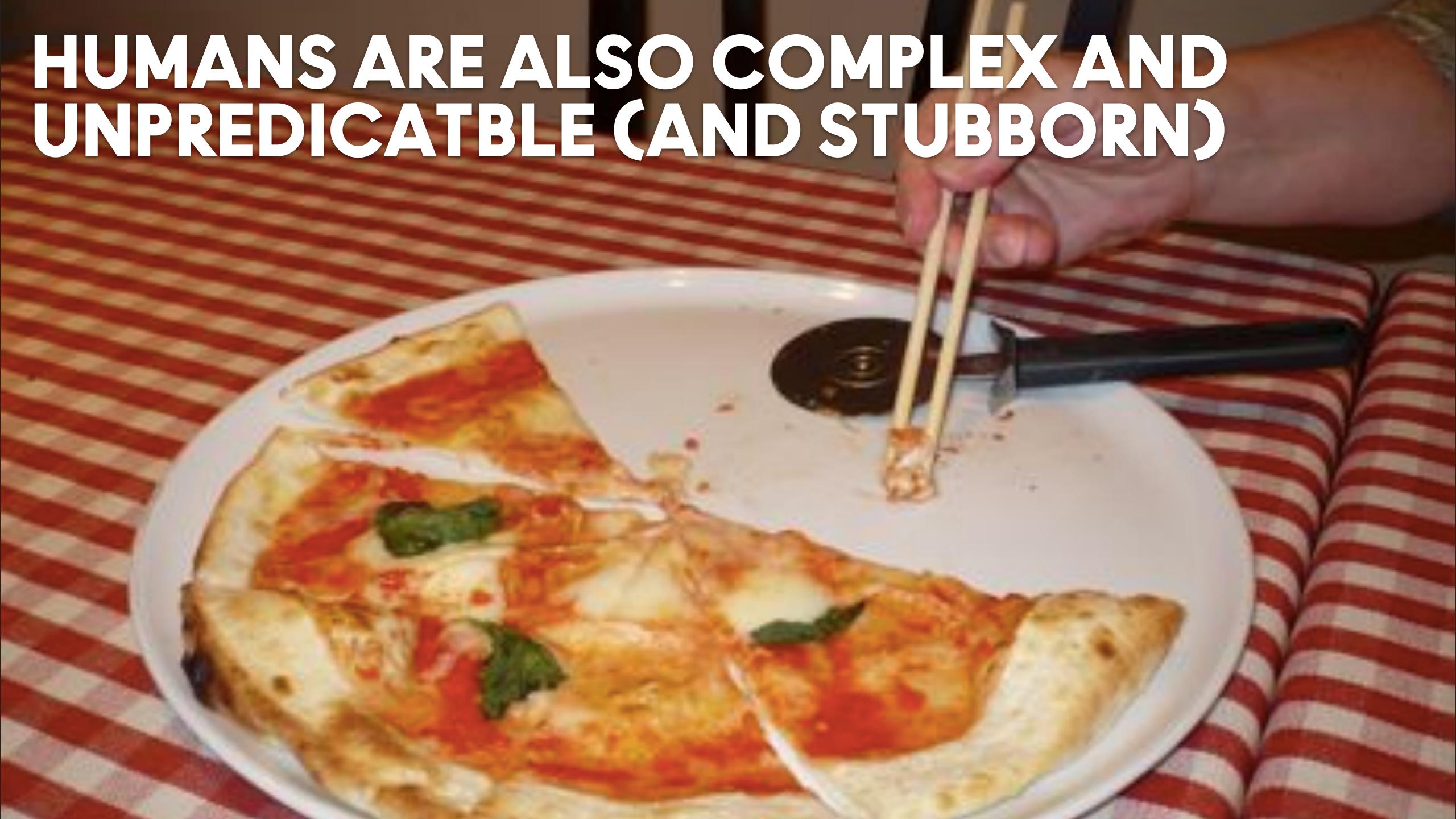




GOTHELF.CO / @JBOOGIE

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### BEHAVIOUR EVOLVES



# BEHAVIOUR EMERGES THROUGH THE USE OF THE SYSTEMS WE BUILD



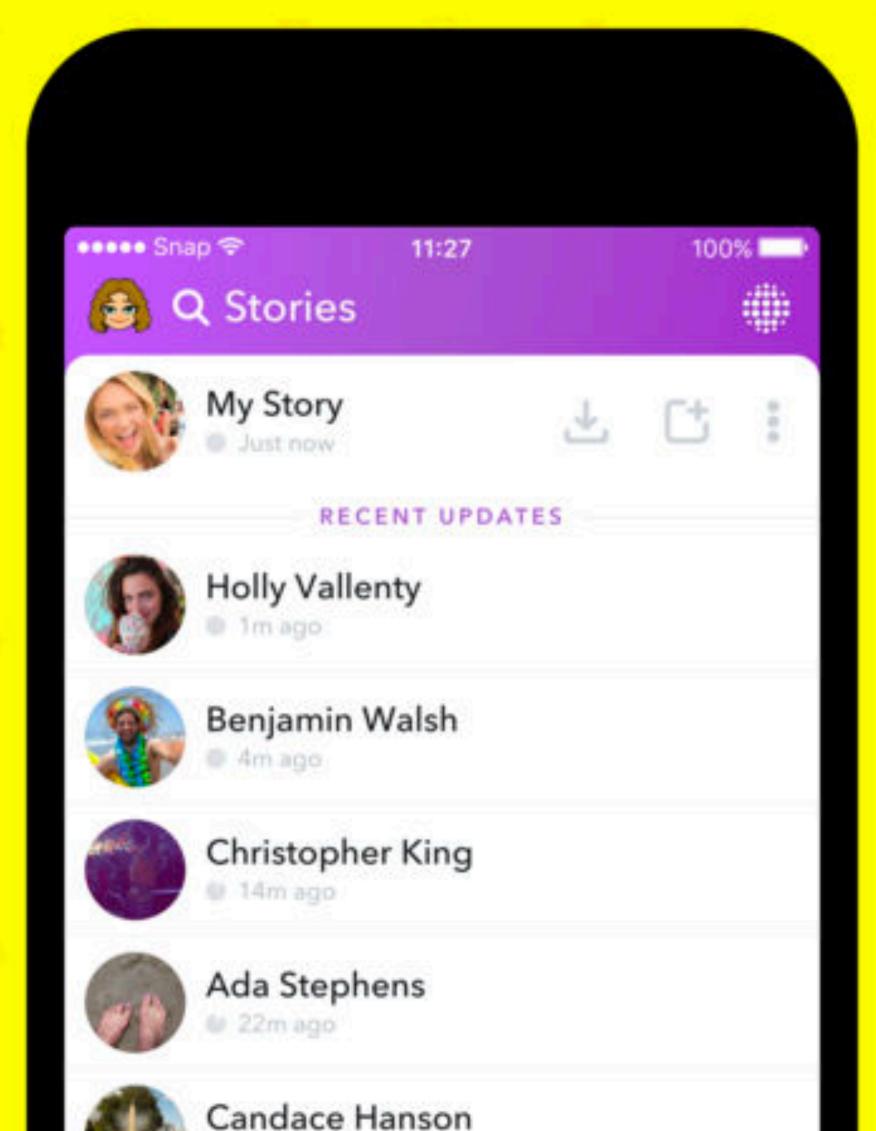




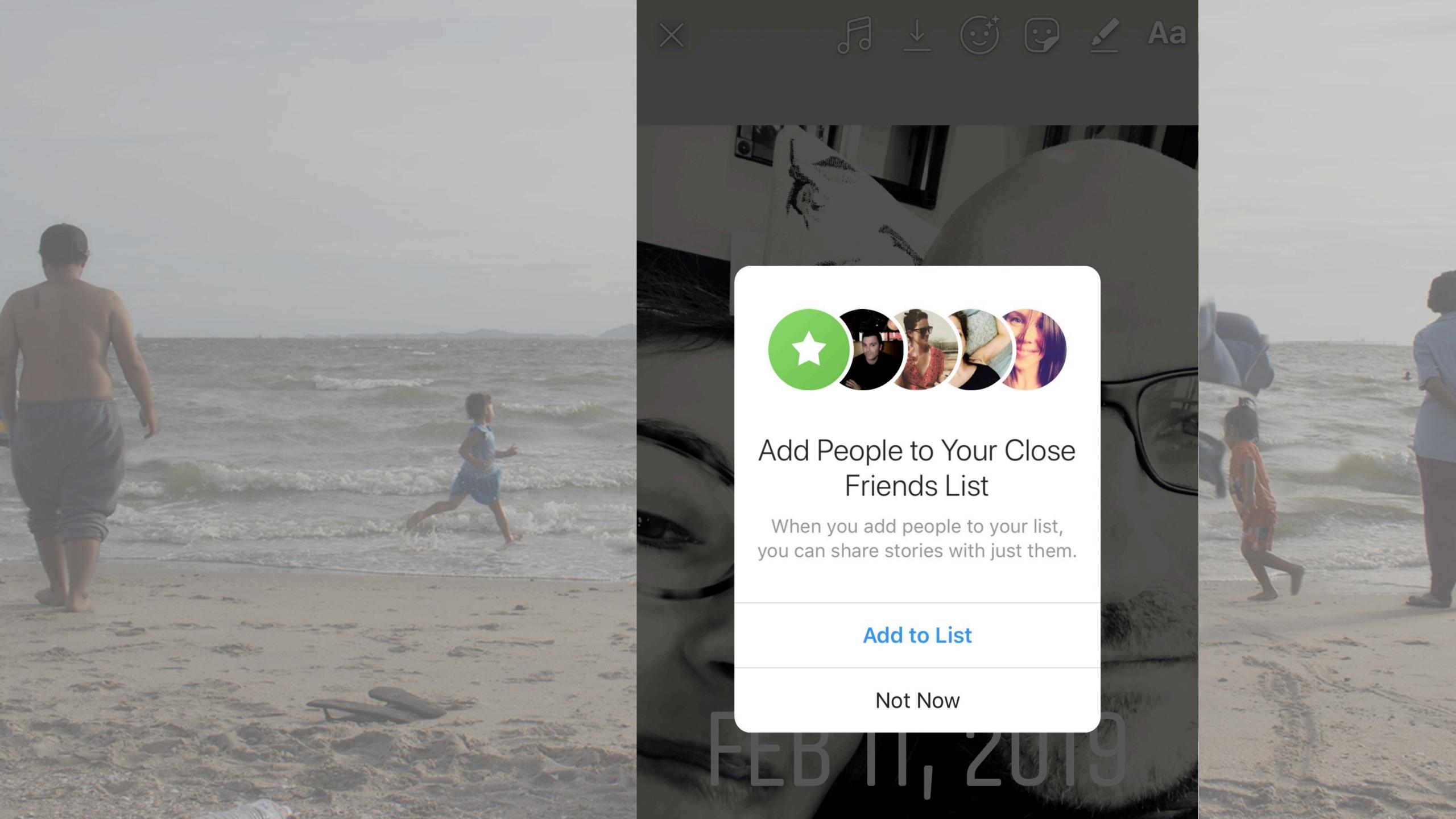


#### Stories

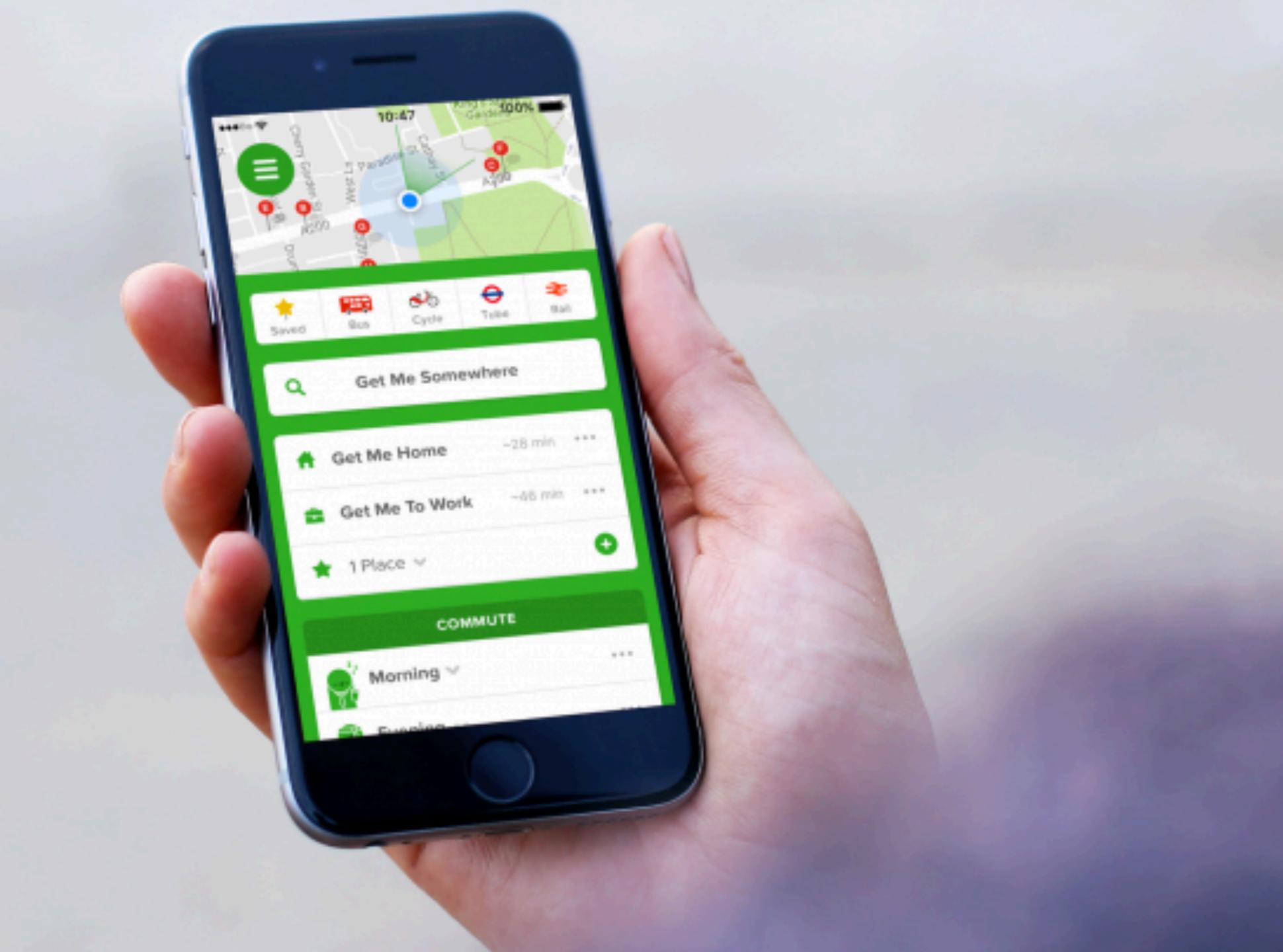
Keep up with your friends' Stories every day.

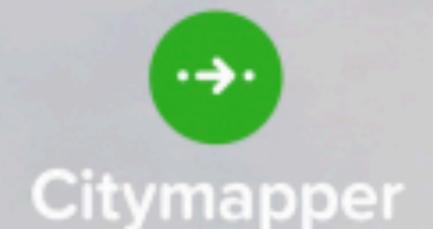


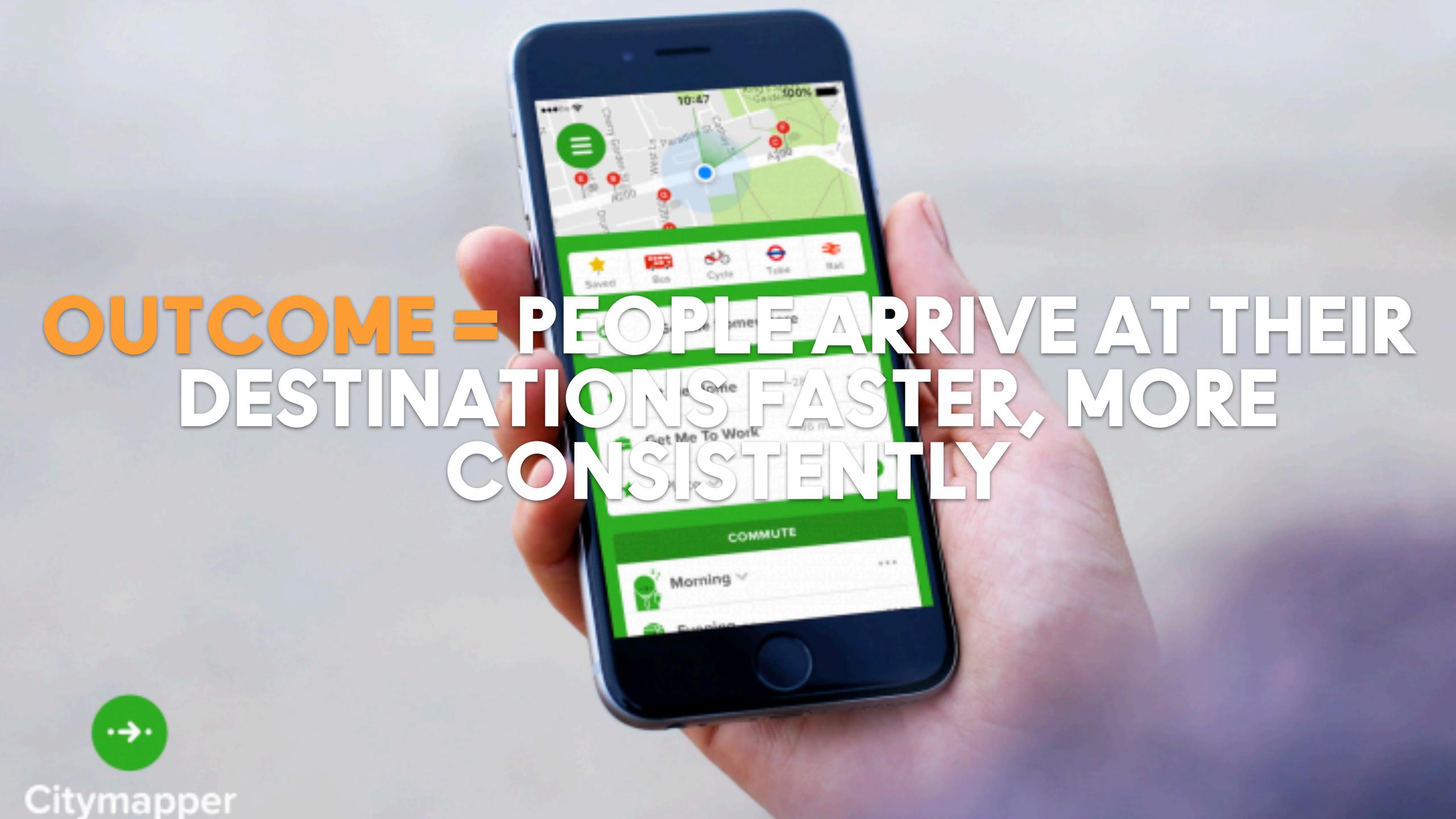


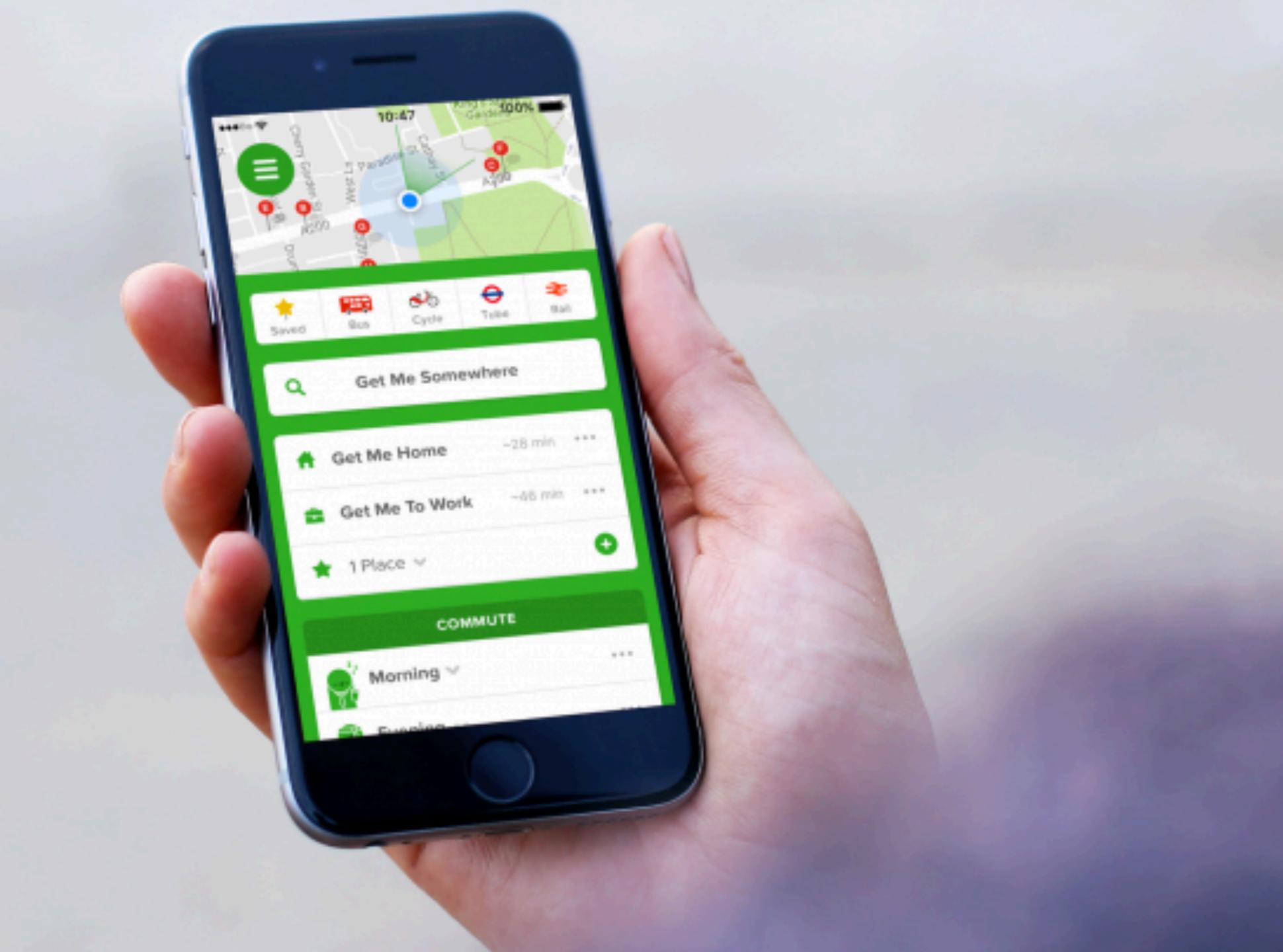


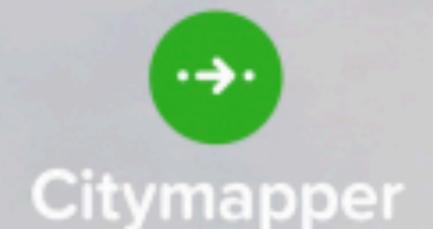
# WE CAN USE THE ABILITY TO LEARN CONTINUOUSLY TO MAKE OUR USERS MORE SUCCESSFUL











#### **Introducing the Citymapper Smartbus**

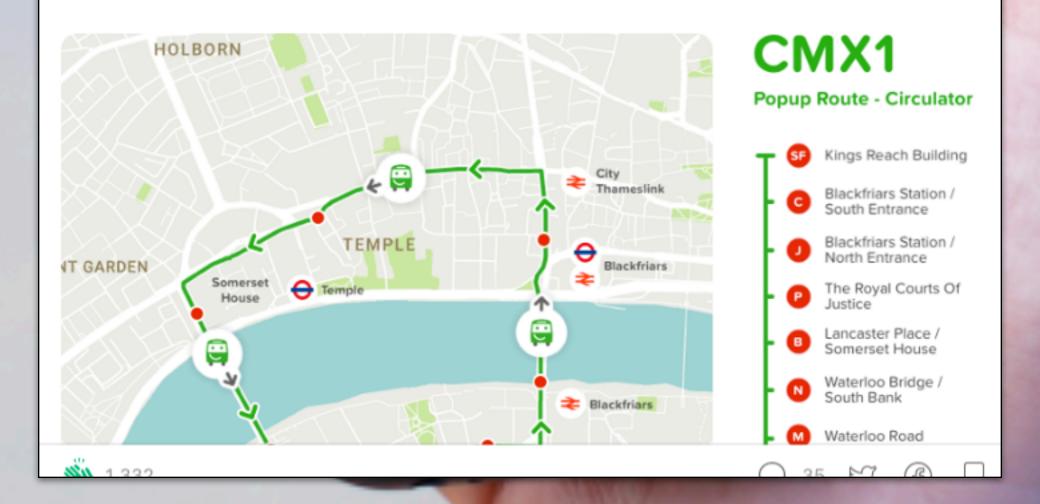
Reinventing the bus for the smart city era

This has been a long time coming. We're proud to unveil our biggest kept secret: Project Grasshopper (previously known as Project Caterpillar, (previously known as Project "yo, we should buy a bus. totally.")).

#### We're running a (smarter) bus service

In fact, we're reinventing the entire software stack for running and operating a bus. We believe smarter buses lead to better mobility and cities.

Starting on Tue May 9th and Wed May 10th. With an experimental popup route: <u>CMX1</u>, <u>running a Circulator in the heart of London</u>.



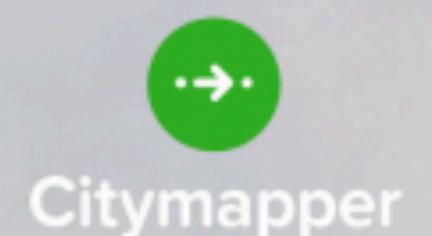
We're also introducing a smaller, nimbler vehicle that we believe is necessary in crowded cities.

