

# Tech in 2020: Standing on the shoulders of giants

**Benedict Evans**

January 2020

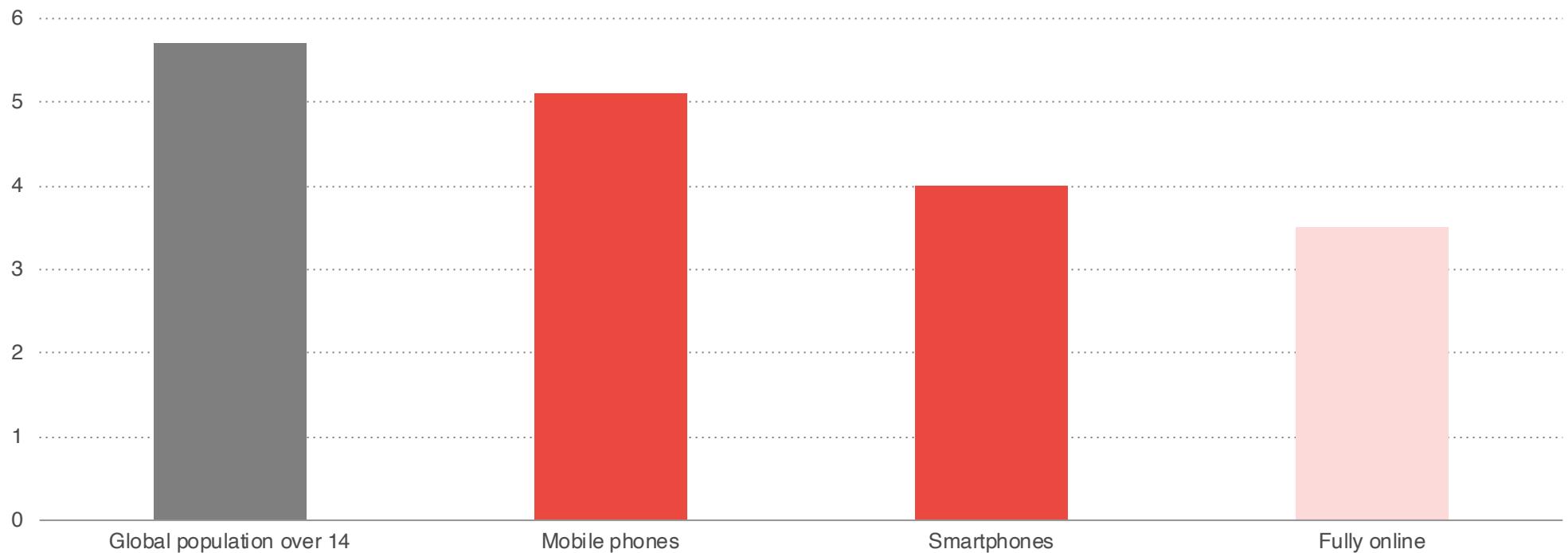
[www.ben-evans.com](http://www.ben-evans.com)

---

# We connected (almost) everyone

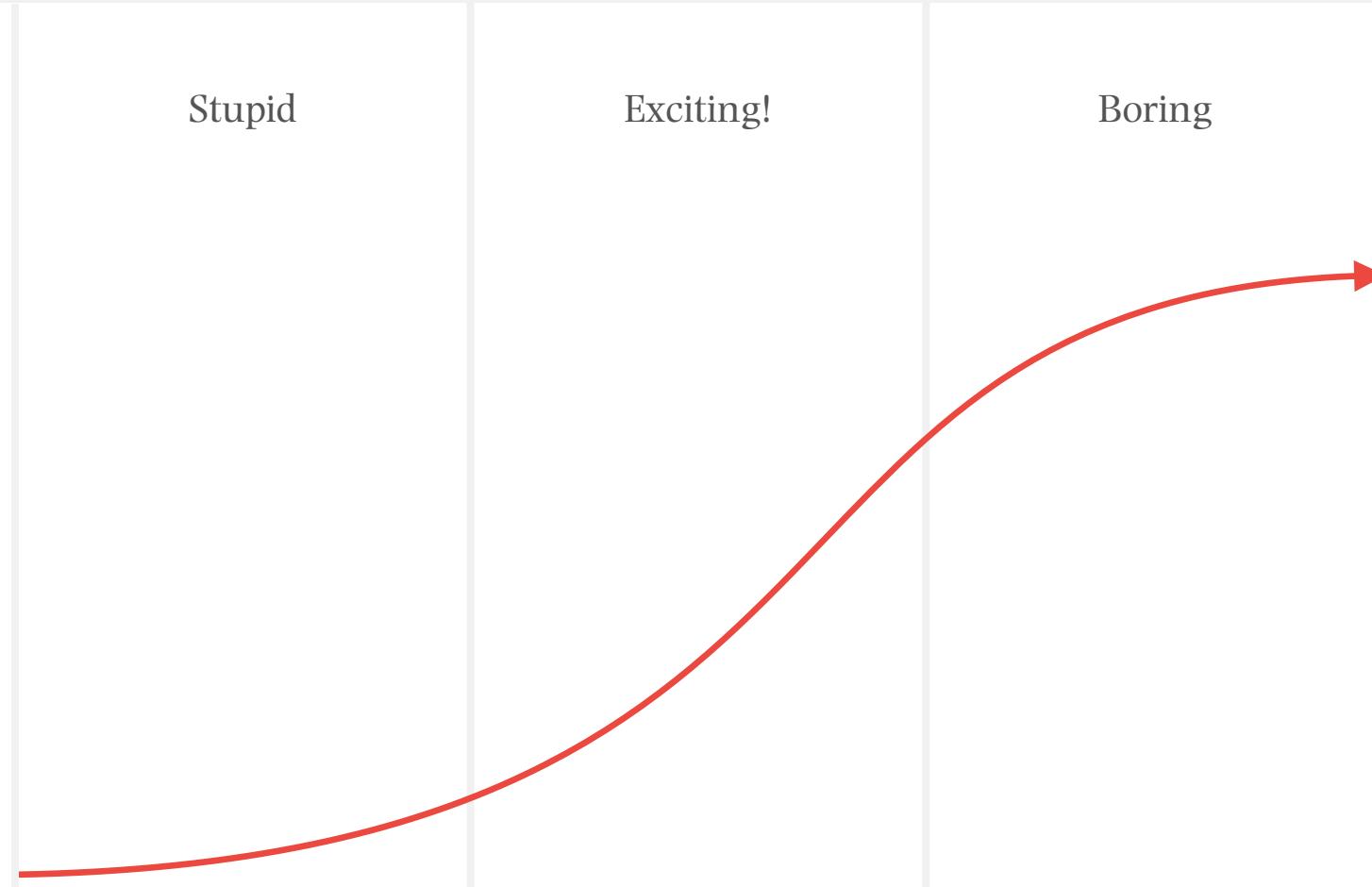
There are 5.5bn adults on earth, 5bn have a phone and 4bn have a smartphone

Global population, 2019 (bn)



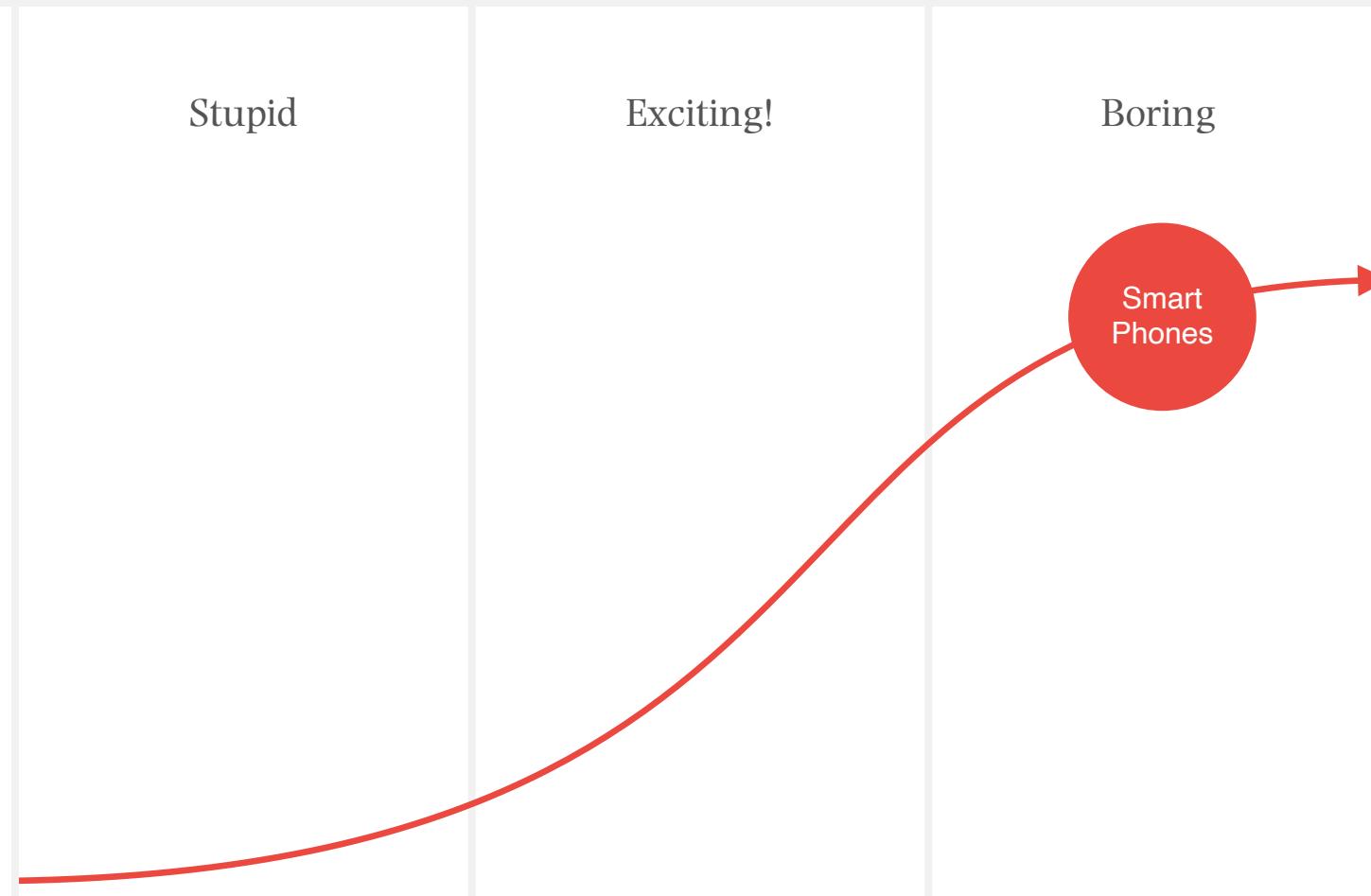
# New technologies come in S Curves

New tech generally goes from stupid to exciting to boring



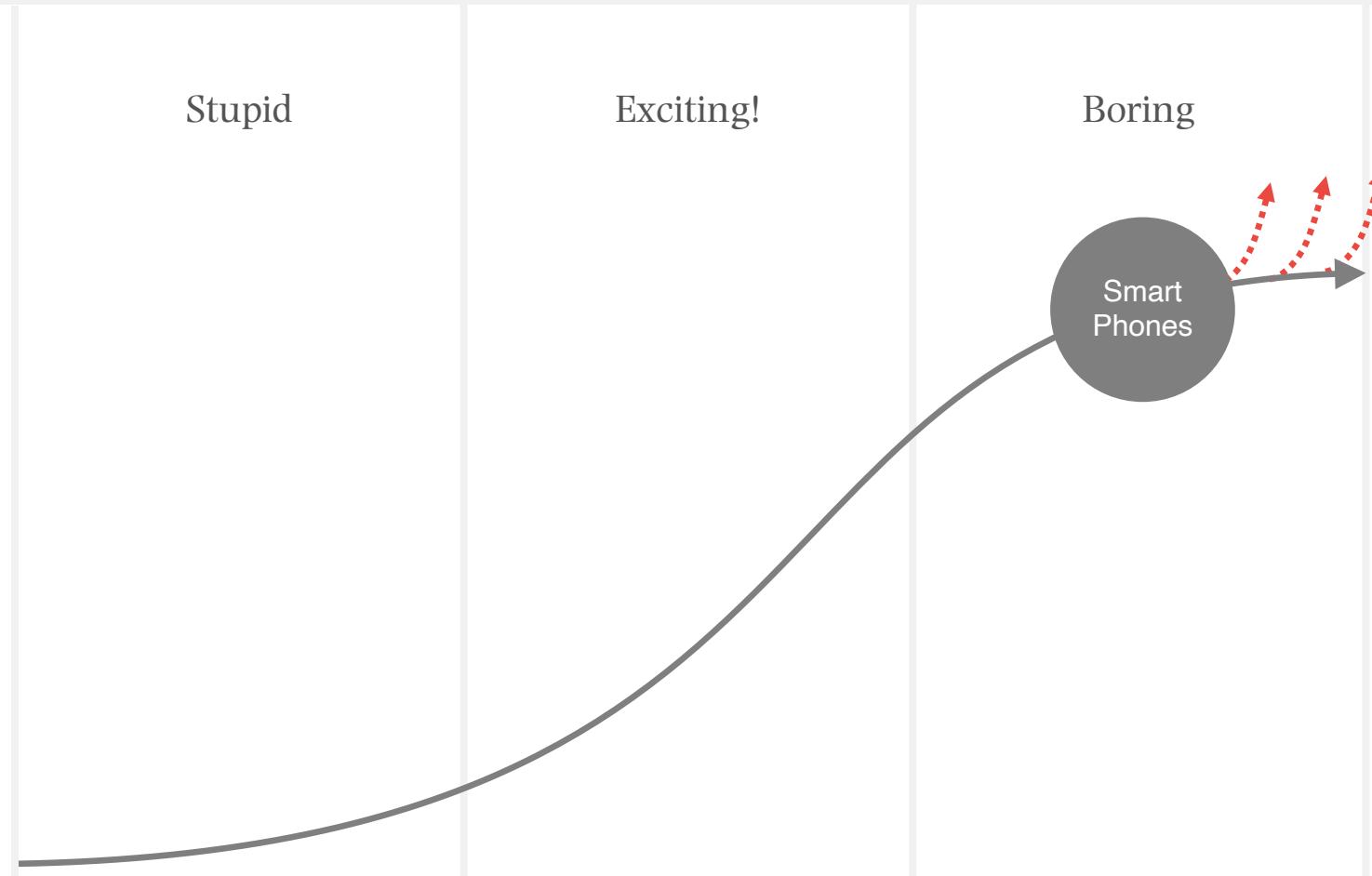
# And smartphones reached ‘boring’ (mostly)