#### Regular Bus



#### **Smaller Bus**

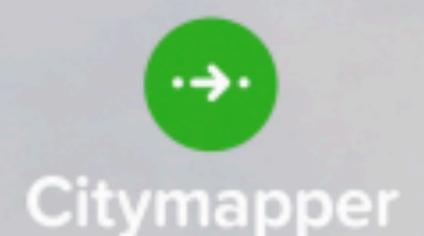


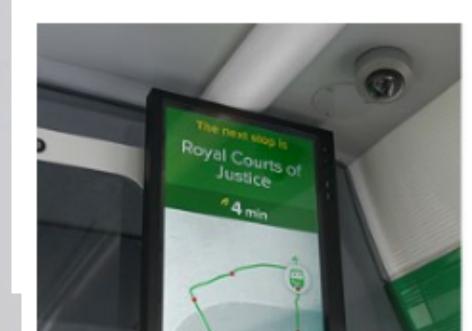


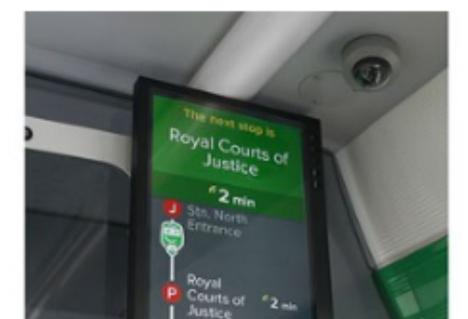
#### We redesigned the bus

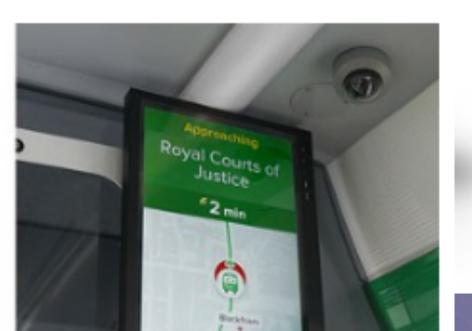
Interior and exterior. We've tried to keep things simple, but well, everything is green. Yeah.





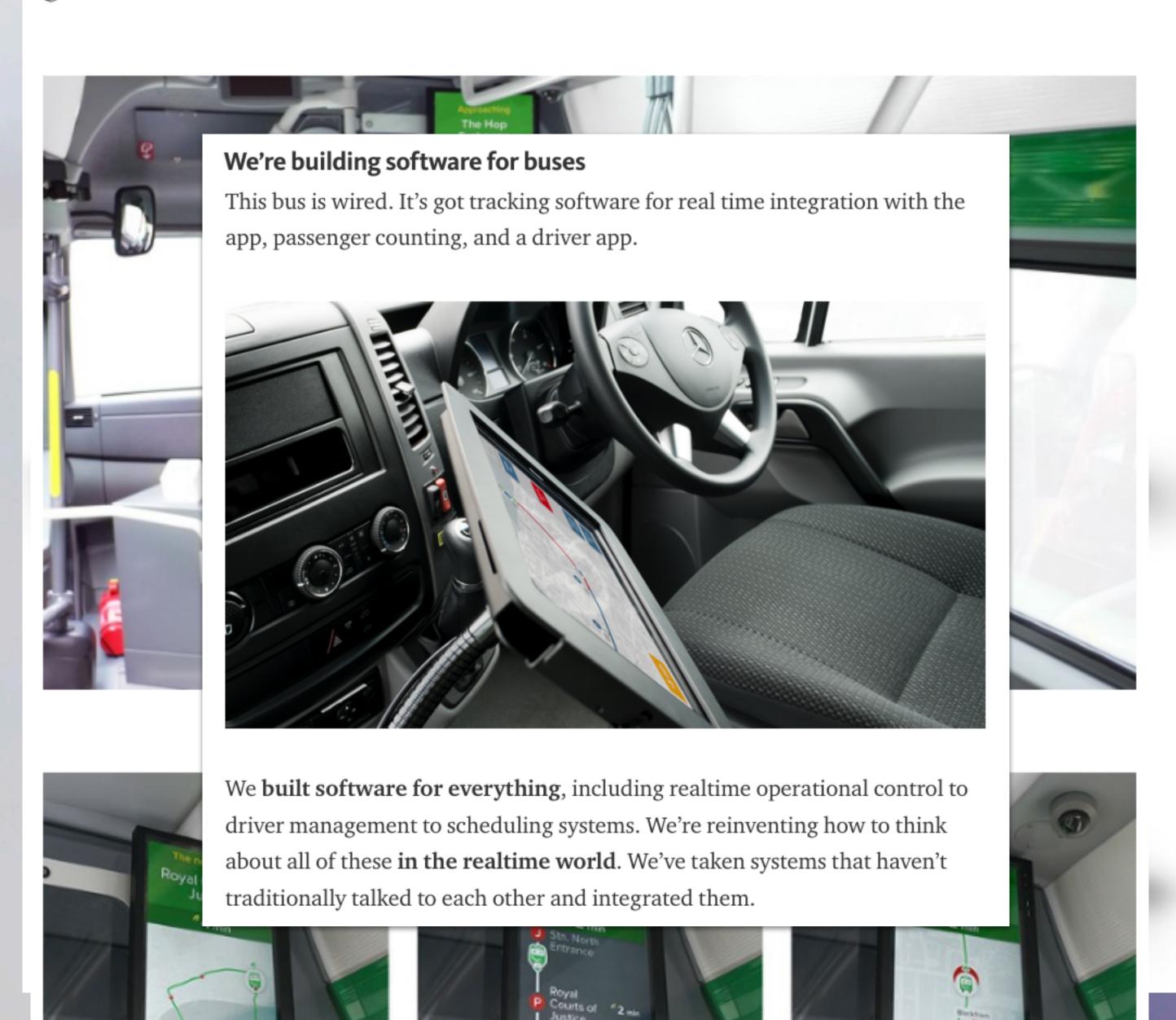


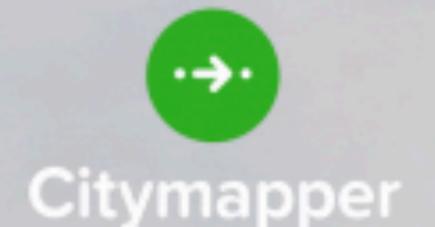




#### We redesigned the bus

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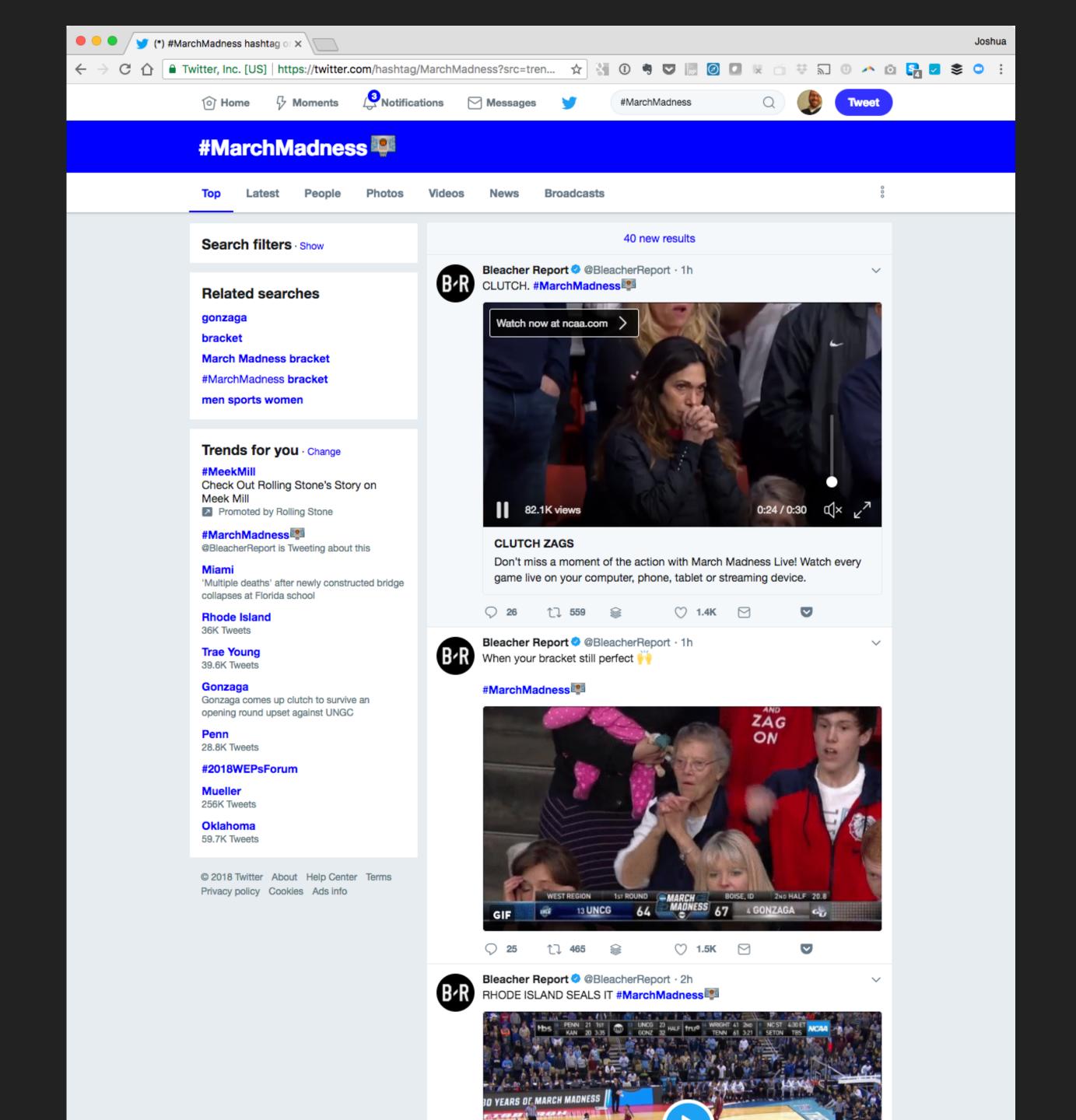




# BUT SOMETIMES WHAT SEEMS TRIVIAL ENDS UP CREATING UNINTENDED CONSEQUENCES

# 2007 User Proposes#

"how do you feel about using # (pound) for groups. As in #barcamp [msg]?" - Chris Messina, Aug 23 2007

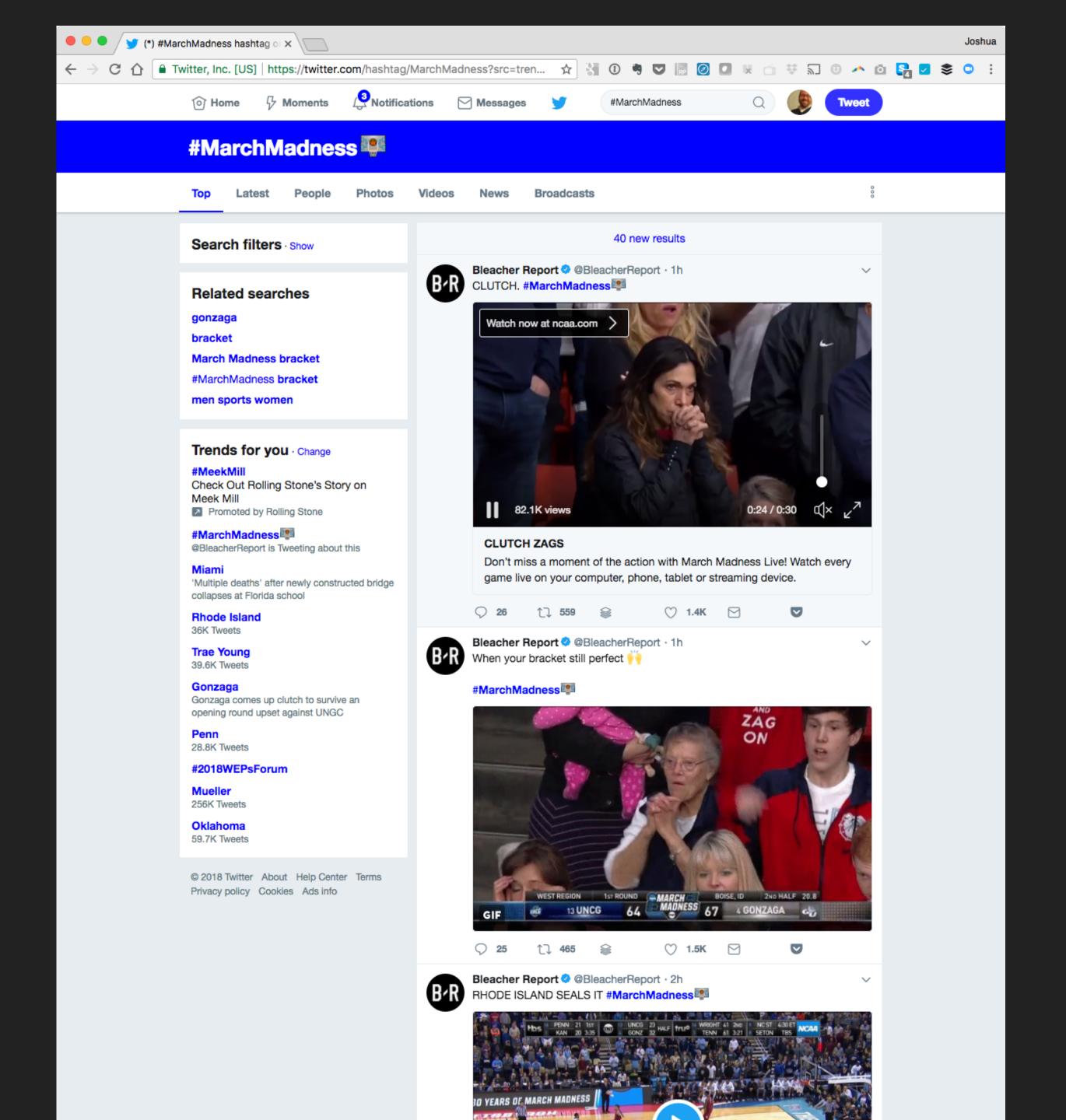


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## 2009 Twitter Supports

Twitter adds hyperlinks to hashtags used in tweets.