As the product matures, the easy and obvious things have been done and marginal improvement tends to slow



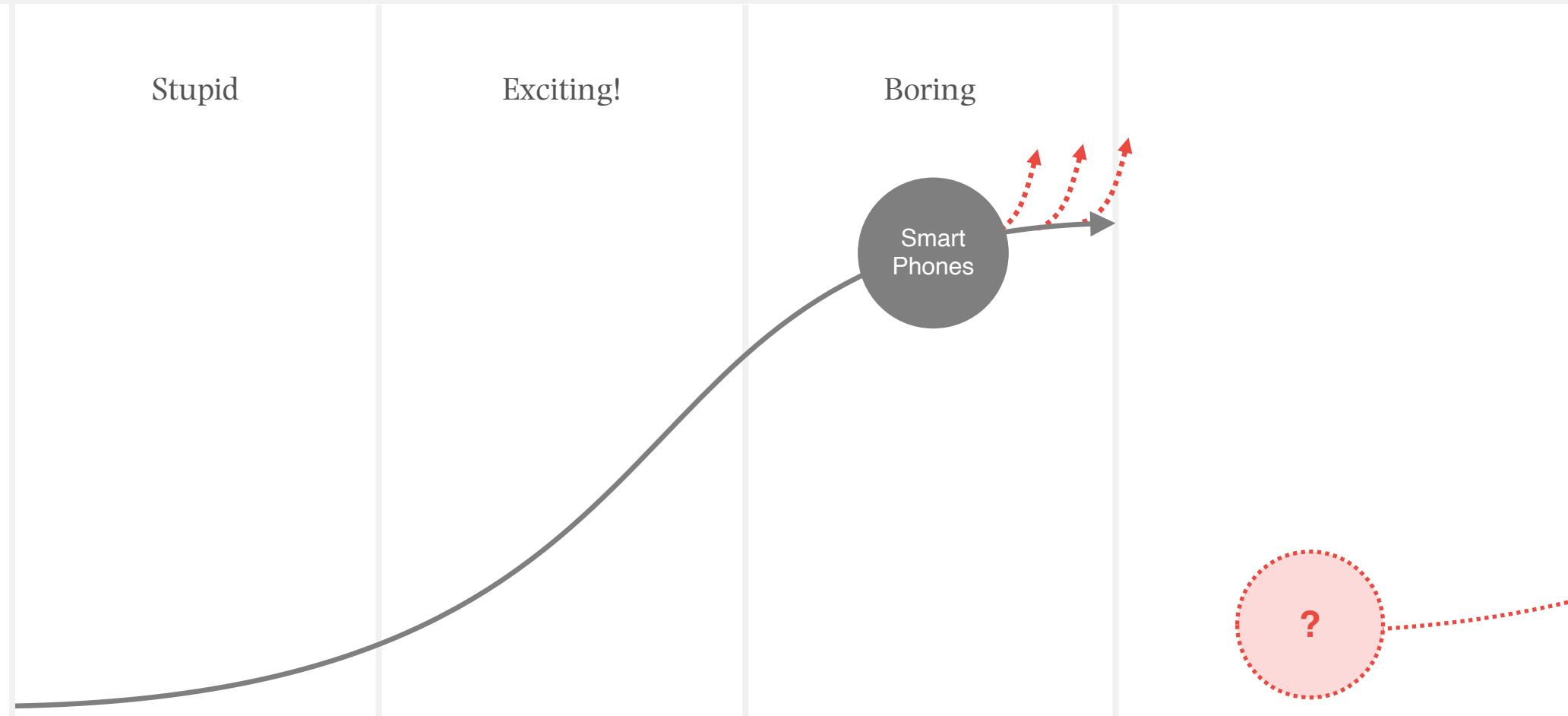
# At this stage, we ask how we can use it...

What becomes possible now that smartphones are mature and widely deployed?



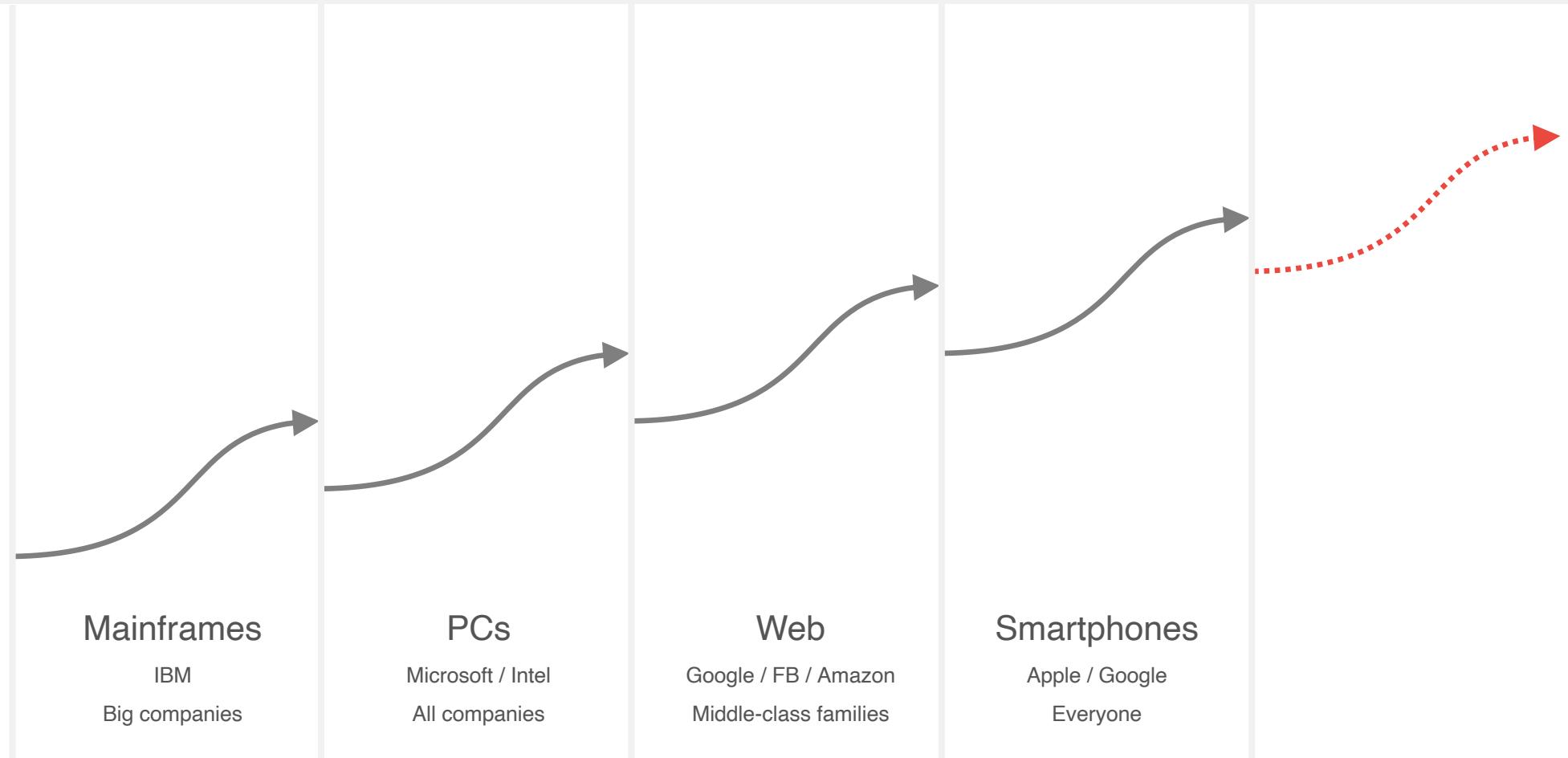
# And we ask what the next S Curve will be

What is the next generational change?



# Because that's been the model for 50 years

The tech industry has had a new centre roughly every 15 years

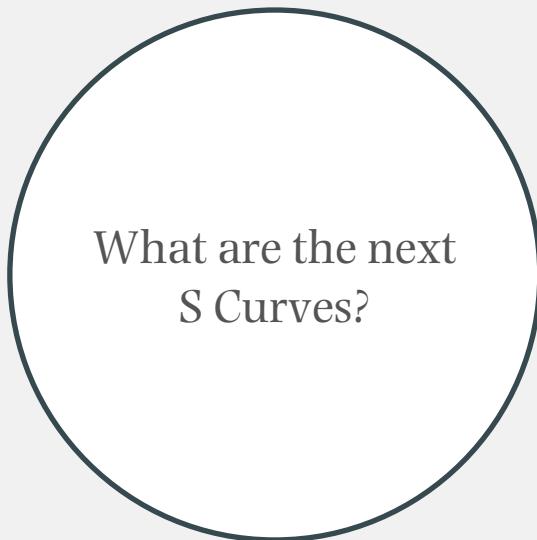


# So, two conversations today

What now and what next?



What happens  
when everyone is  
online?



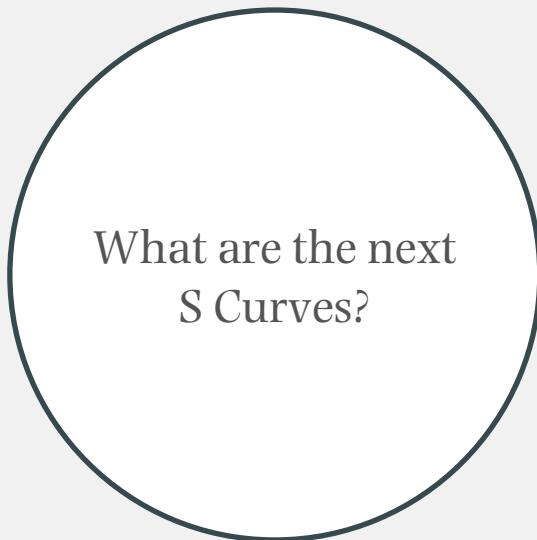
What are the next  
S Curves?

# So, ~~two~~ three conversations today

Connecting the world has had consequences far outside tech



What happens  
when everyone is  
online?



What are the next  
S Curves?



Regulation and  
policy

# What happens when everyone is online?

# Standing on the shoulders of giants

New possibilities at new scale



Density &  
penetration

Consumer  
expectation

Platforms

“Every failed idea from  
the dotcom bubble would  
work now”

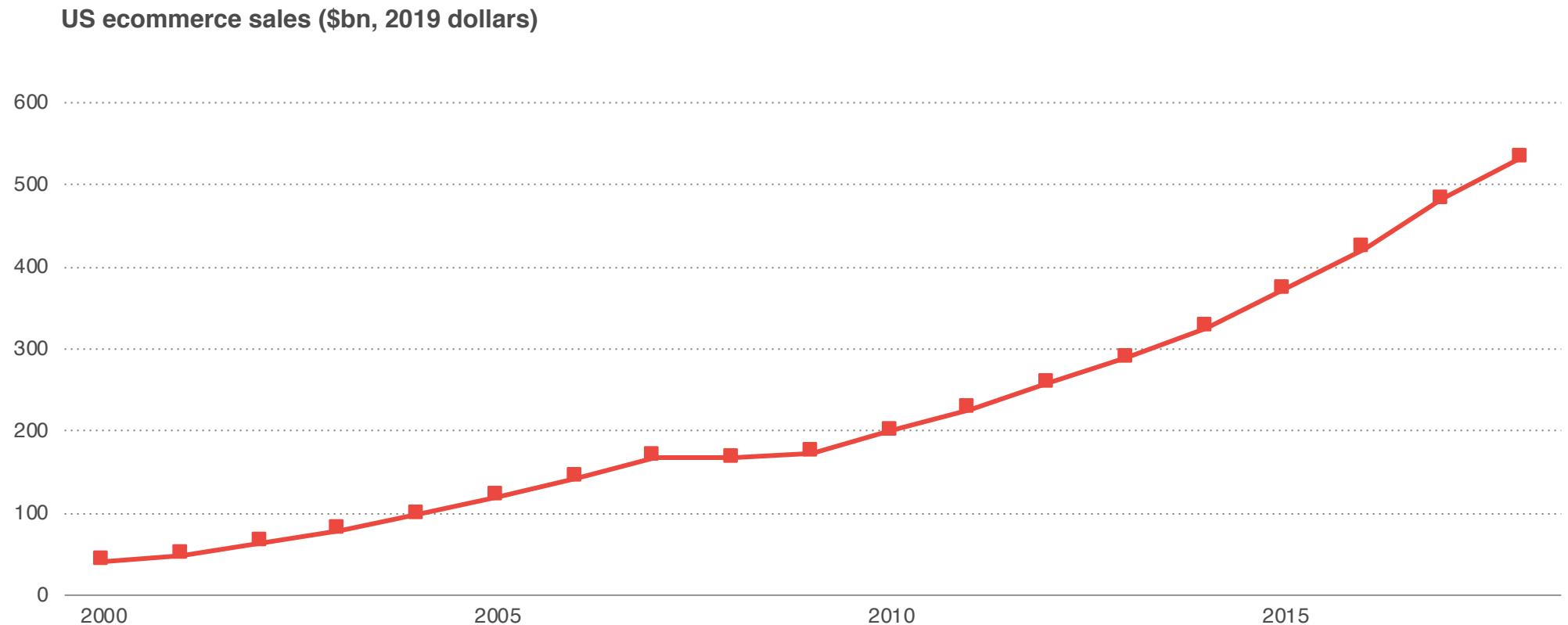
- Marc Andreessen

# Front of mind: ecommerce

---

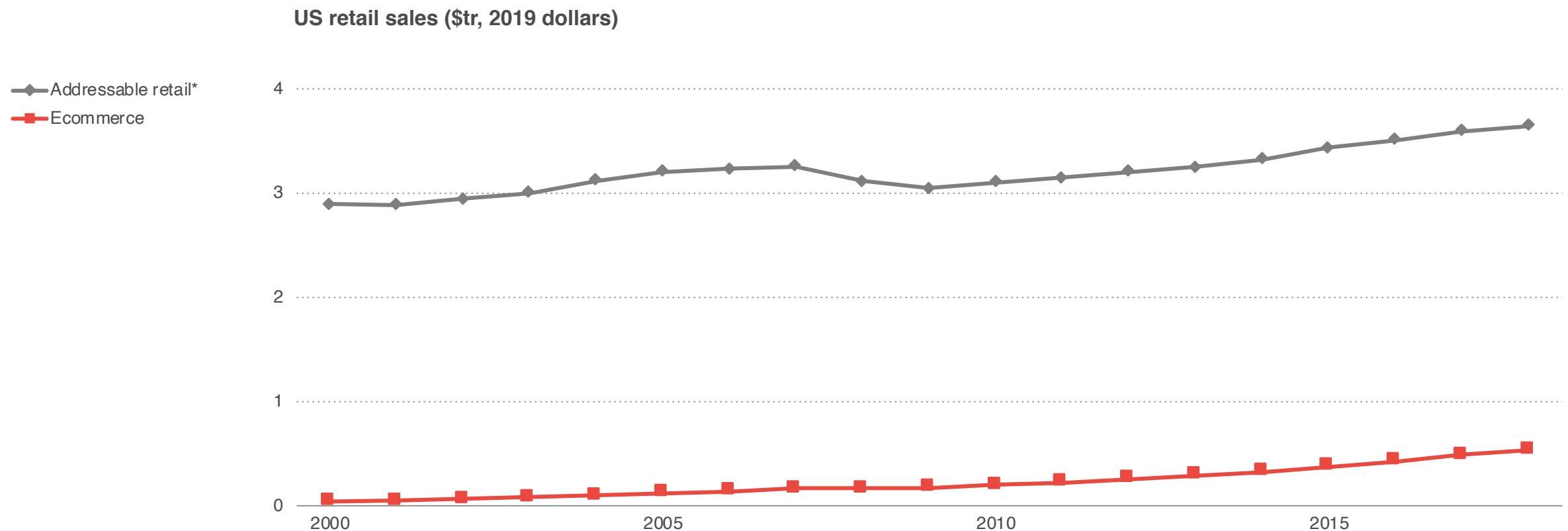
# Front of mind: ecommerce is big...

US ecommerce is now over \$500bn



# But still 'only' 15% of addressable retail

\$500bn is a big number, but US addressable retail is \$3.6tr



Source: US Census

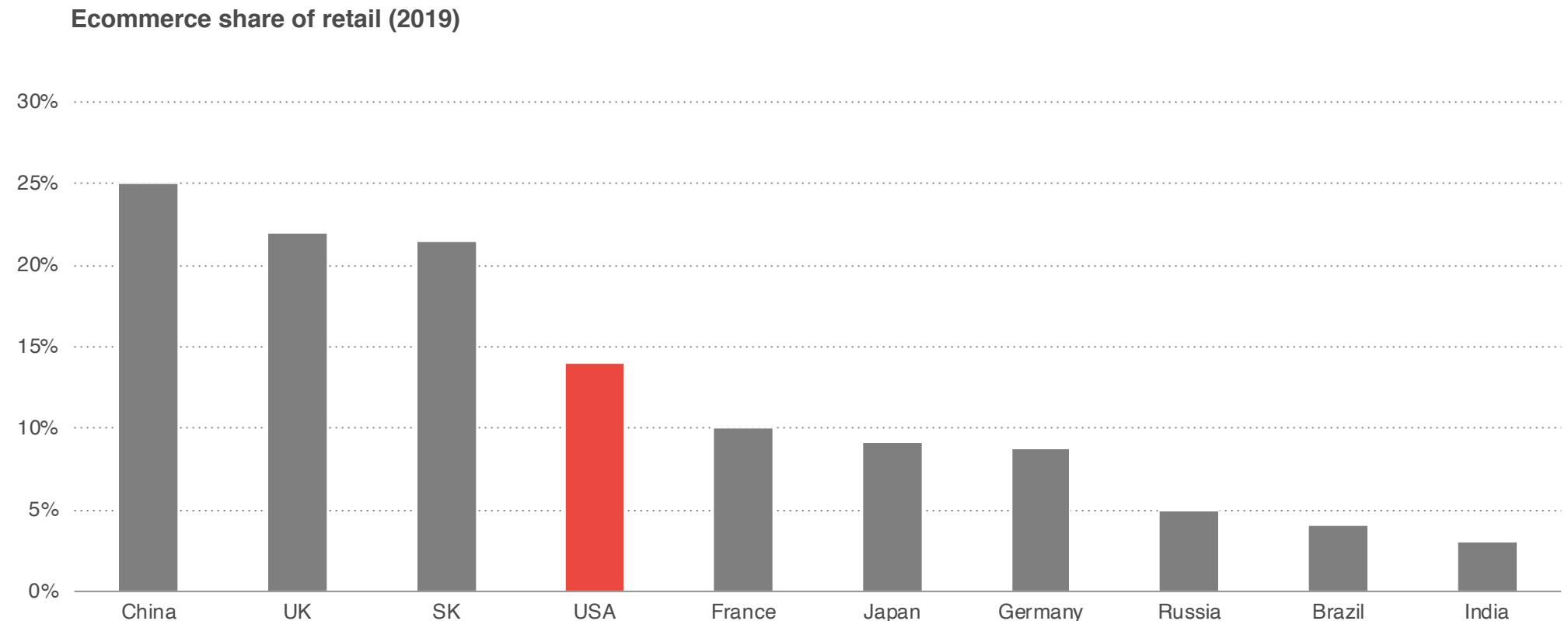
\*Addressable retail = ex. cars, car parts, gasoline, restaurants & bars

Benedict Evans — January 2020

15

# Globally, the USA is in the middle of the pack

China leapfrogged physical retail, while the UK and SK are also far ahead of the USA



# Expanding what ecommerce means

Ecommerce has evolved past commodity products in brown cardboard boxes

Books, commodities



Anything

One model



Many models

Capital



Platforms

# Powering the 'D2C' explosion...

Several hundred (at least) new online-only or online-first brands



Source: IAB

Benedict Evans — January 2020

18

# And huge new ecommerce platforms

Independent ecommerce is now so big that the enabling platforms are worth tens of billions



Shopify market cap is \$46bn



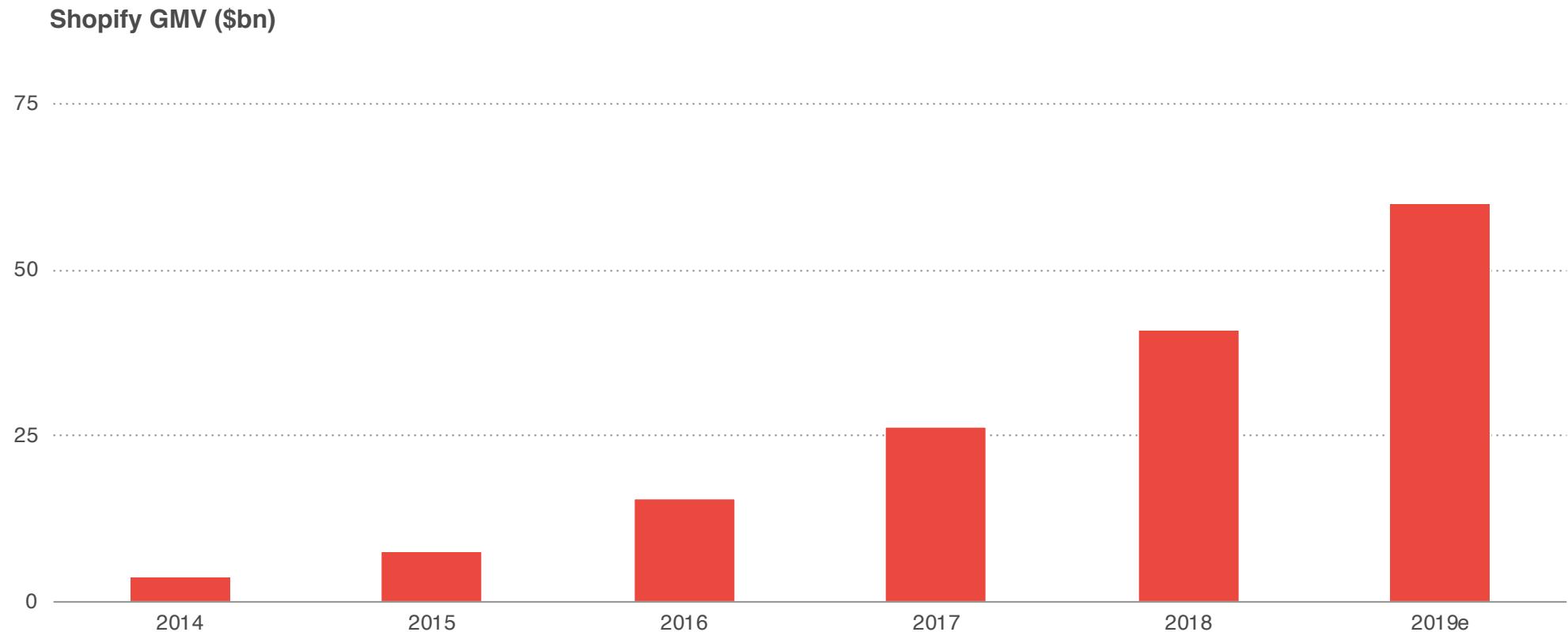
Stripe valued at \$35bn



Instagram, YouTube...

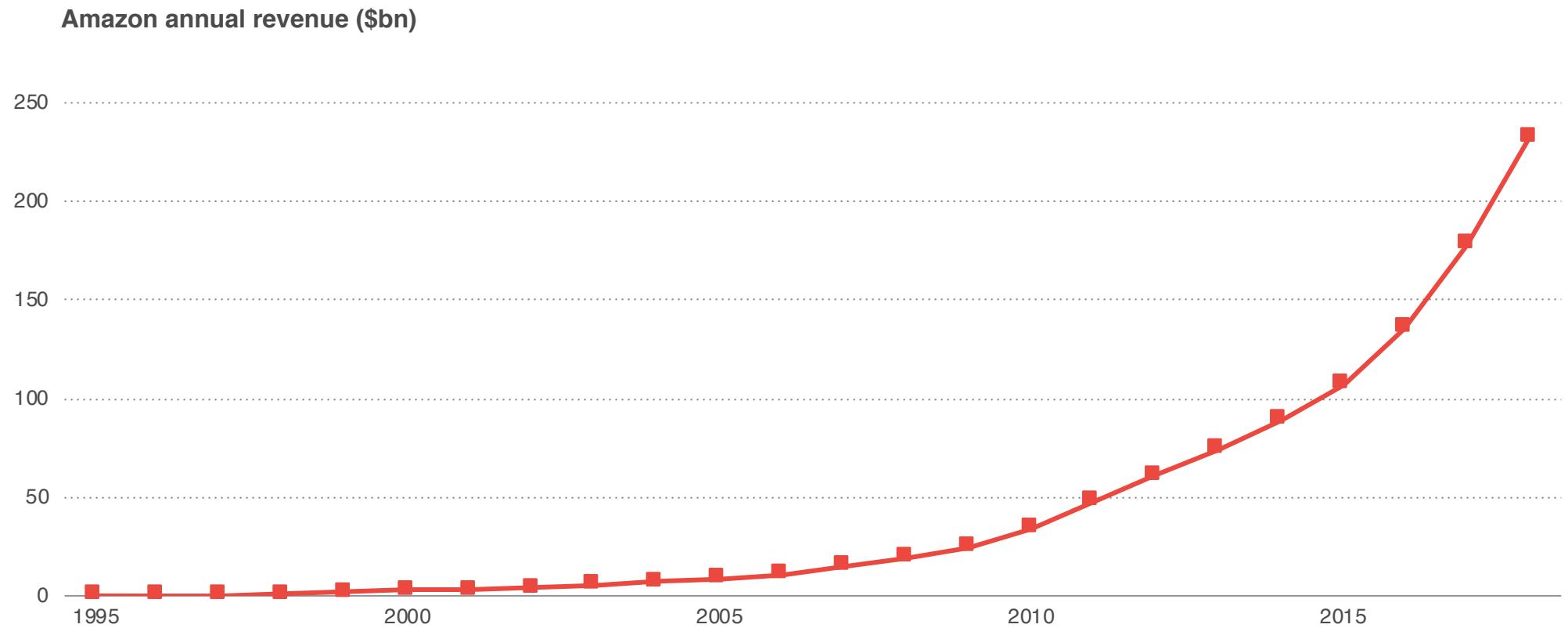
# Shopify has come from nowhere to \$60bn of GMV