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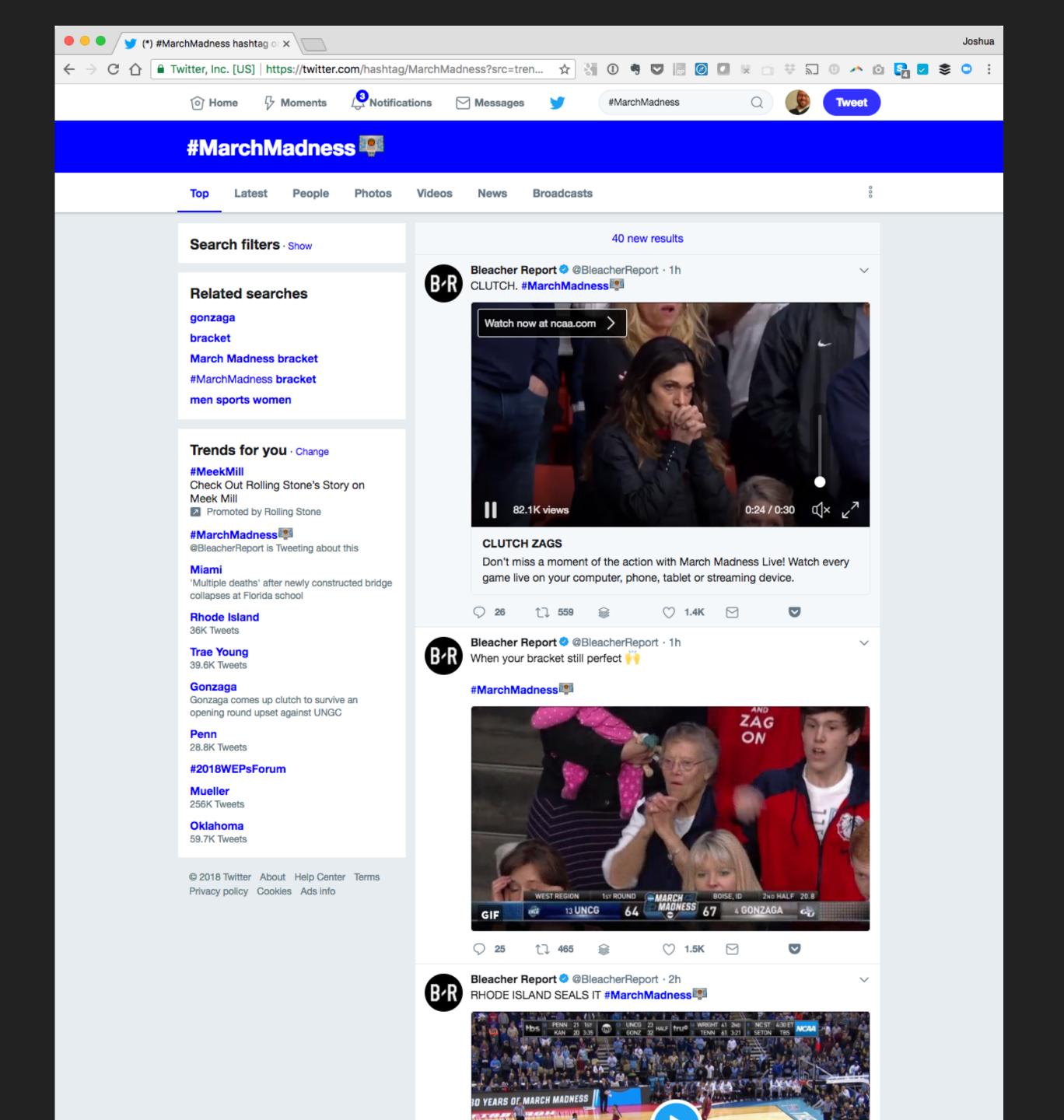
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## All the things...

@replies, RTs, emerged the same way



"how do you feel about 👍 🕟 🗷 groups. As in #barcamp Aug 23 2007

### 2009 Twitt

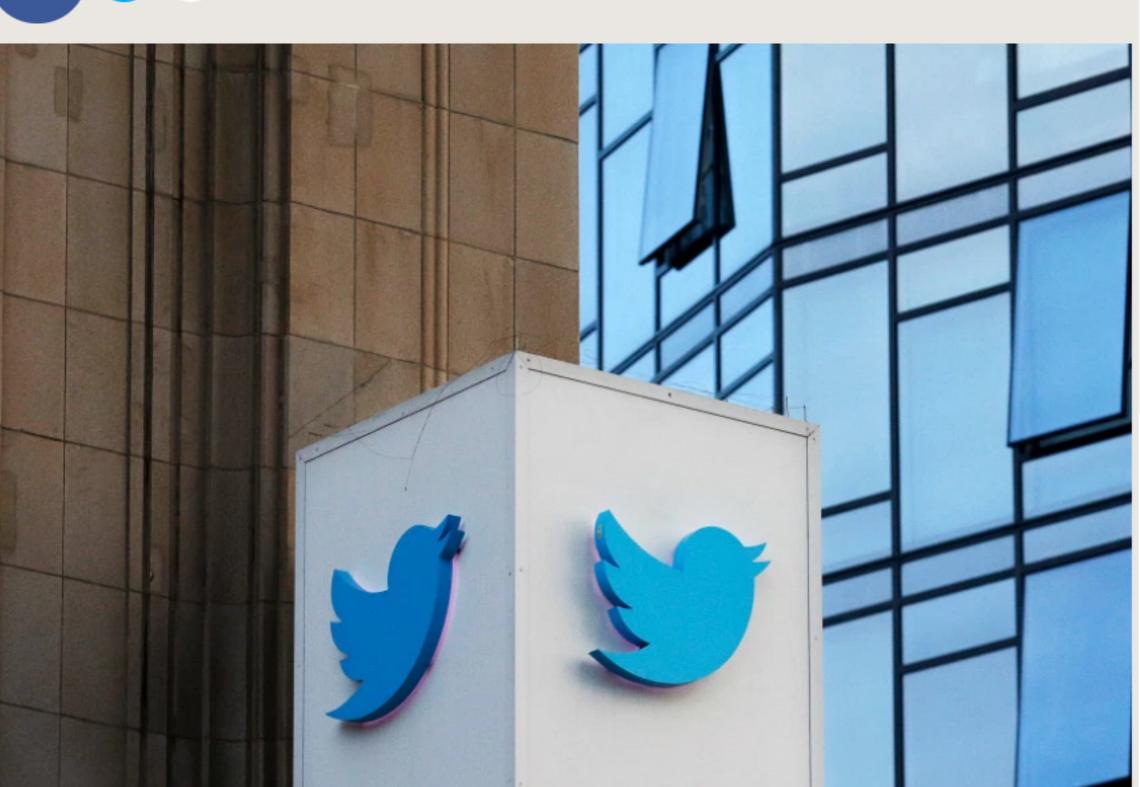
Twitter adds hyperlinks t tweets.

### All the thin

@replies, RTs, emerged

# **2007 USE** Facebook, Twitter, Google CEOs face calls to testify to Congress

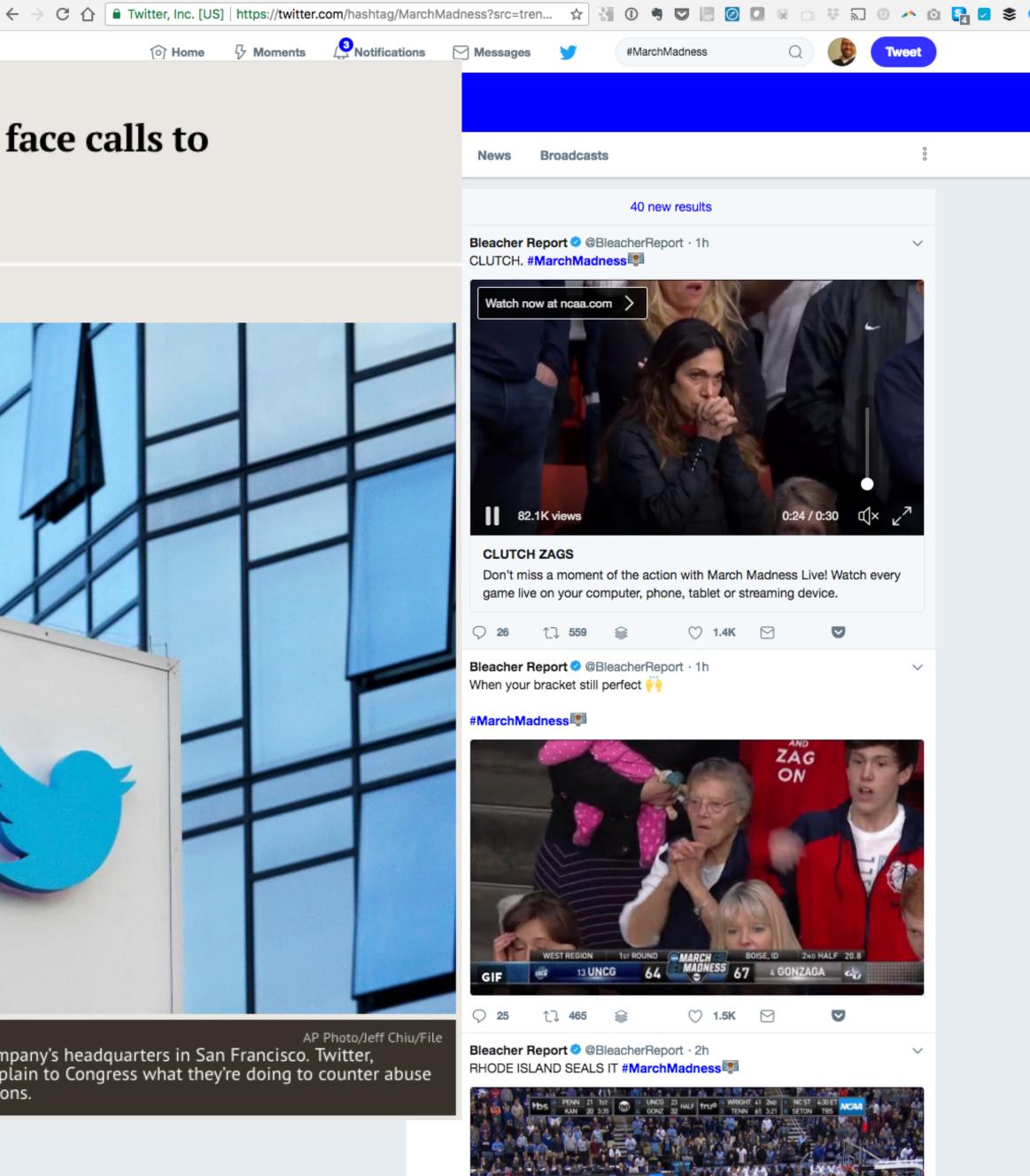
Business > Technology



🏏 (\*) #MarchMadness hashtag 🗆 🗙 🖯

AP Photo/Jeff Chiu/File

This Oct. 26, 2016 file photo shows a Twitter sign outside of the company's headquarters in San Francisco. Twitter, Facebook and Google are facing renewed bipartisan demands to explain to Congress what they're doing to counter abuse of their networks ahead of this year's congressional midterms elections.