\$60bn of sales on the platform, with over a million merchants, from the long tail to Unilever and Pepsico



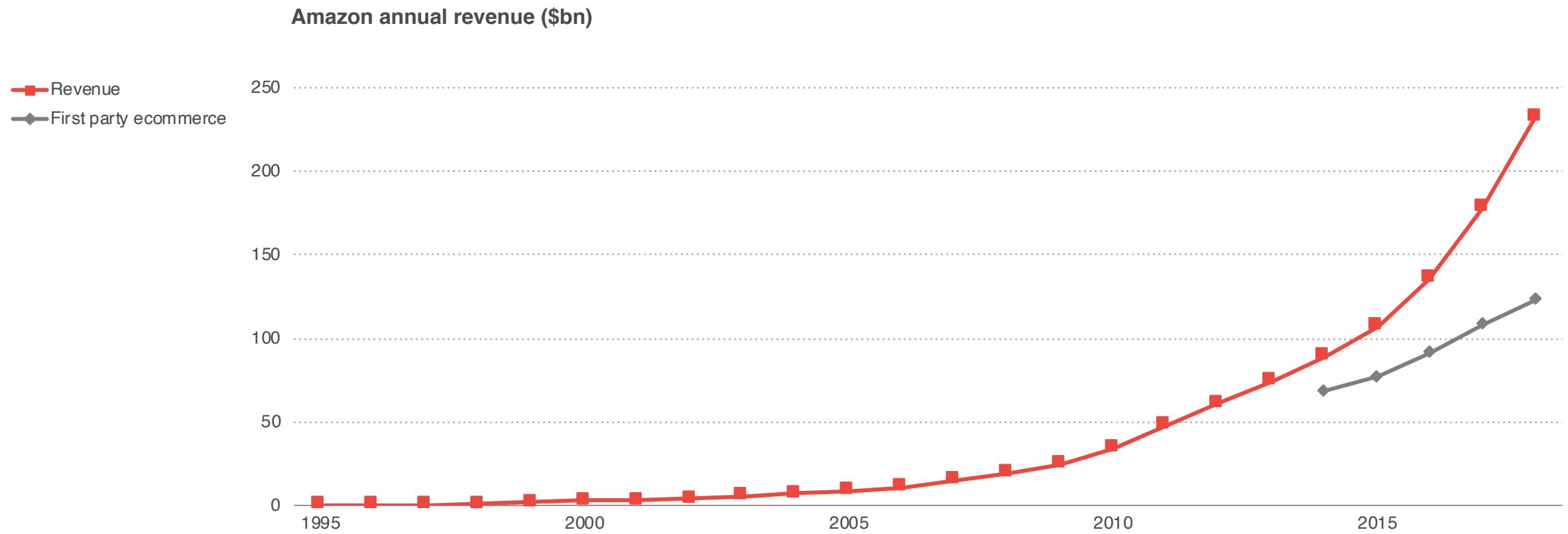
# Meanwhile: Amazon!

Amazon's revenue continues to grow at 30% a year



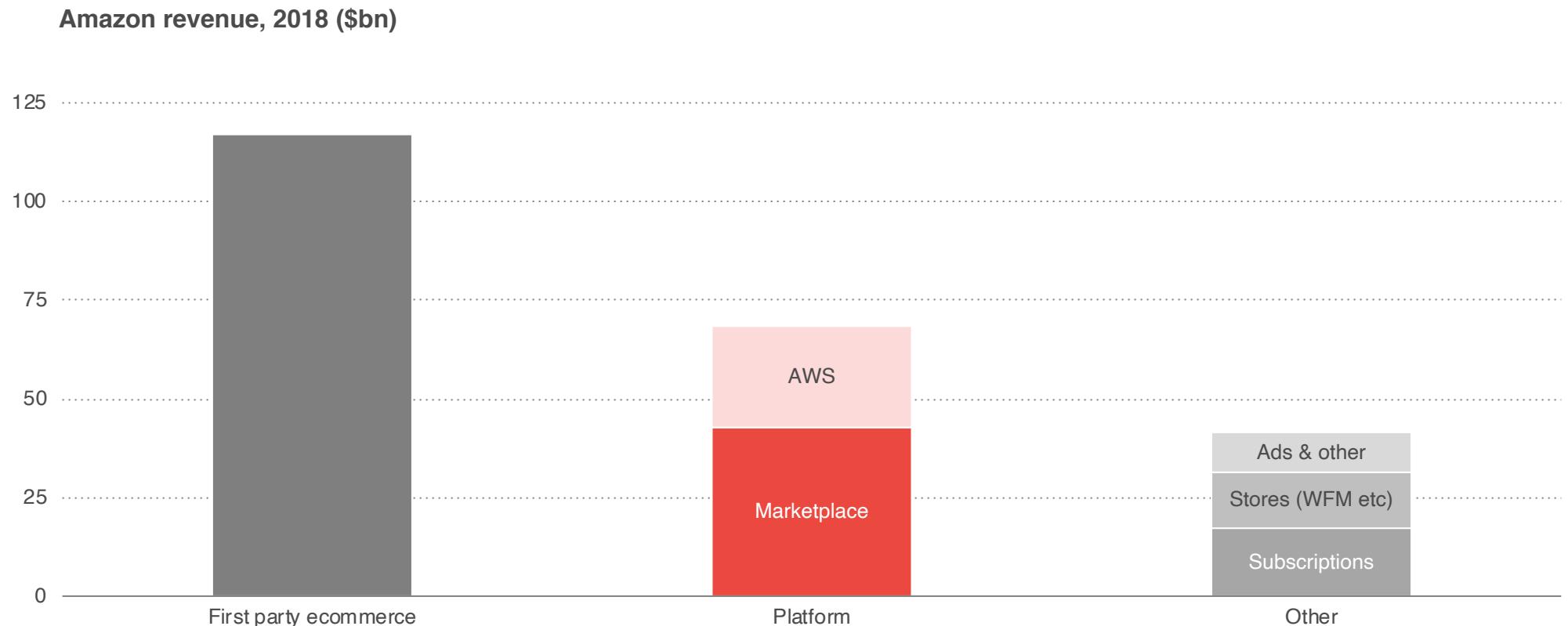
# Though only half is direct ecommerce

But it has become about more than just plain ecommerce



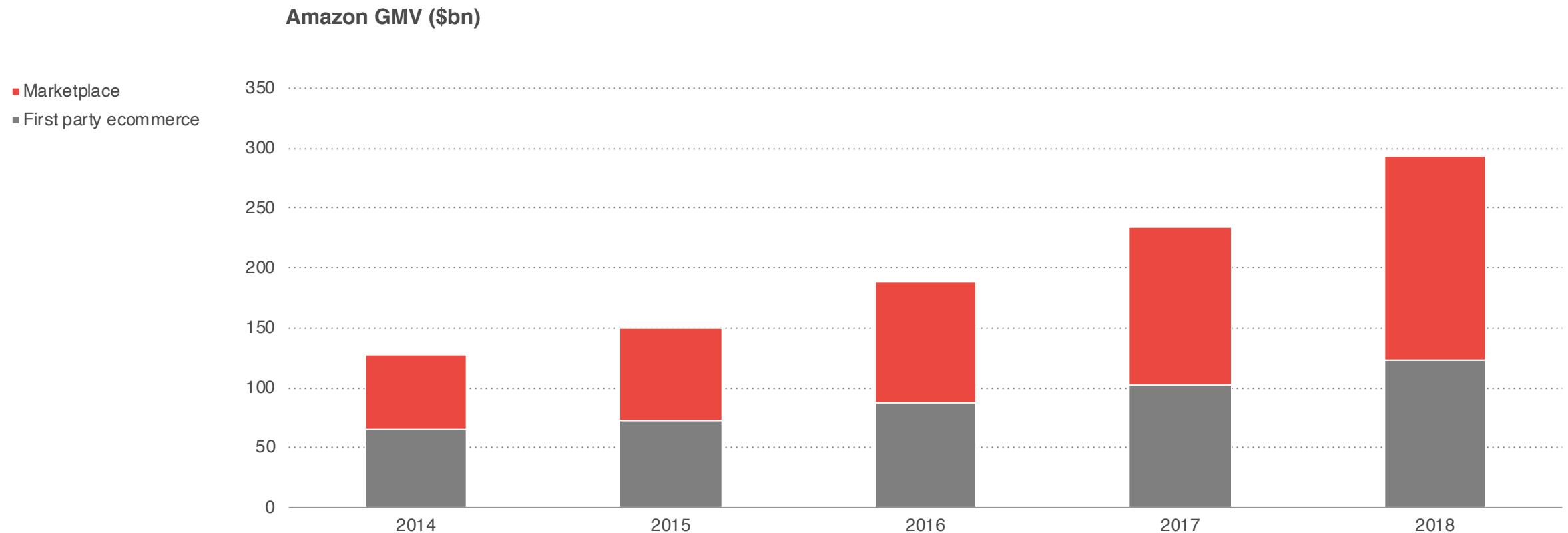
# Platforms for others are now a third of Amazon revenue

Amazon is building growth by leveraging its platforms for other companies



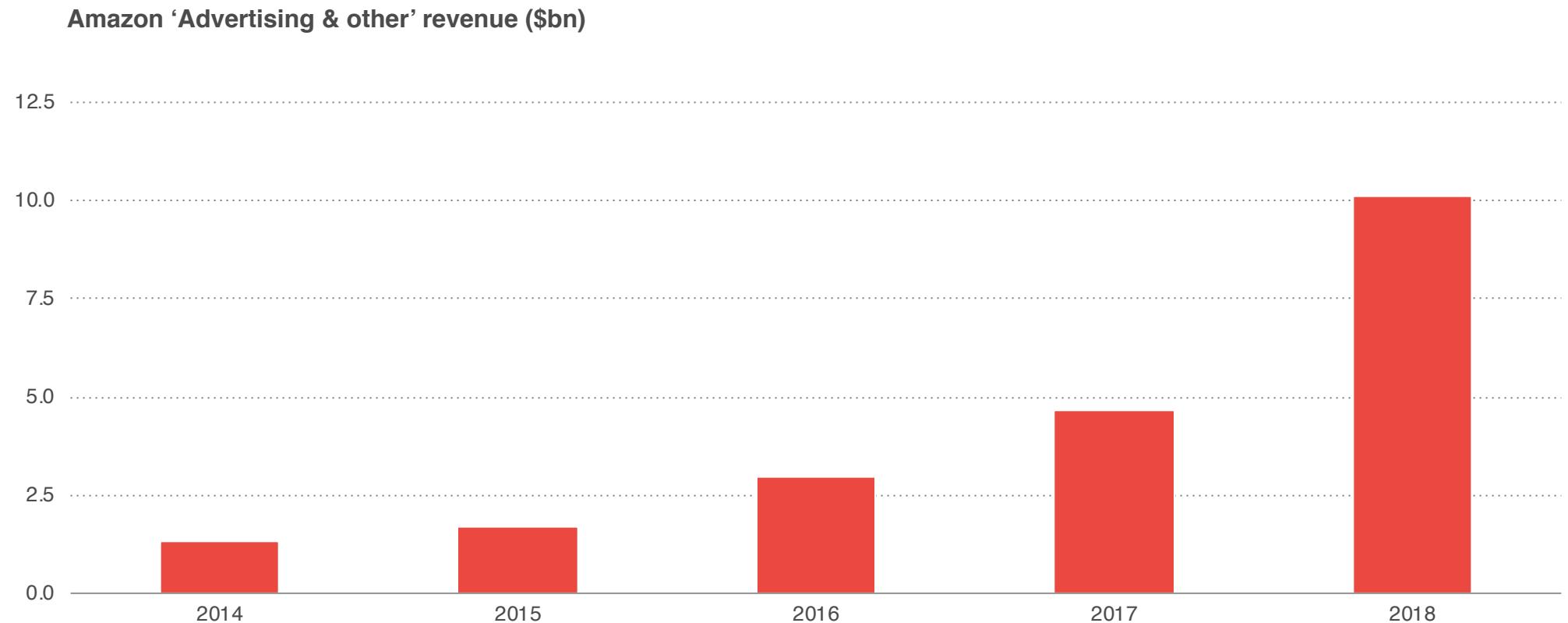
# Amazon is a platform for others

60% of sales on Amazon are through the third party marketplace



# Amazon is now taxing product search

Amazon has built a \$10bn 'search ad' business – retailers just call this marketing



# New retailing means new taxes

If you're not paying rent for a store (or in one), how do people hear about you?



Amazon sells placement for  
\$10bn



Booking &  
Expedia pay  
Google \$10bn

# New retailing means new taxes

If you're not paying rent for a store (or in one), how do people hear about you?



Amazon sells placement for \$10bn

Booking & Expedia pay Google \$10bn

But Macy's & Walmart did this too

# Unless you have a new route to awareness

If you're not paying rent for a store (or in one), how do people hear about you?

Amazon sells  
placement for  
\$10bn

Booking &  
Expedia pay  
Google \$10bn

But Macy's &  
Walmart did  
this too

Kylie Jenner's  
make-up  
business:  
\$1.2bn

# Get it wrong? Go to the mattresses

A vacuum-packed mattress was a brilliant idea until everyone else did it



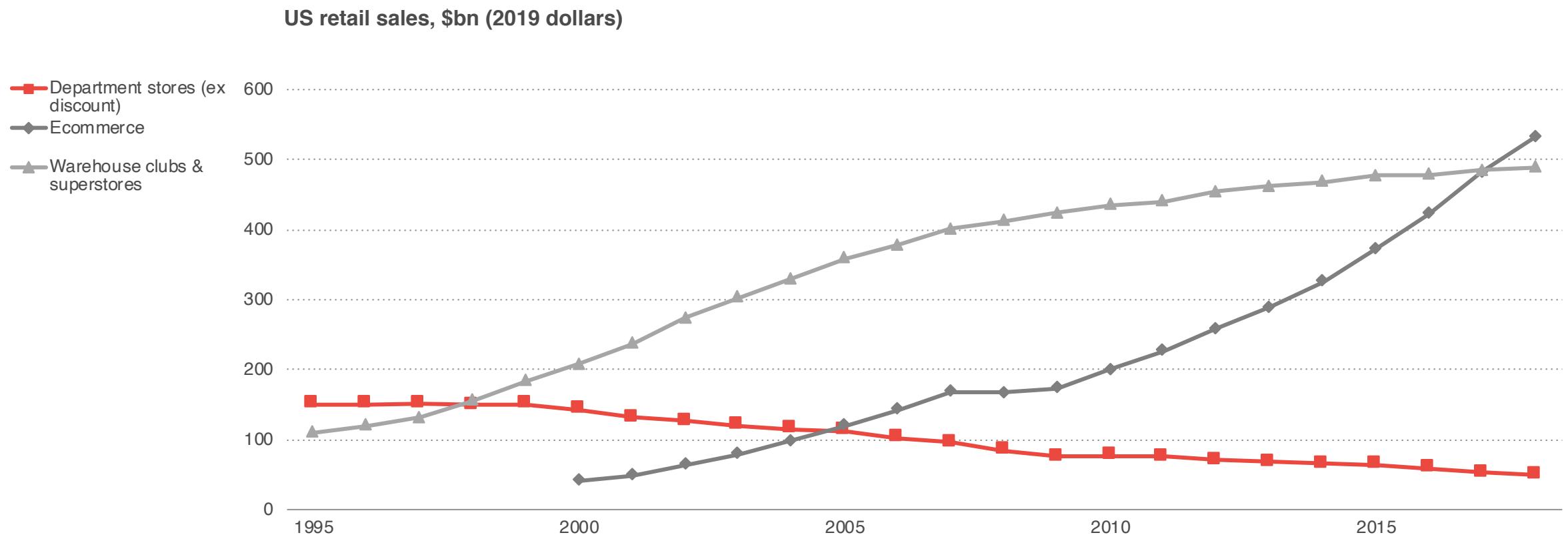
2019: there are  
175 online  
mattress  
companies

Is that a 'tech' company?

Or is it a mattress company with a website?

# Welcome to retail

The internet is not the first time that retail has a new format

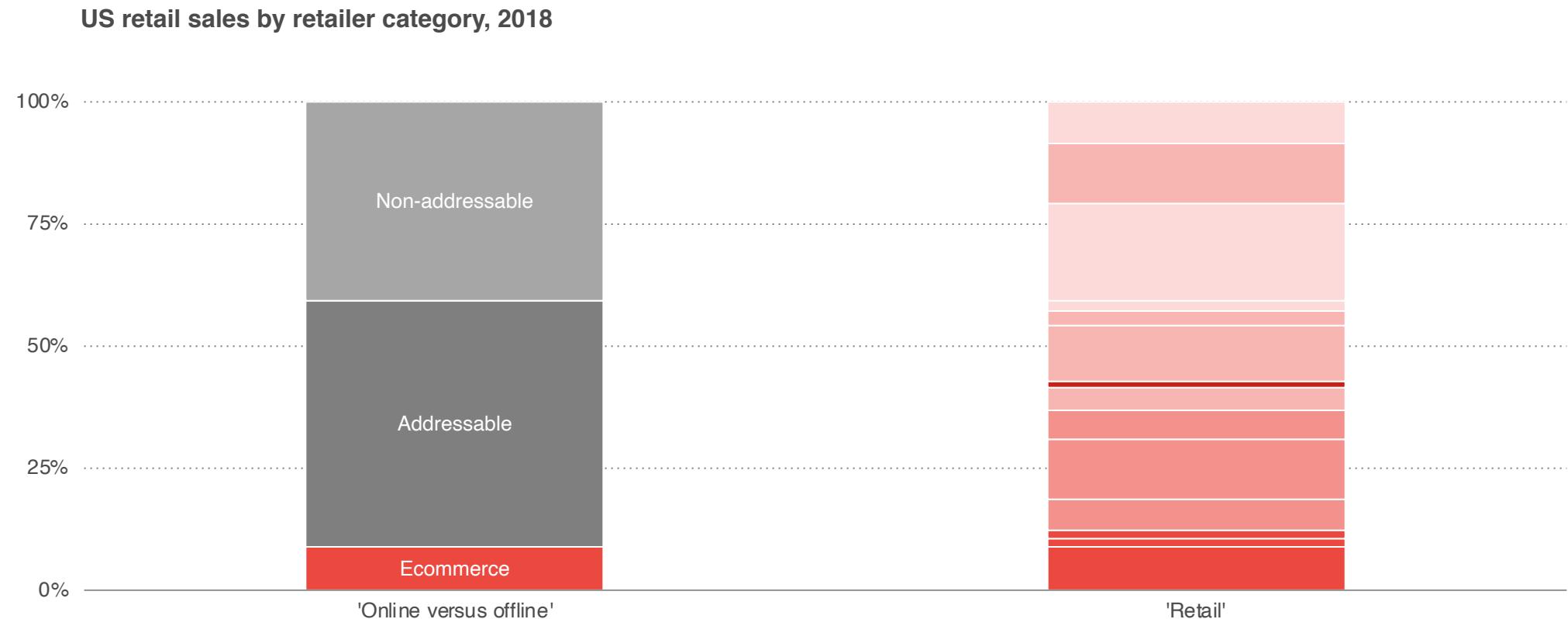


“Over half of our store sales involve an online journey, and over a third of our online sales involve a store experience”

- Erik Nordstrom

# Retail isn't as binary as 'online' and 'offline'

Online, yes, but also rent, distance to customer, service, selection, staff costs, urgency, margin, inventory, etc, etc



Source: US Census, @BenedictEvans

\*Addressable retail = ex. cars, car parts, gasoline, restaurants & bars.

Benedict Evans — January 2020

33

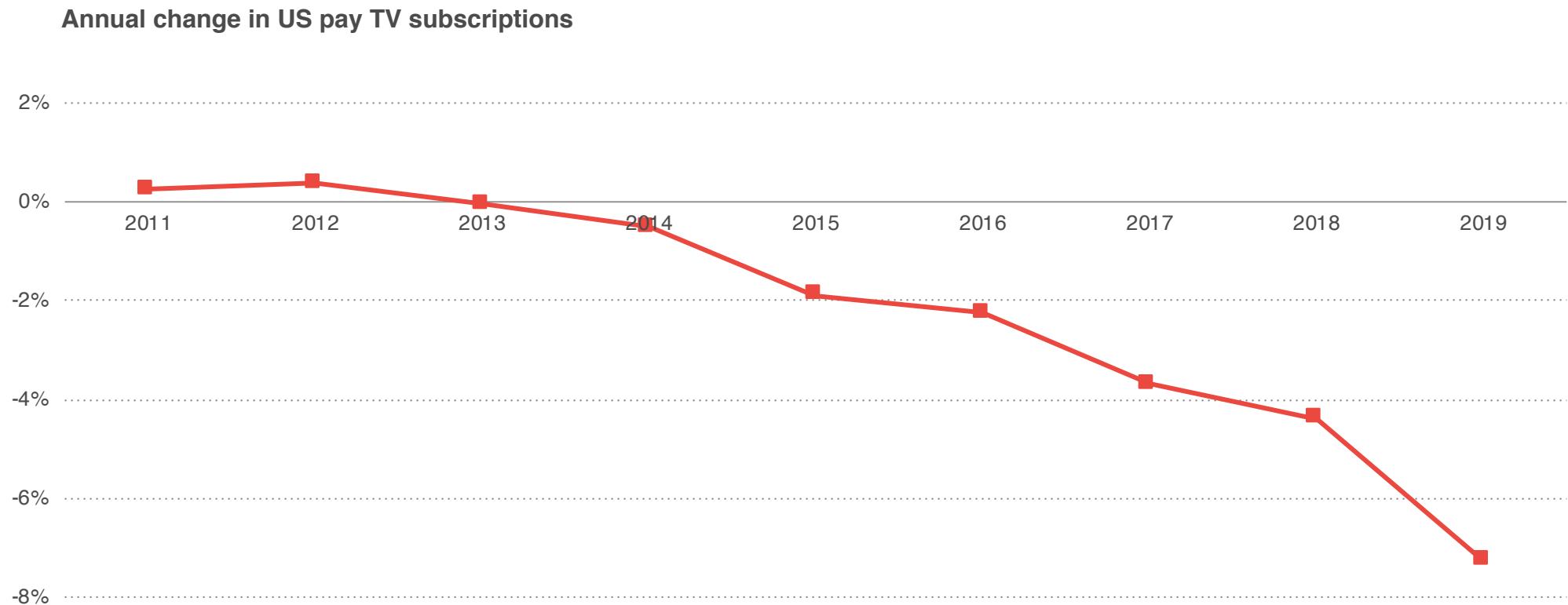
Is that a 'tech' company?

Or is it a retailer using a new channel?

Front of mind:  
TV

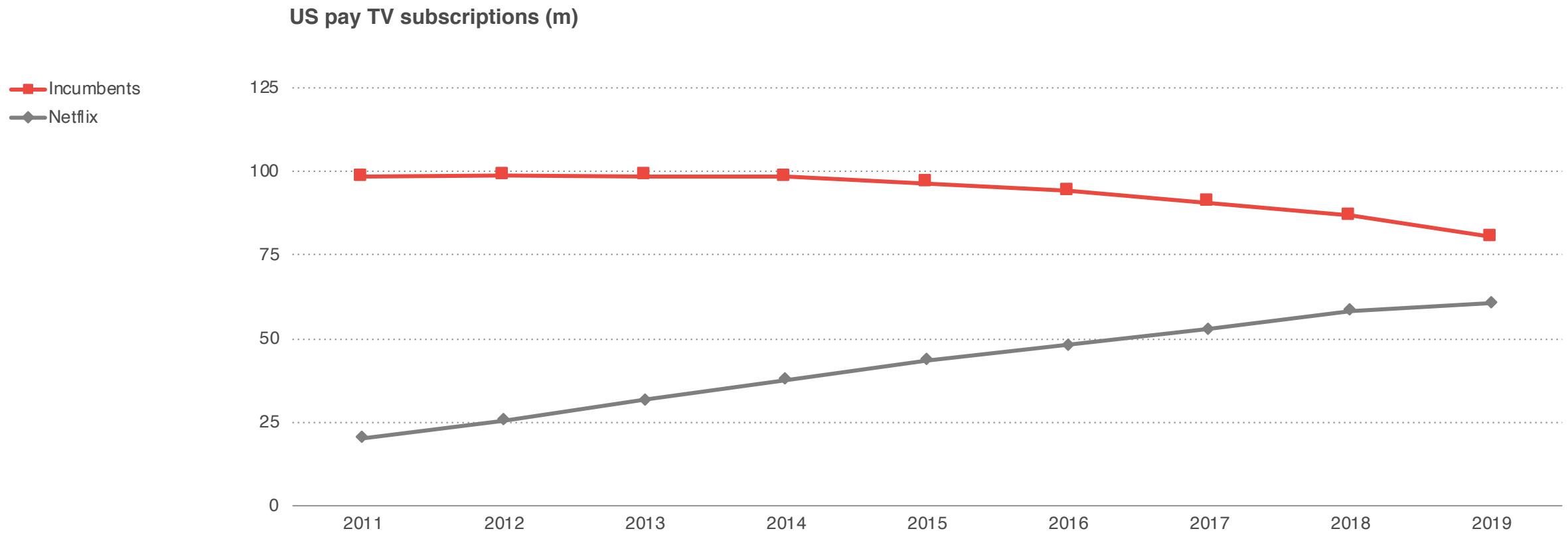
# Front of mind: unbundling TV

YouTube launched in 2004 – a decade later, US TV finally unlocked



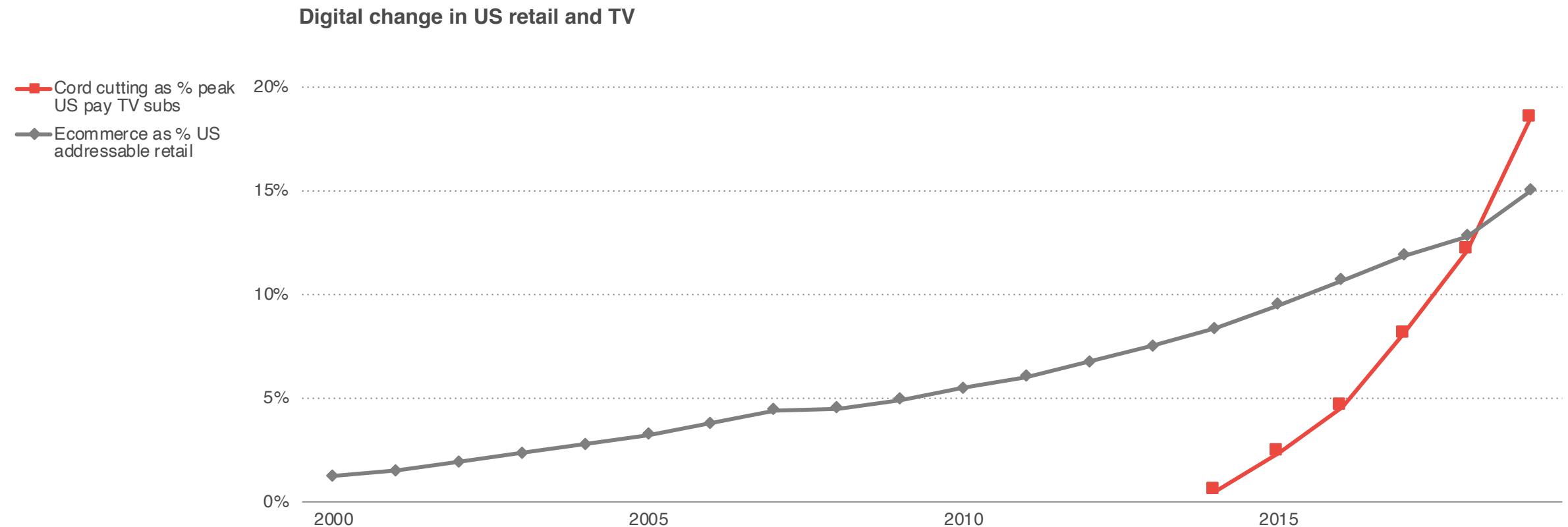
# US pay TV subs down 20% and falling

For generations, most of the US was sold a big and expensive pay TV bundle - this is now breaking apart