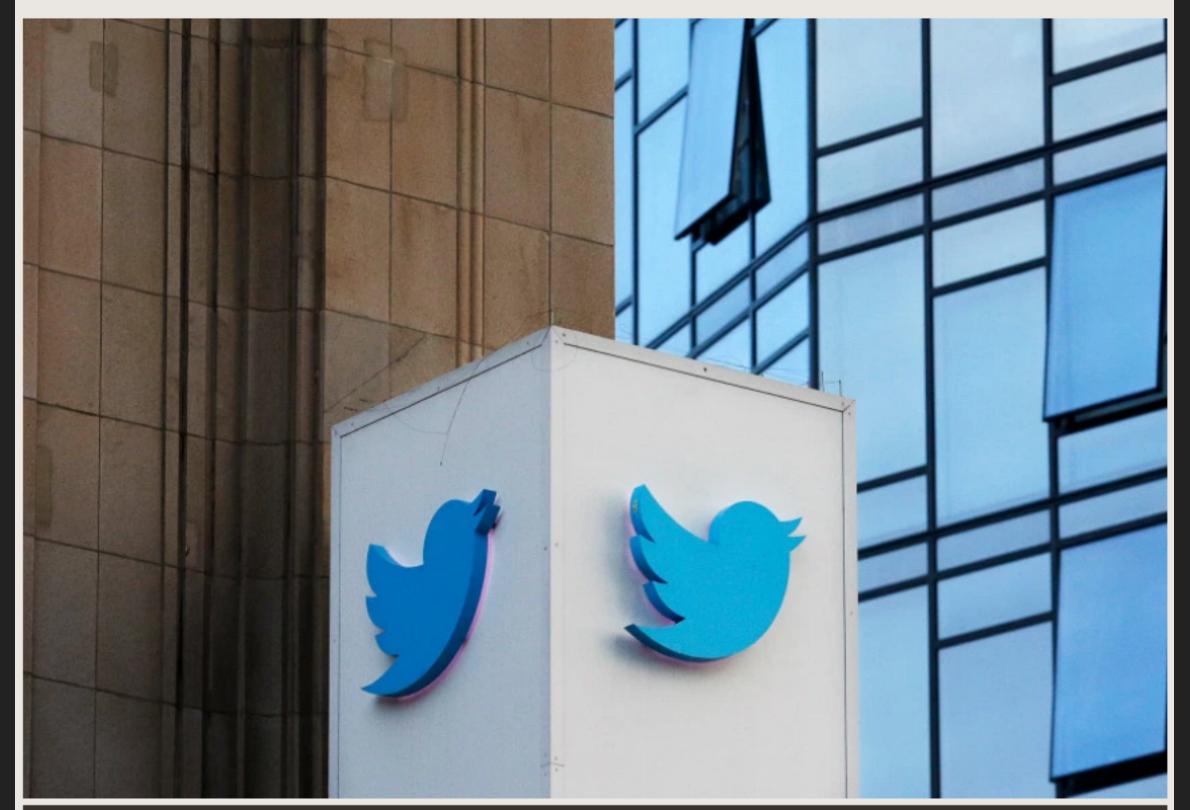
Business > Technology

# Facebook, Twitter, Google CEOs face calls to testify to Congress









AP Photo/Jeff Chiu/File
This Oct. 26, 2016 file photo shows a Twitter sign outside of the company's headquarters in San Francisco. Twitter,
Facebook and Google are facing renewed bipartisan demands to explain to Congress what they're doing to counter abuse of their networks ahead of this year's congressional midterms elections.





We're committing Twitter to help increase the collective health, openness, and civility of public conversation, and to hold ourselves publicly accountable towards progress.

determined to find holistic and fair solutions.

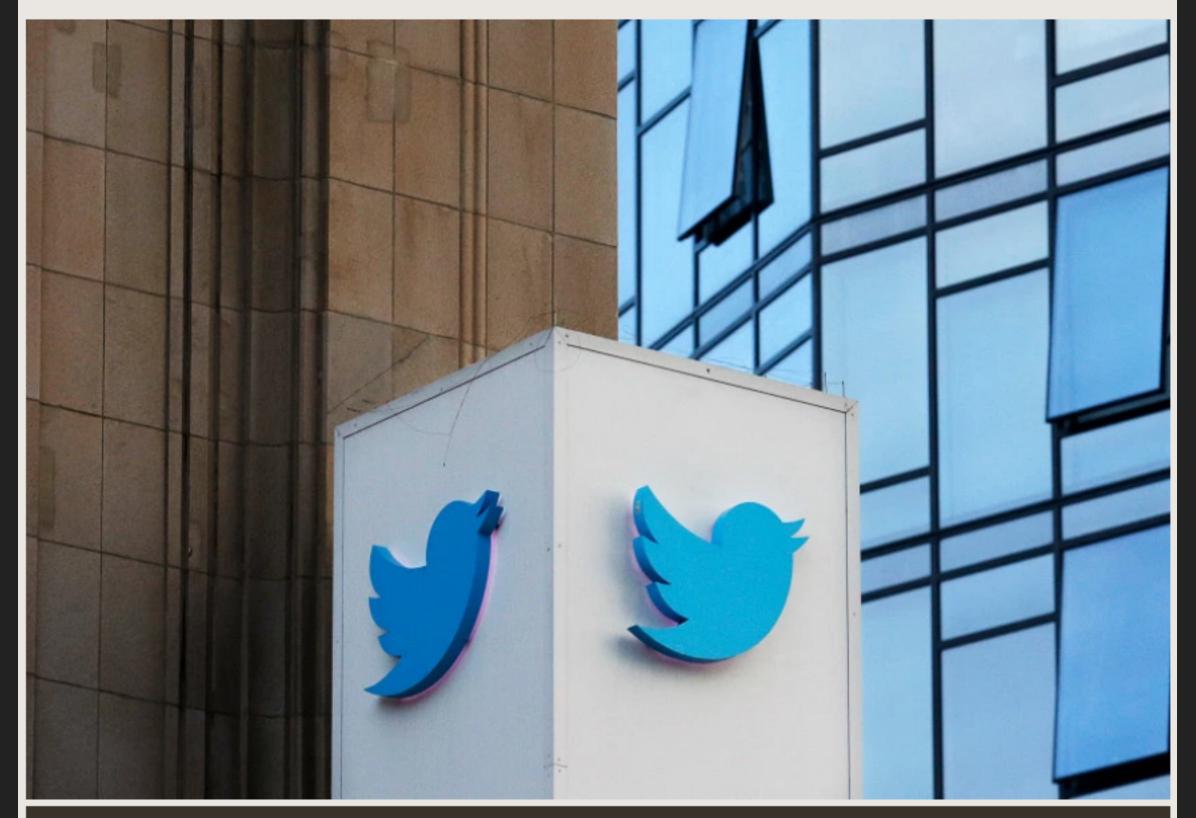
Business > Technology

### Facebook, Twitter, Google CEOs face calls to testify to Congress









AP Photo/Jeff Chiu/File

This Oct. 26, 2016 file photo shows a Twitter sign outside of the company's headquarters in San Francisco. Twitter, Facebook and Google are facing renewed bipartisan demands to explain to Congress what they're doing to counter abuse of their networks ahead of this year's congressional midterms elections.



Business > Technology

#### Facebook, Twitter, Google CEOs face calls to testify to Congress











Why? We love instant, public, global messaging and conversation. It's what Twitter is and it's why we're here. But we didn't fully predict or understand the real-world negative consequences. We acknowledge that now, and are determined to find holistic and fair solutions.













This Oct. 26, 2016 file photo shows a Twitter sign outside of the company's headquarters in San Francisco. Twitter, Facebook and Google are facing renewed bipartisan demands to explain to Congress what they're doing to counter abuse of their networks ahead of this years congressional midterms elections.



Business > Technology

#### Facebook, Twitter, Google CEOs face calls to testify to Congress











Why? We love instant hublic alphal messaging and conversation. It's what



jack 🧼 @jack · Mar 1

We've focused most of our efforts on removing content against our terms, instead of building a systemic framework to help encourage more healthy debate, conversations, and critical thinking. This is the approach we now need.





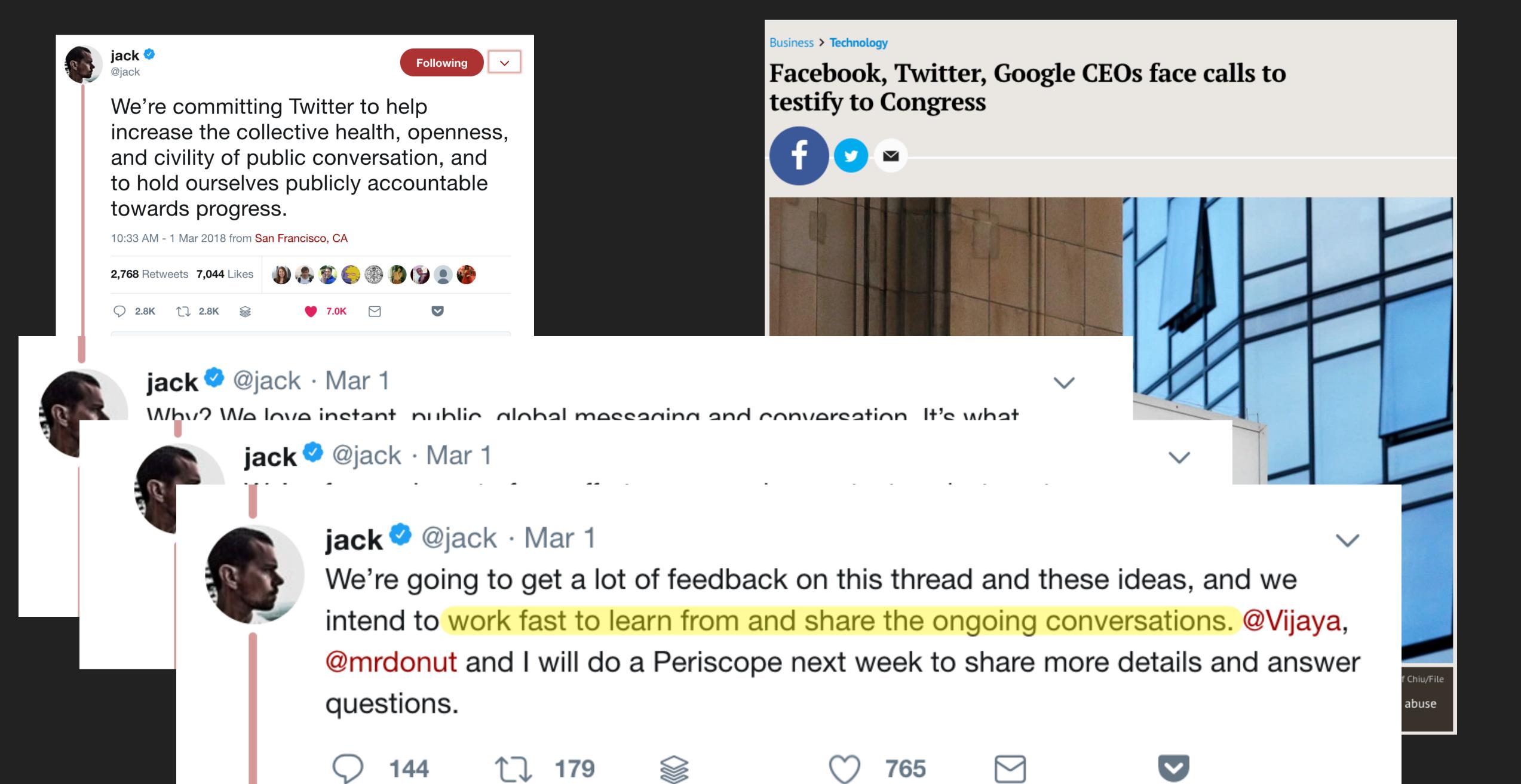
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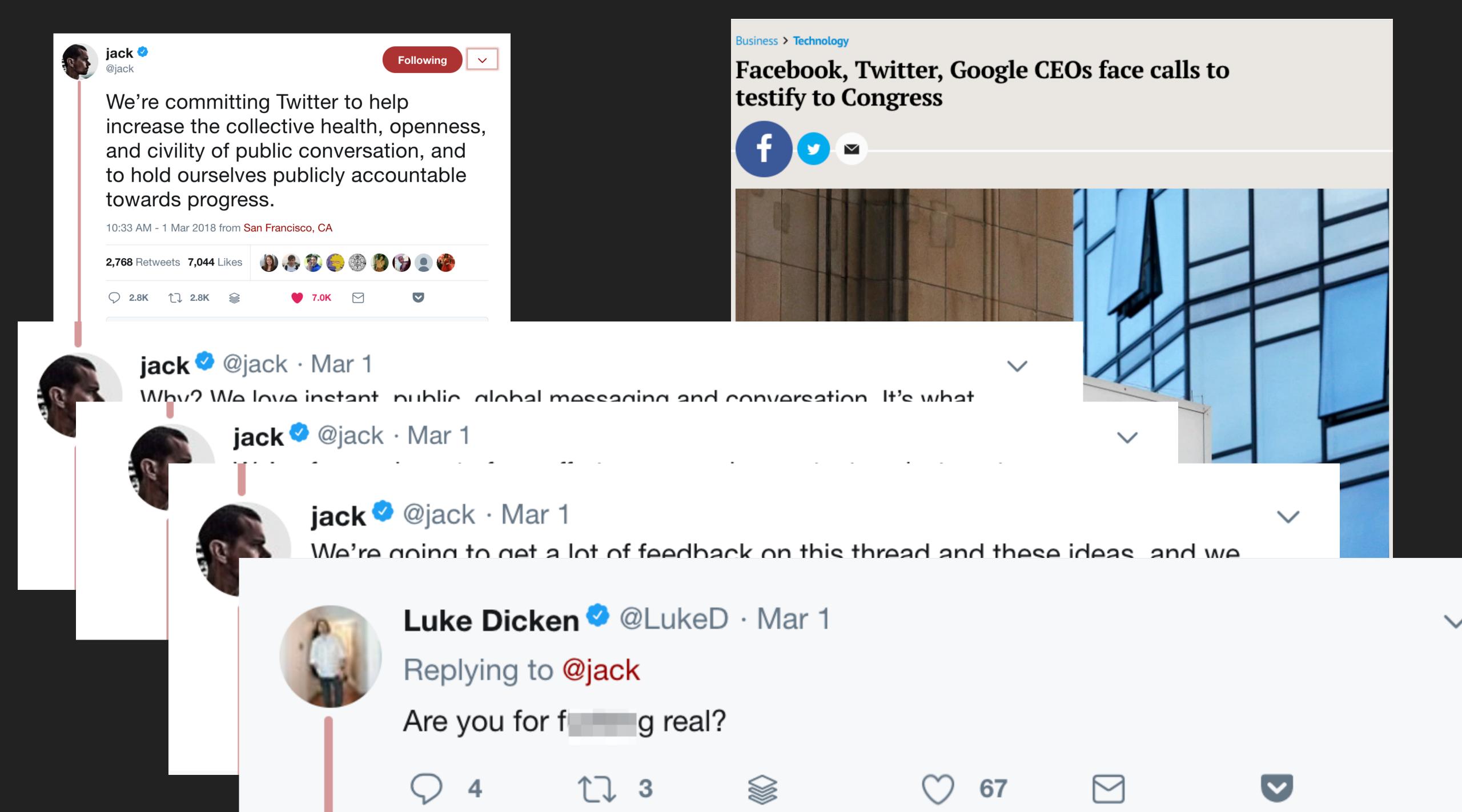












# BLINDLY OPTIMISING FOR METRICS, WITHOUT CONSIDERING REAL-WORLD IMPLICATIONS IS, AT BEST, RISKY.

AT WORST, IT'S CRIMINAL.

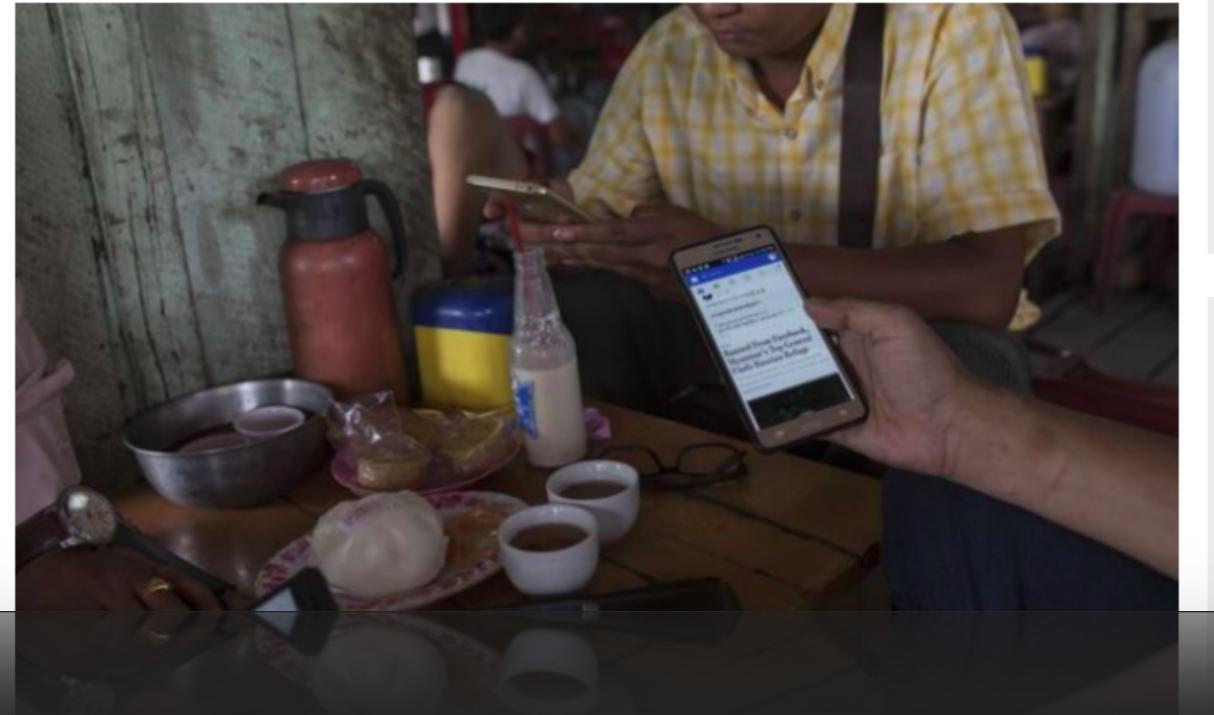


# IN THE NAME OF 'ENGAGEMENT'...













Facebook just announced that they will permit speech from politicians that violates community standards on their platform. The specifics of this new policy extension aren't listed, but considering the extremist, violent rhetoric on the right, this exemption is absolutely wild.

#### Newsworthiness Exemption

Facebook has had a newsworthiness exemption since 2016. This means that if someone makes a statement or shares a post which breaks our community standards we will still allow it on our platform if we believe the public interest in seeing it outweighs the risk of harm. Today, I announced that from now on we will treat speech from politicians as newsworthy content that should, as a general rule, be seen and heard. However, in keeping with the principle that we apply different standards to content for which we receive payment, this will not apply to ads – if someone chooses to post an ad on Facebook, they must still fall within our Community Standards and our advertising policies.



# YouTube



So @kevinroose's piece on YouTube's radicalization contains a perfect example of one of the core moral hazards in machine learning and AI: you can make an algorithm that can powerfully optimize any metric but no algorithm will tell you whether that metric is worth optimizing

#### learning.

The new A.I., known as Reinforce, was a kind of long-term addiction machine. It was designed to maximize users' engagement over time by predicting which recommendations would expand their tastes and get them to watch not just one more video but many more.

Reinforce was a huge success. In a talk at an A.I. conference in February,
Minmin Chen, a Google Brain researcher, said it was YouTube's most successful launch in two years.
Sitewide views increased by nearly 1









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Sitewide views increased by nearly 1



# IN THE NAME OF 'SALES'...

# IT CAN CAUSE RELATIONSHIP STRESS



### How Target Figured Out A Teen Girl Was Pregnant Before Her Father Did



**Kashmir Hill** Forbes Staff
Welcome to The Not-So Private Parts where technology & privacy collide

Every time you go shopping, you share intimate details about your consumption patterns with retailers. And many of those retailers are studying those details to figure out what you like, what you need, and which coupons are most likely to make you happy. Target TGT -1.41%, for example, has figured out how to data-mine its way into your womb, to figure out whether you have a baby on the way long before you need to start buying diapers.

whether you have a baby on the way long



Target has got you in its aim Laudet has dot hon in its aim



# IN THE NAME OF 'EFFICIENCY'... IT CAN DISCRIMINATE...



### FAST @MPANY

CO.DESIGN

TECH

WORK LIFE

CREATIVITY

IMPACT

AUDIO

VIDEO

10.10.18

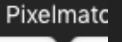
# Amazon's hiring AI may have weeded out women: Report



[Photo: Flickr user Tony Webster]

BY MELISSA LOCKER 1 MINUTE READ

Artificial intelligence is slowly becoming the first round of human accoming the first round of human accomi











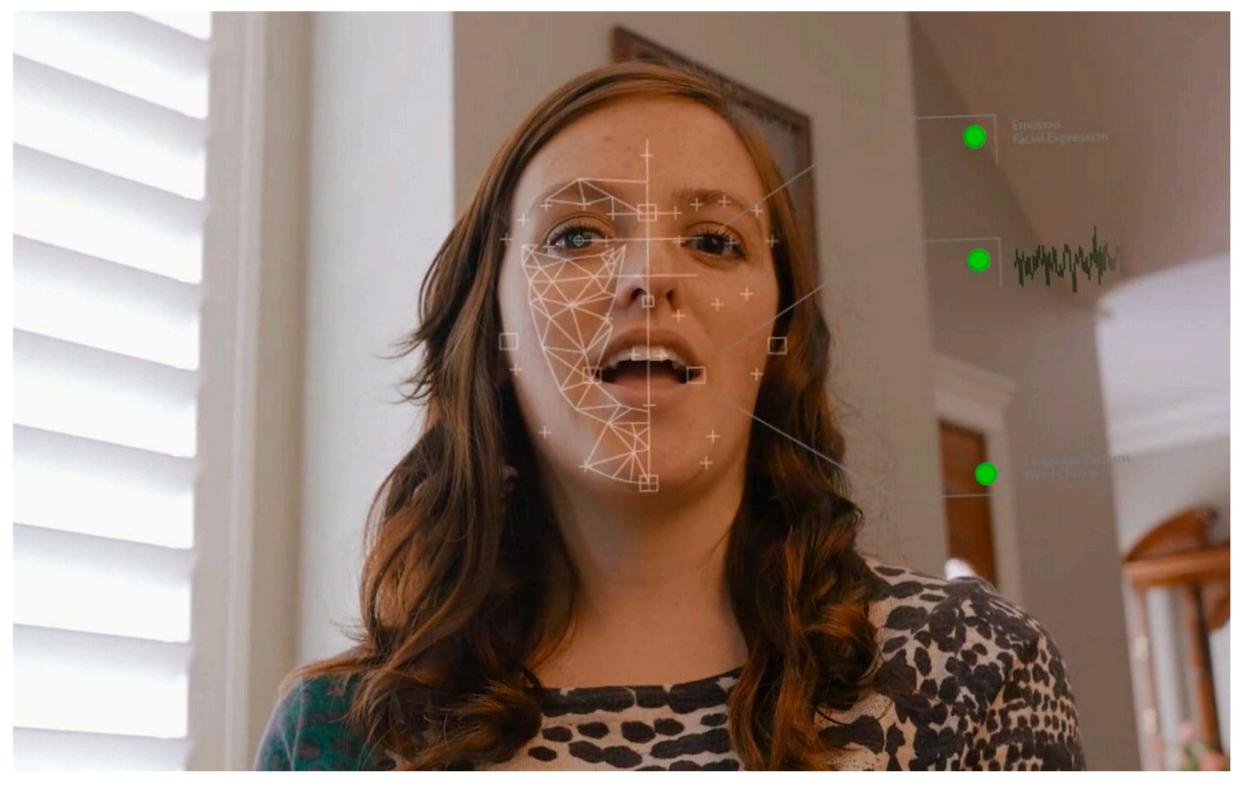
#### AI used for first time in job interviews in UK to find best applicants











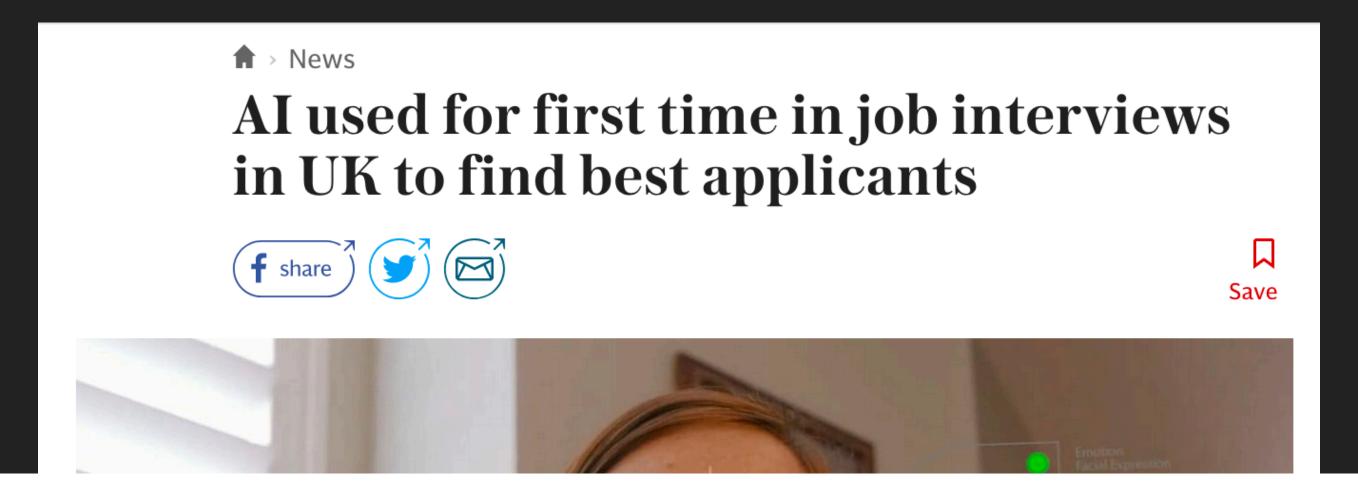
An applicant being interviewed on their phone