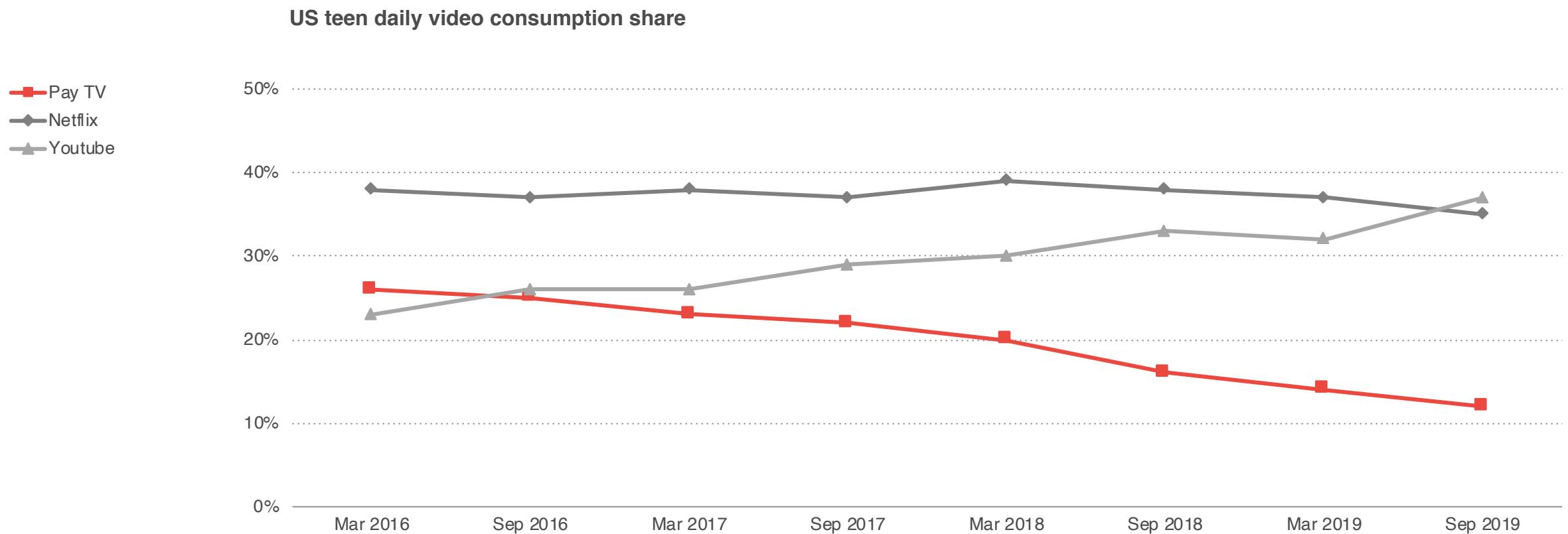
# And TV is changing a lot faster than retail

US cord-cutting percentage has passed ecommerce percentage in just 5 years.



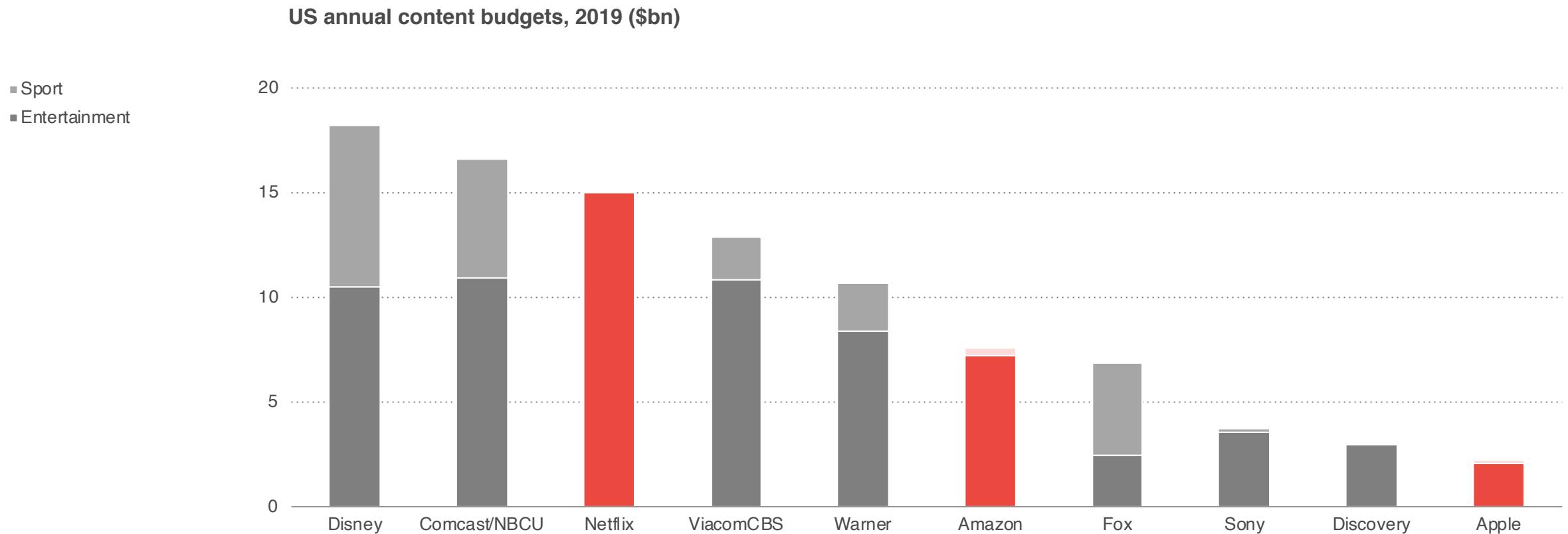
# Teen share down by half

Pay TV share of US teen viewing hours is down by half in three years



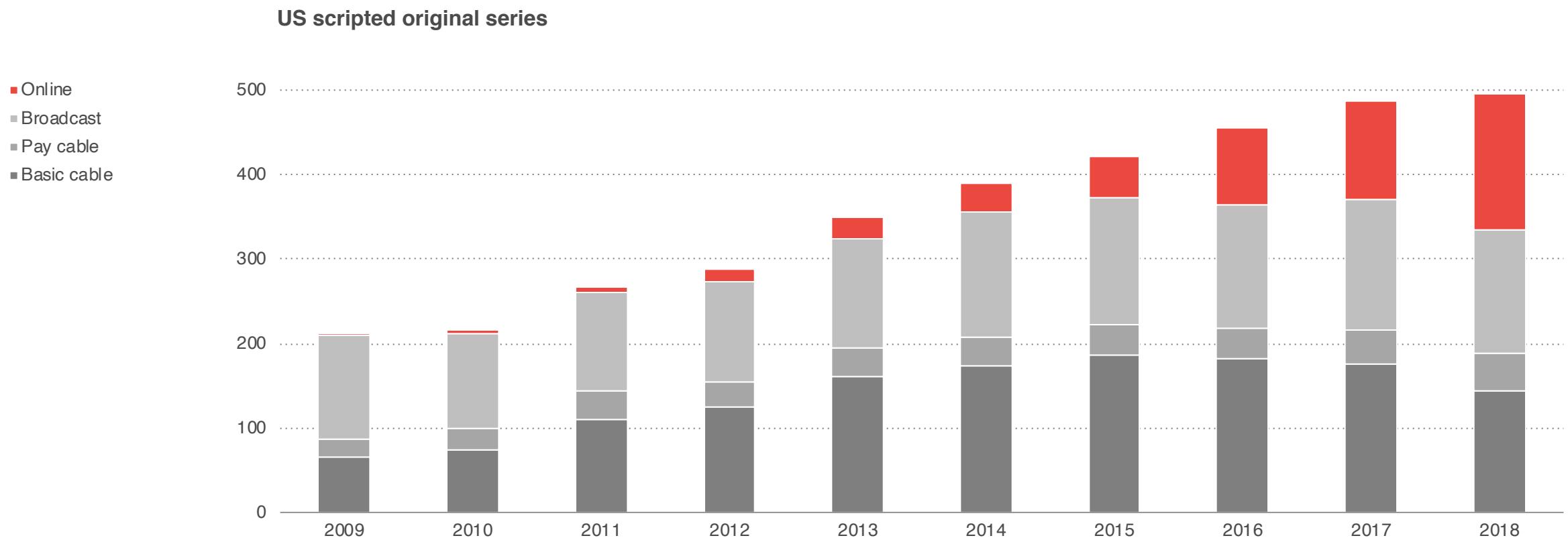
# Begun, the content wars have

A third of US 2019 content spending came from streaming companies



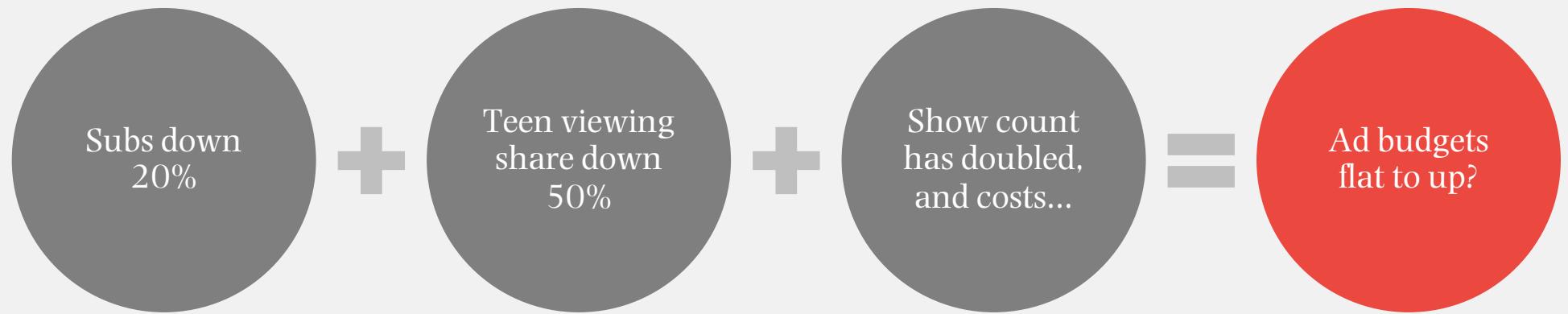
# Streaming is a third of US TV production

A third of original series in the USA are now from Netflix, Amazon and other new entrants



# Now what?

Old model is gone, but not yet clear what the new equilibrium will look like



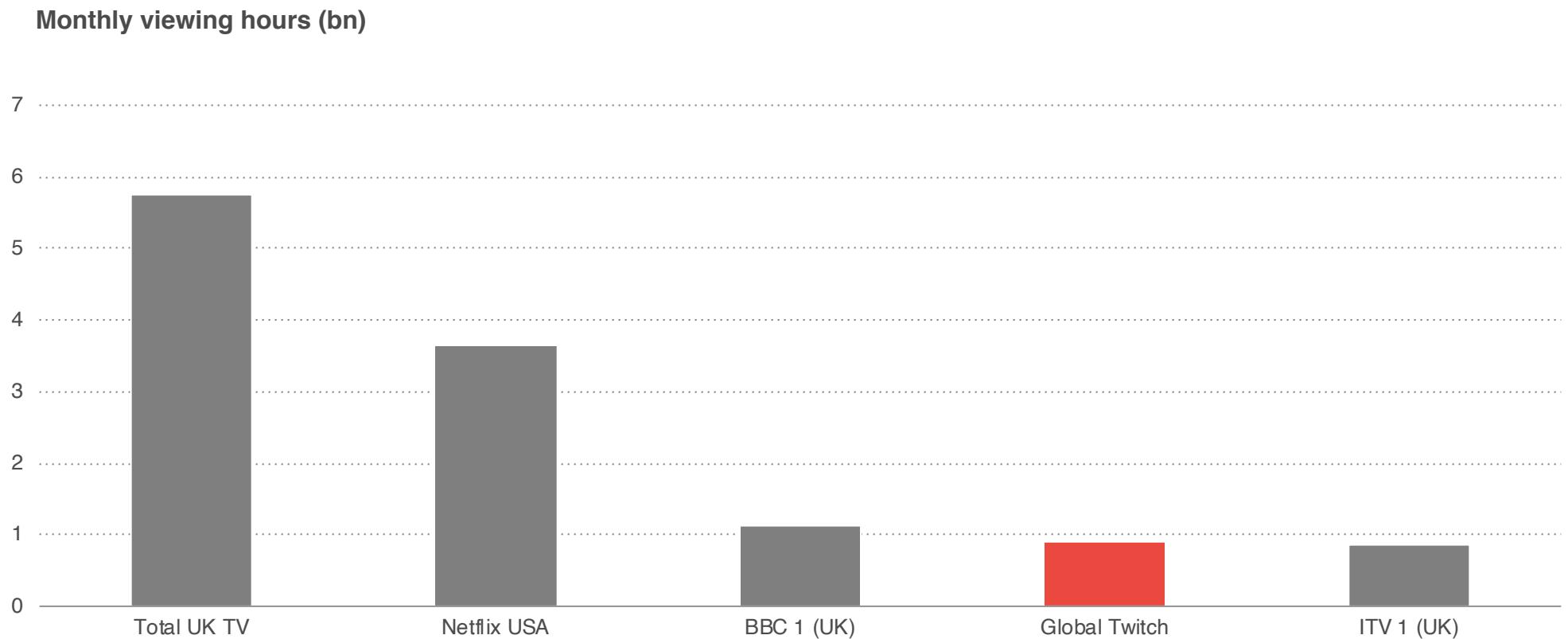
# New forms of video emerging

Twitch (90% of live games viewing) hit 1bn monthly hours in Q3 2019



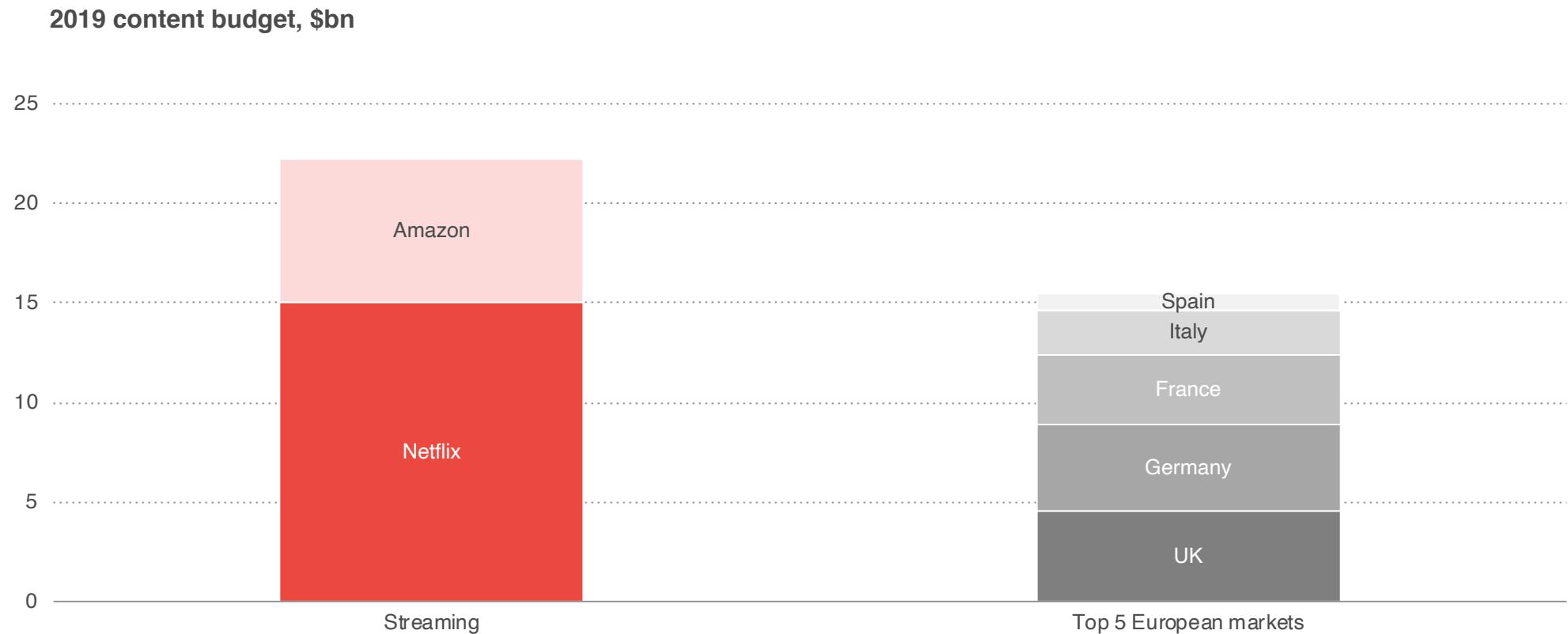
# Twitch is already/only the size of a UK TV channel

Glass half empty, or half full?



# Meanwhile, global effects from the US streaming war

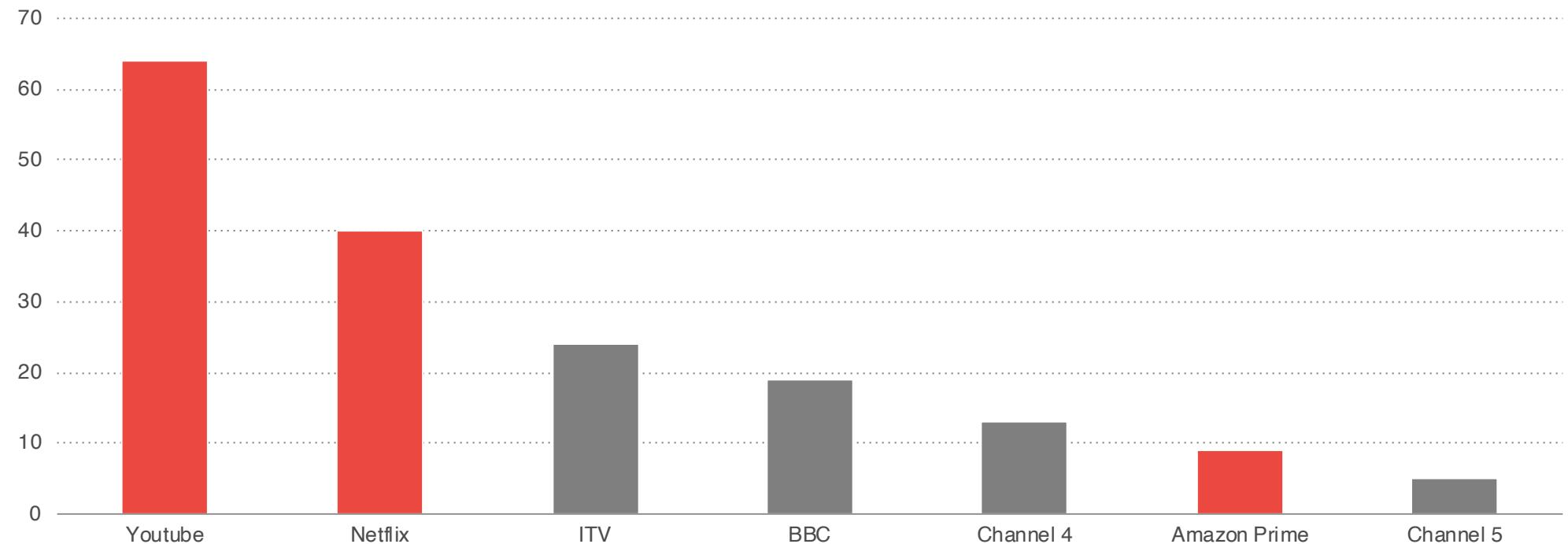
US budgets were always bigger, but they sold the shows abroad: Netflix goes direct



# Netflix is the UK's biggest TV channel

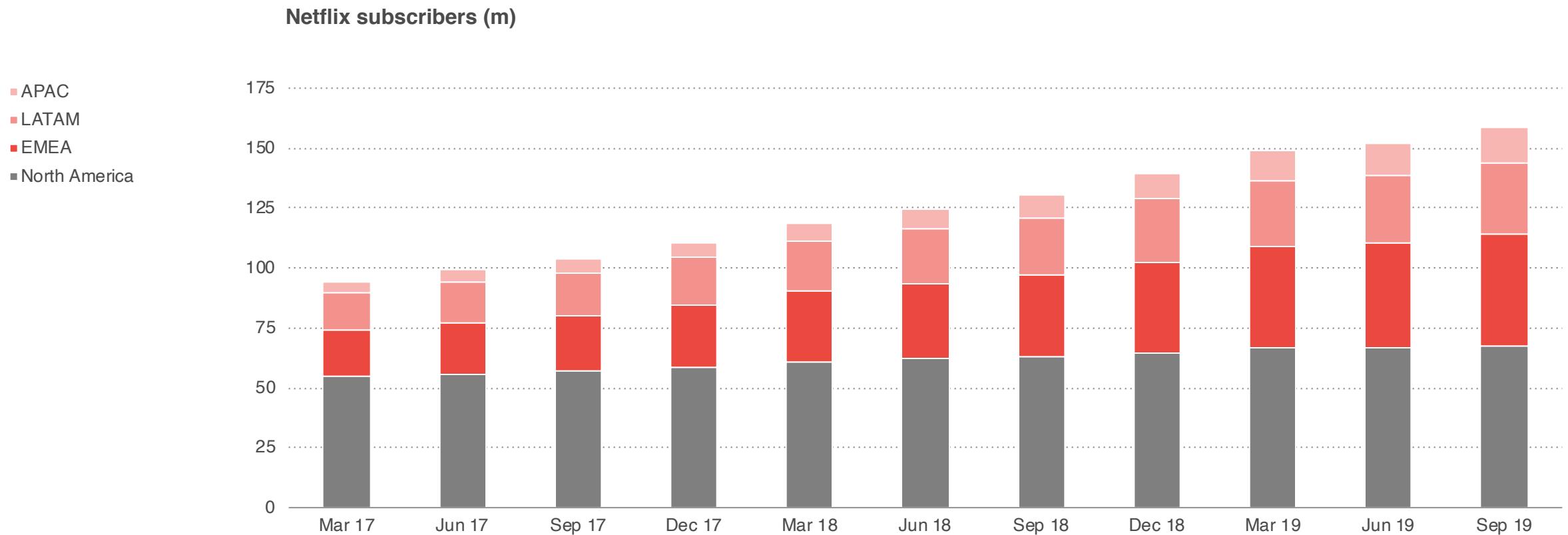
Netflix is the UK's biggest TV channel for 18-34s., and YouTube is even bigger

Video minutes per person per day, UK 18-34s, 2018



# Unbundling countries, not just cable

More than half of Netflix's base and most of the user growth is now outside the USA



“In business, there are two ways to make money. You can bundle, or you can unbundle.”

- Jim Barksdale

# Now: the great unbundling. Next: the great rebundling

For TV and retail, the old bundles are going, but we will get new ones

New distribution channels break apart old aggregation models

Everyone wants to unbundle and go direct

But!

There can only be so many brand relationships

Aggregators exist for a reason

Many big brands are actually B2B businesses anyway

Lots of rebundling coming

Is that a ‘tech’ company?

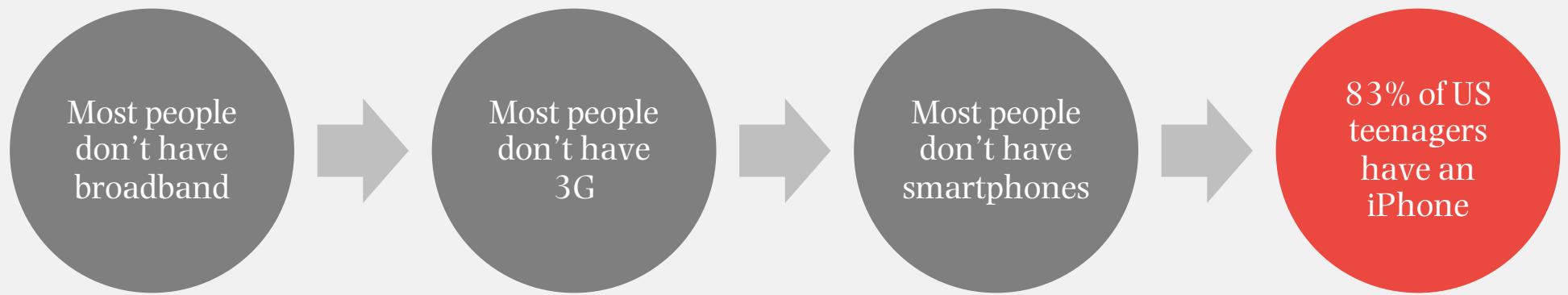
Or is it a TV company using a new channel?

OK, ecommerce and TV.  
But what else?