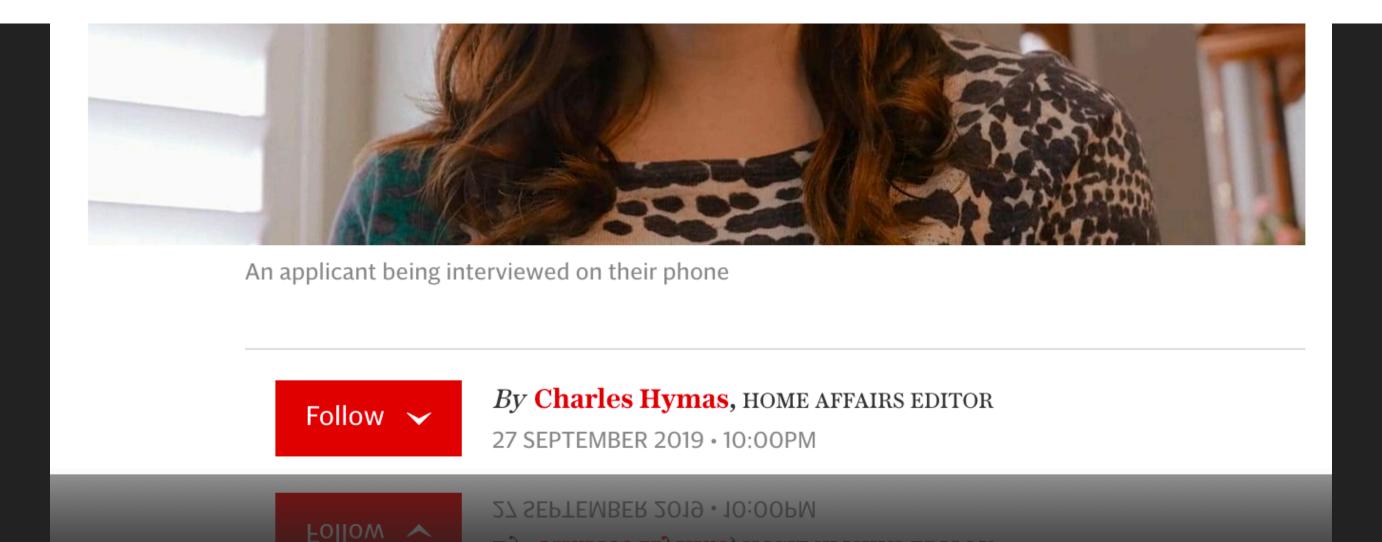
By Charles Hymas, HOME AFFAIRS EDITOR

27 SEPTEMBER 2019 • 10:00PM

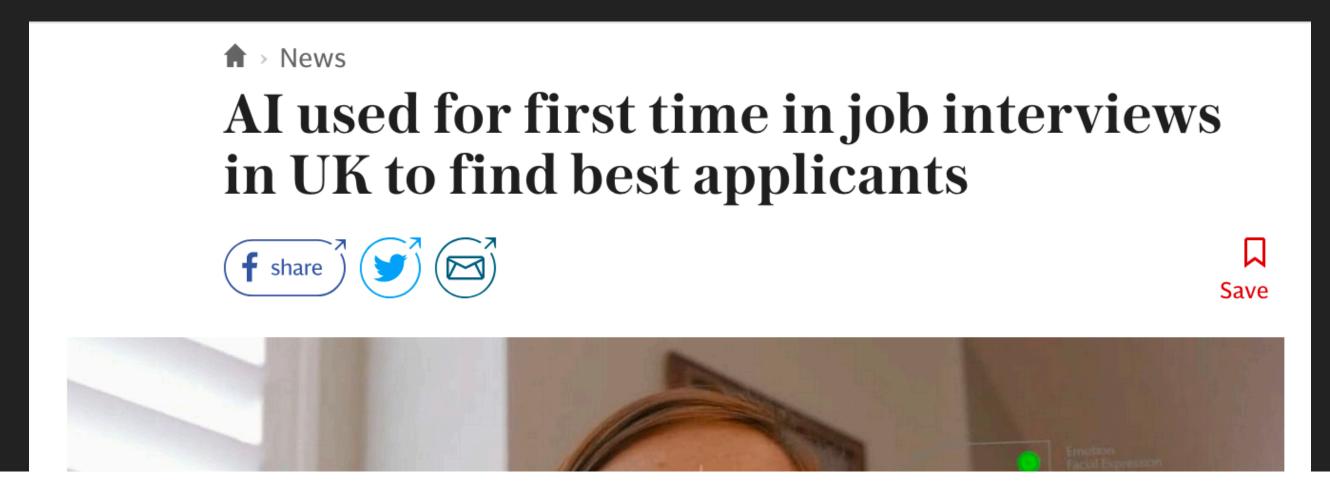




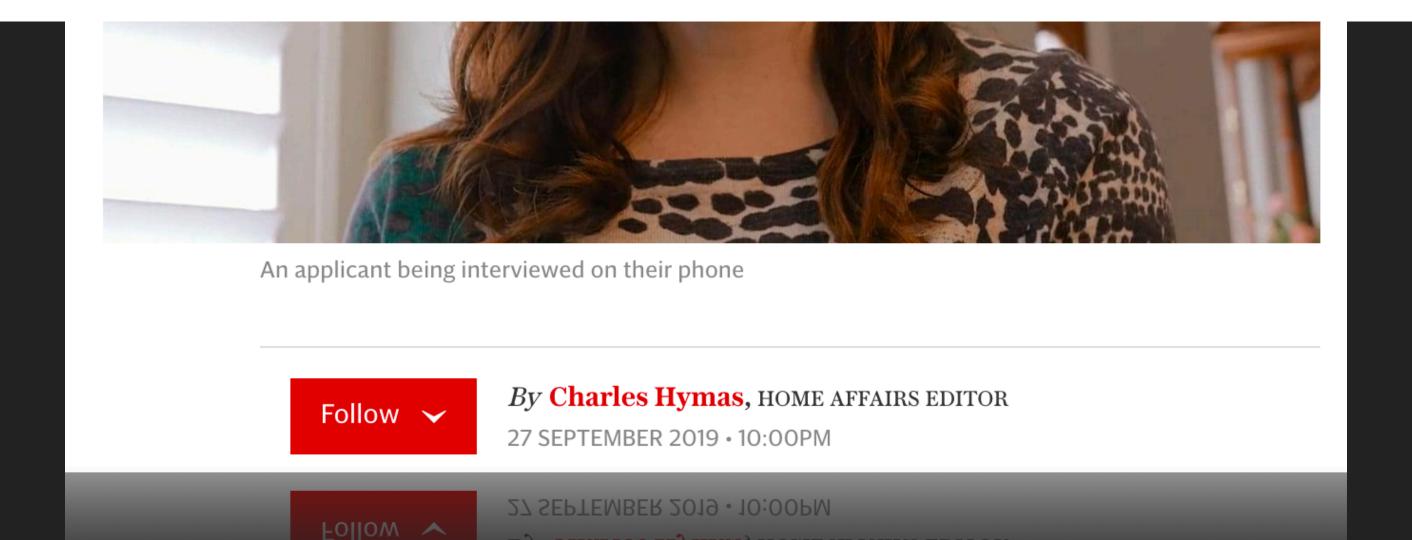
The algorithms select the best applicants by assessing their performances in the videos against about 25,000 pieces of facial and linguistic information compiled from previous interviews of those who have gone on to prove to be good at the job.







However, academics and campaigners warned that any AI or facial recognition technology would inevitably have in-built biases in its databases that could discriminate against some candidates and exclude talented applicants who might not conform to the norm.



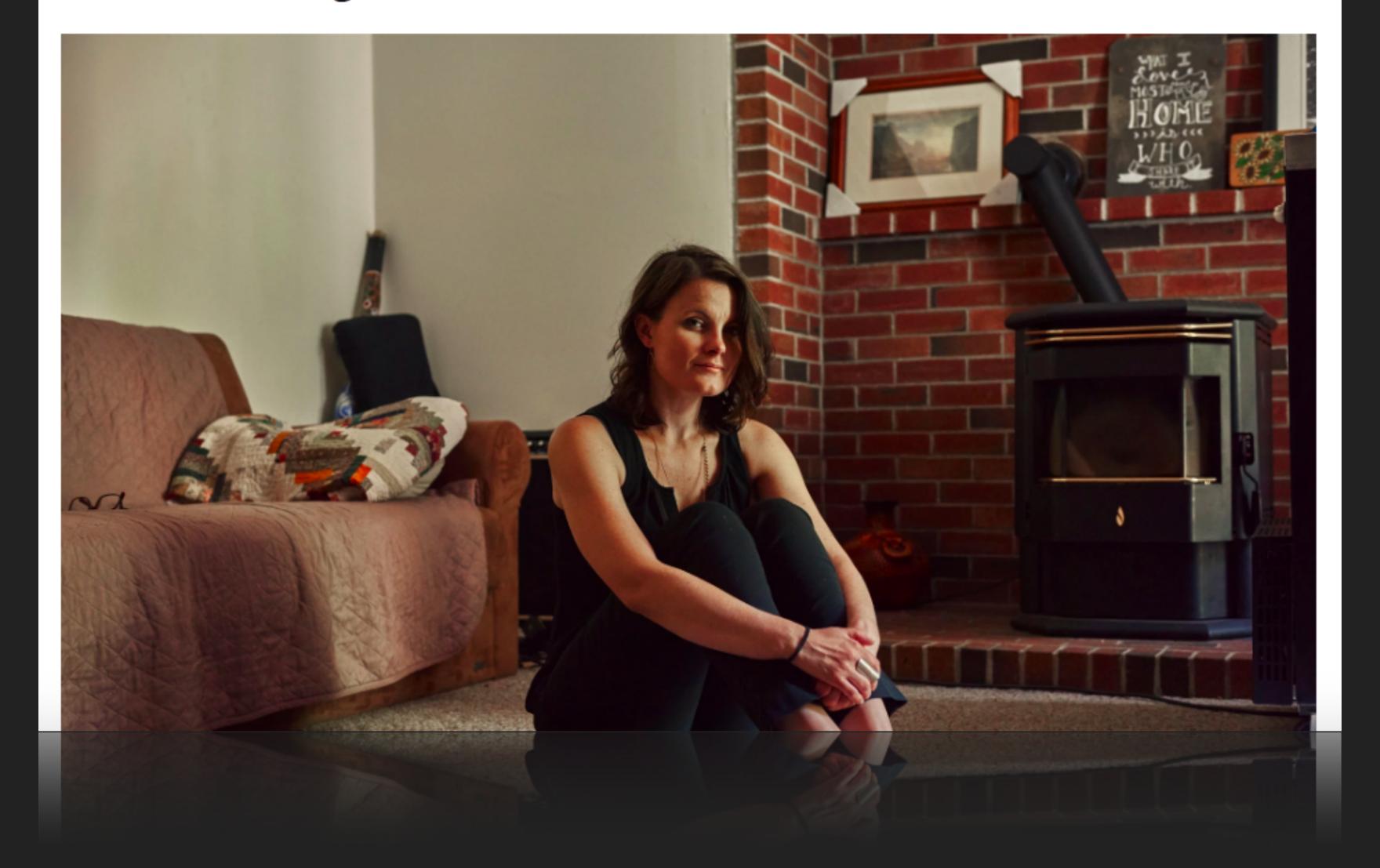


# IN THE NAME OF 'CONVENIENCE'... IT CAN BE USED TO HURT PEOPLE...



#### The New York Times

# Thermostats, Locks and Lights: Digital Tools of Domestic Abuse





# IN THE NAME OF 'NEWS'... IT CAN ELEVATE THE WORST IN US...





# AND IT'S NOT JUST SOCIAL MEDIA OR RETAIL.

# MOST INDUSTRIES ARE USING SOFTWARE TO CHANGE THE BEHAVIOUR OF THEIR USERS.



#### Let's Stop Pretending Facebook and Twitter's CEOs Can't Fix This Mess

They've been trained to not care.

The core problem is that these CEOs are actually making totally logical decisions every step of the way. Capitalism which drives the markets, investors, venture capitalists, and board members—demands a certain approach to growth and expansion, one that values particular metrics. So social media companies and the leaders who run them are rewarded for focusing on reach and engagement, not for positive impact or for protecting subsets of users from harm. They're rewarded for keeping costs down, which encourages the free-for-all, anything-goes approach misnomered "free speech." If they don't need to monitor their platforms, they don't need to come up with real policies—and avoid paying for all the people and tools required to implement them.



# THIS IS A LEADERSHIP ISSUE



#### Let's Stop Pretending Facebook and Twitter's CEOs Can't Fix This Mess

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# THIS IS A LEADERSHIP ISSUE





# THIS IS A LEADERSHIP ISSUE



# SOMETHING TO KEEP AN EYE ON... GOTHELF.CO / @JBOOGIE

#### "I TRUST MY PRODUCT MANAGER"







By default, new technologies bear the ethical fingerprints of their creators, not of wider society.

- Cennydd Bowles, author of Future Ethics



#### BUT WHAT WILL YOUR CODE BE USED TO DO?



#### Volkswagen Engineer Gets Prison in Diesel Cheating Case



James Liang, a Volkswagen engineer, is the first employee sent to prison in the scandal that has tainted the company's reputation and cost it billions in fines and settlements with consumers. Virginia Lozano/Detroit News, via Associated Press

#### By Bill Vlasic

Aug. 25, 2017



DETROIT — A Volkswagen engineer was sentenced on Friday to 40 months in prison for his role in the German automaker's decade-long scheme to cheat on federal emissions tests for diesel-powered cars sold in the United States.

sold in the United States.

#### ILS AON MH Chis Marie From the Brand of the



#### Goal-driven. Values guided. Measure both.

- Kim Goodwin



#### WHAT CAN YOU DO?





#### 1. UNDERSTAND YOUR BUSINESS MODEL



### 1. UNDERSTAND YOUR BUSINESS MODEL 2. TAKE AN INTEREST IN YOUR CUSTOMERS



## UNDERSTAND YOUR BUSINESS MODEL TAKE AN INTEREST IN YOUR CUSTOMERS USE THE SOFTWARE TO LEARN



UNDERSTAND YOUR BUSINESS MODEL
 TAKE AN INTEREST IN YOUR CUSTOMERS
 USE THE SOFTWARE TO LEARN
 MEASURE THE IMPACT OF YOUR WORK



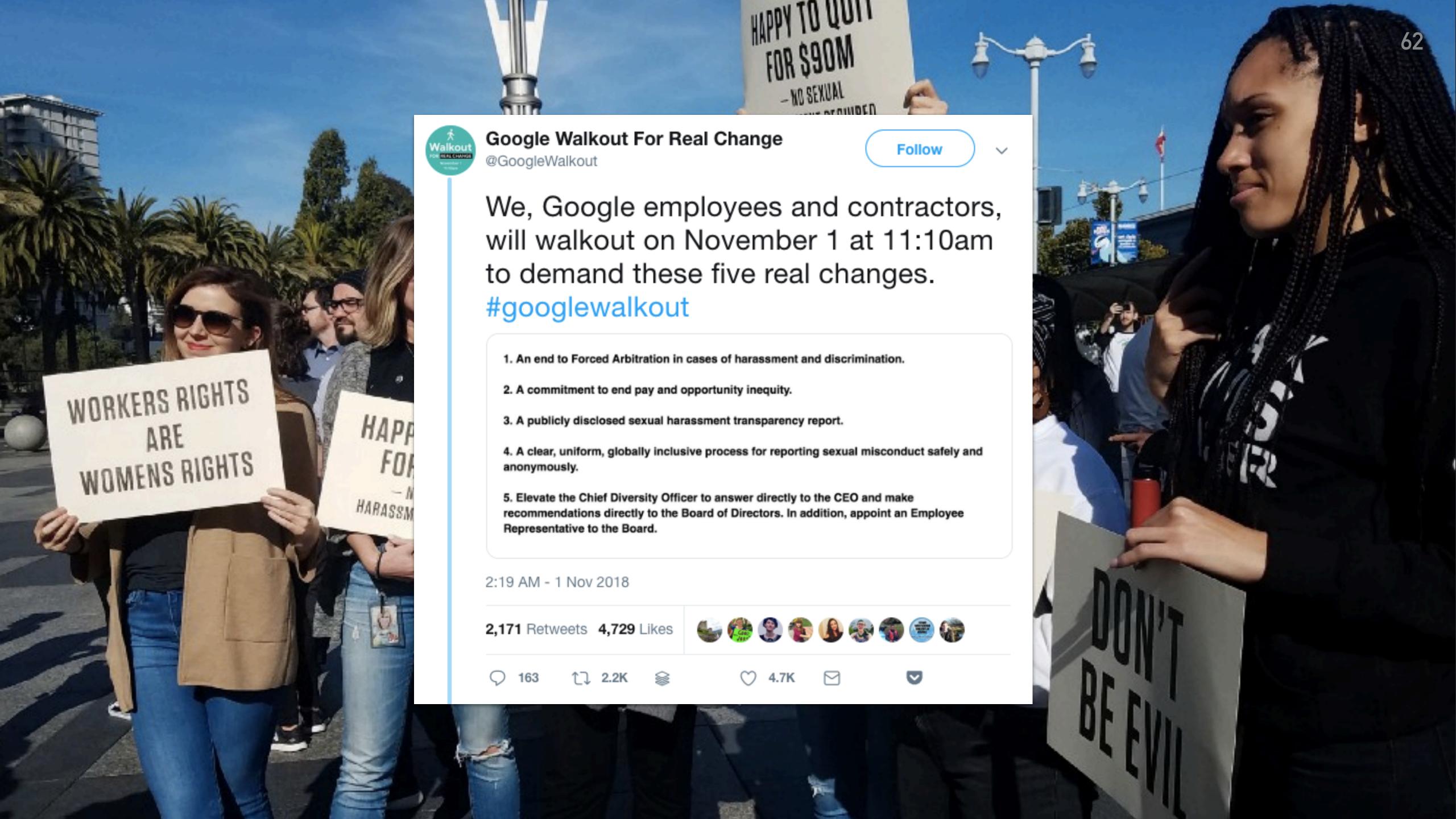
1. UNDERSTAND YOUR BUSINESS MODEL 2. TAKE AN INTEREST IN YOUR CUSTOMERS 3. USE THE SOFTWARE TO LEARN 4. MEASURE THE IMPACT OF YOUR WORK 5. DISCUSS THE DANGEROUS EDGE CASES

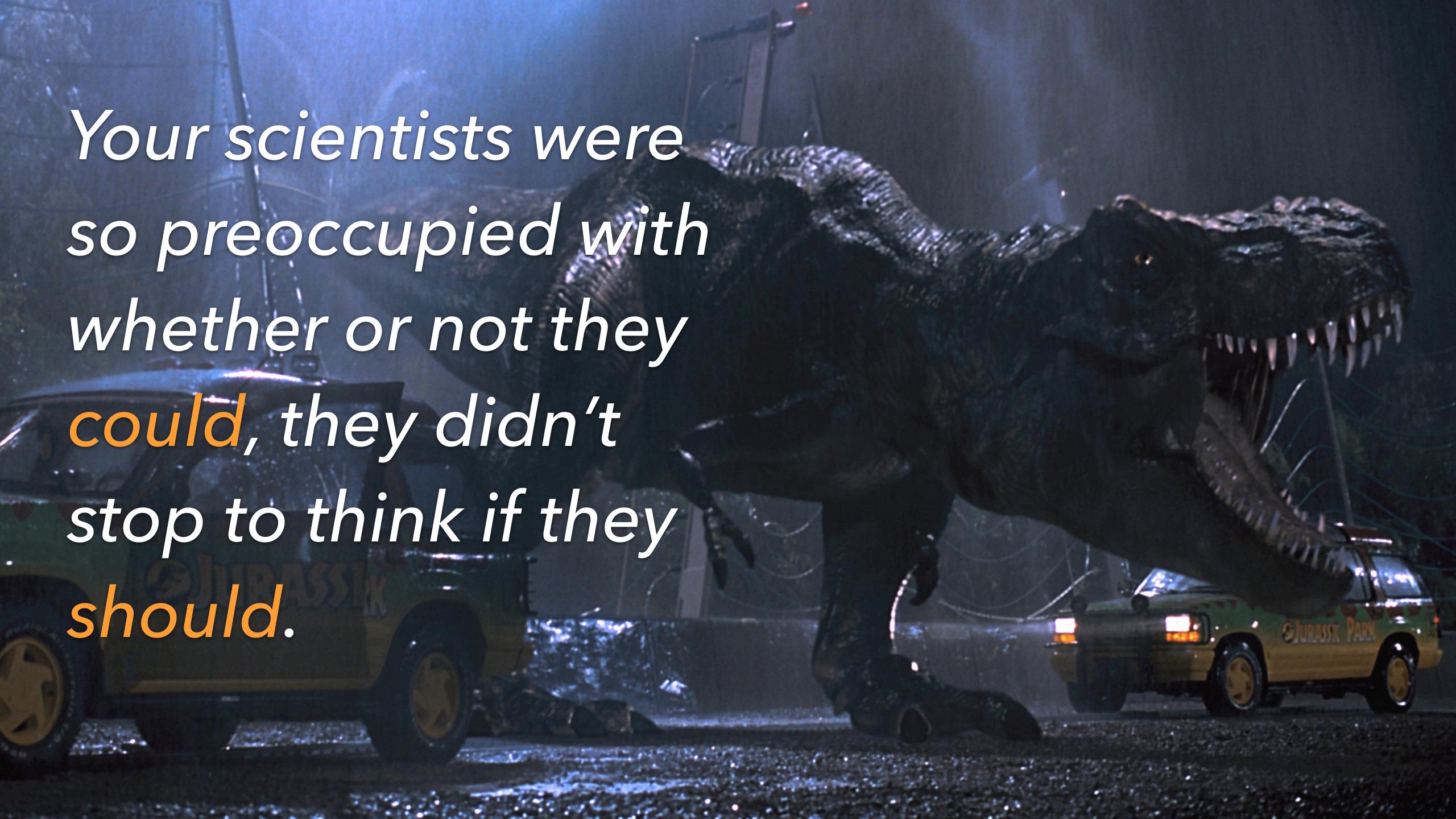


1. UNDERSTAND YOUR BUSINESS MODEL 2. TAKE AN INTEREST IN YOUR CUSTOMERS 3. USE THE SOFTWARE TO LEARN 4. MEASURE THE IMPACT OF YOUR WORK 5. DISCUSS THE DANGEROUS EDGE CASES 6. REFUSE THE WORK THAT HARMS PEOPLE







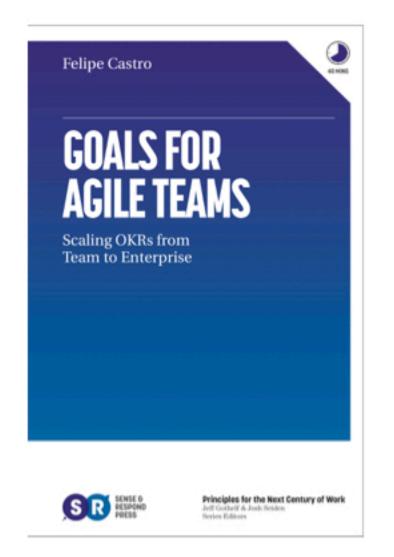


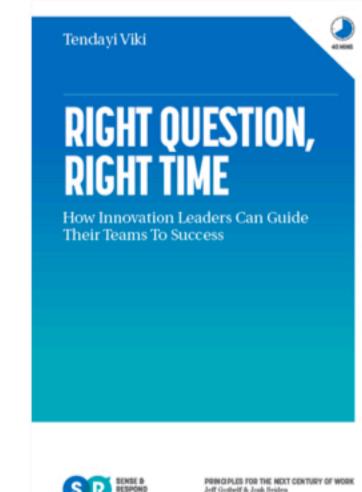




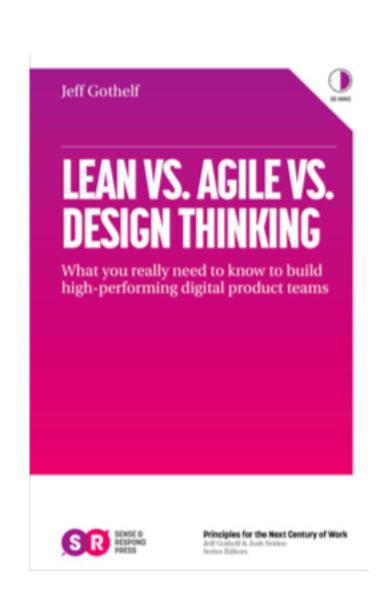






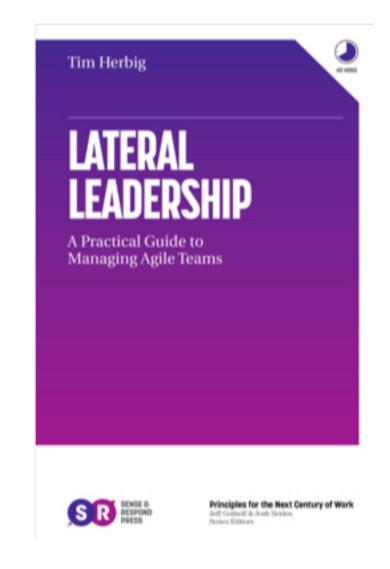














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