---

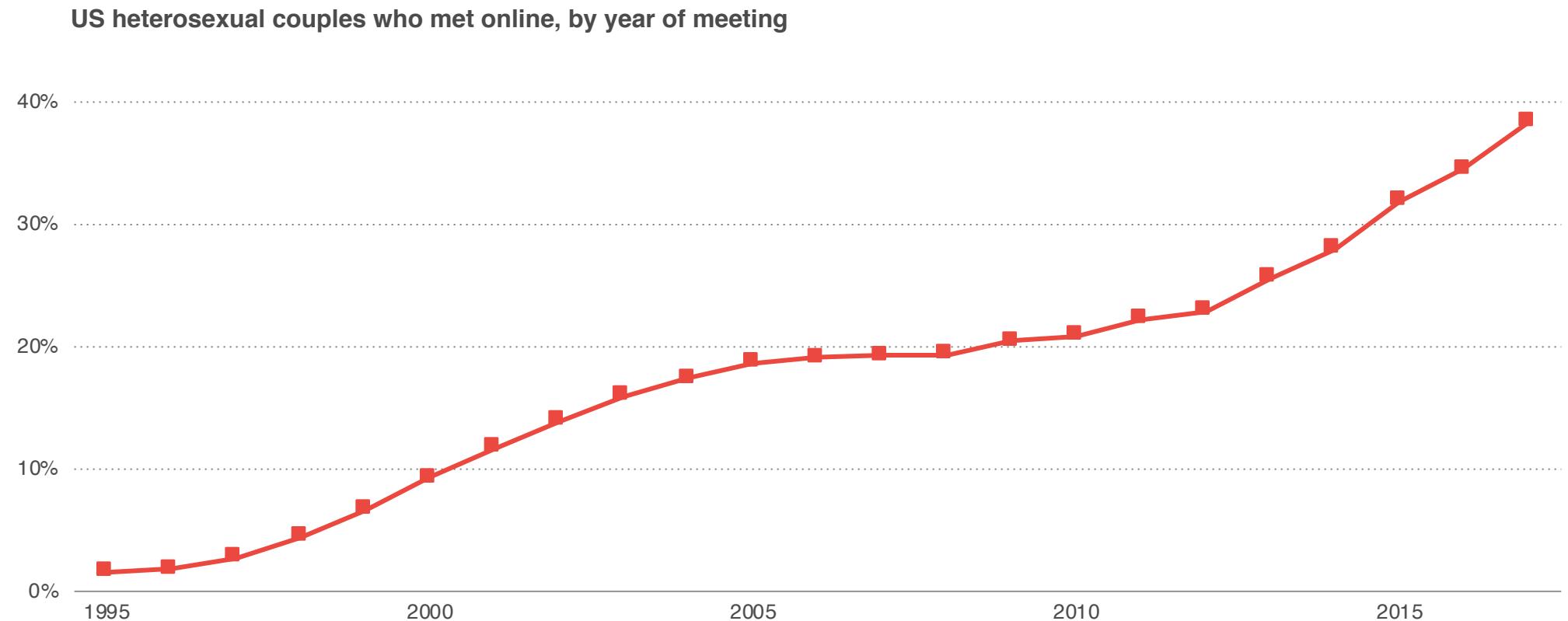
# “Remember, most people don’t have that”

For 25 years, we've had to remind ourselves that most people are not early adopters



# Today, anyone does anything online

In 2017, 40% of Americans met their partners online





Sharon Stone

@sharonstone

I went on the [@bumble](#) dating sight and they closed my account.

Some users reported that it couldn't possibly be me!

Hey [@bumble](#), is being me exclusionary ?

Don't shut me out of the hive

12:38 am · 30 Dec 2019 · [Twitter for iPhone](#)

---

4K Retweets 43.1K Likes

# Models for market expansion

Penetration and consumer acceptance drives expansion



## Vertical integration

The 'full stack' model: from booking.com to Airbnb

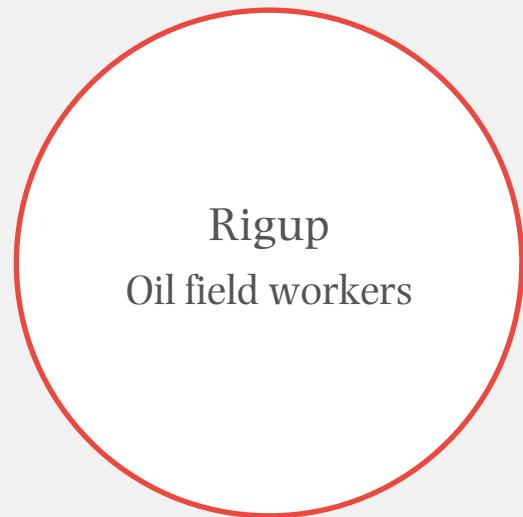
## Horizontal expansion

Taking established online models to new segments



# Example: expanding the ‘two-sided marketplace’ model

A model that only worked for narrow segments a decade ago now expands into the whole economy

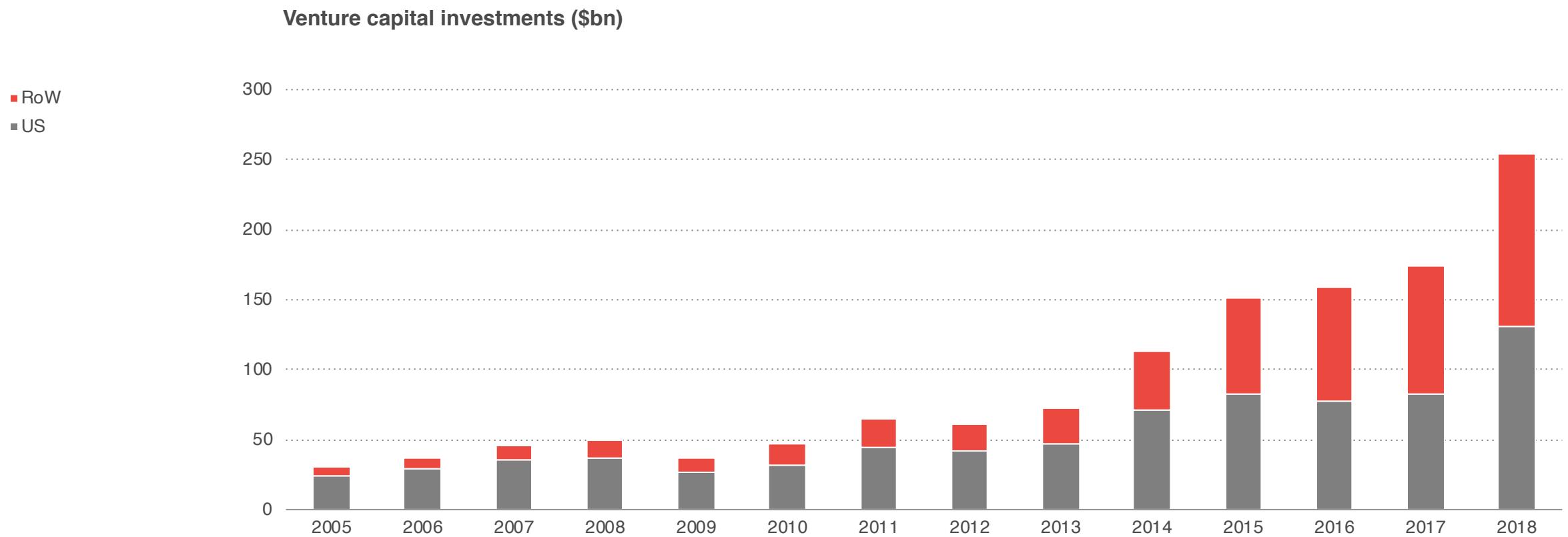


Is that a 'tech' company?

Or is it a travel / insurance / employment / taxi / dating /banking / restaurant company using a new channel?

# Growth and global diffusion

More and more investment in company creation around the world



Expanding software and tools  
from work to everyday life

Software, automation, workflow, and tools...

From work and big business to everyone's lives

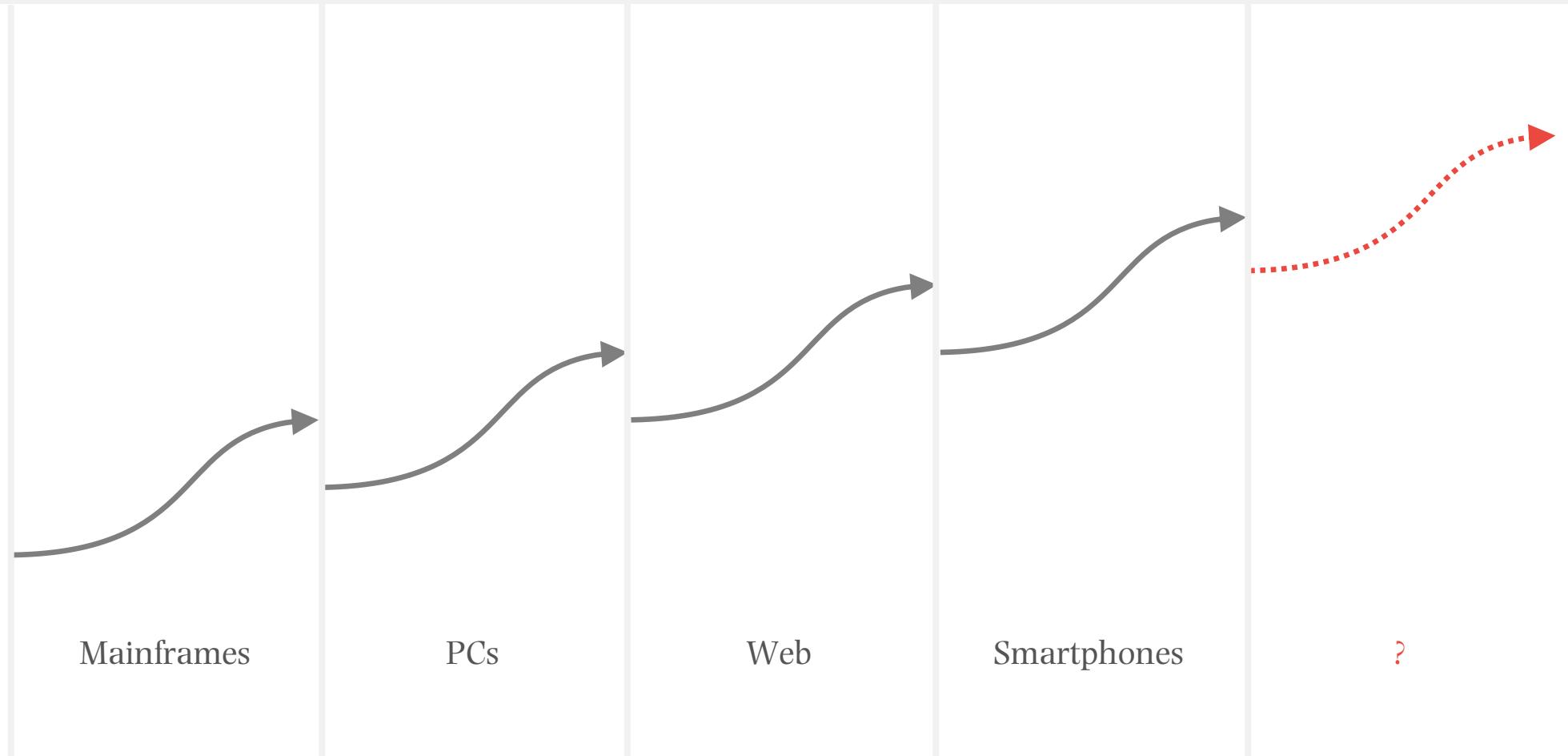
From mainframes, to LinkedIn, to Tinder and Rigup



# The next S Curves

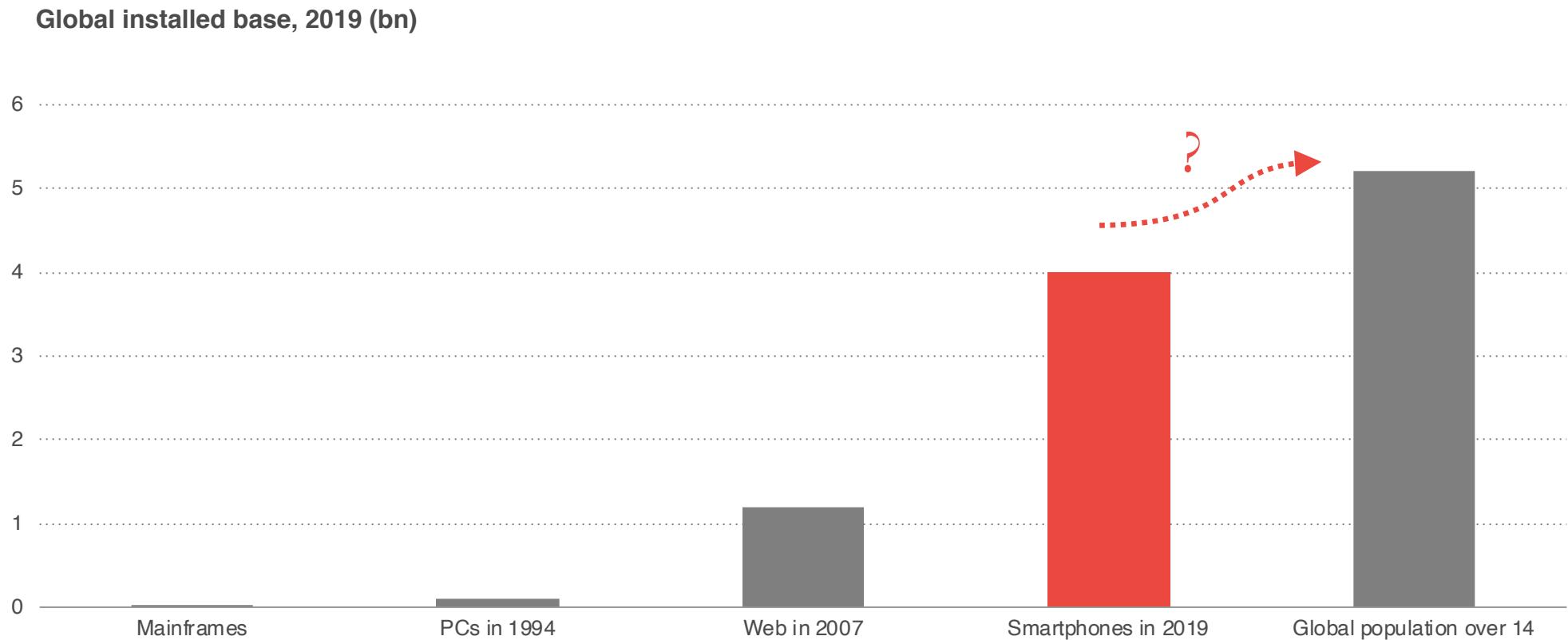
# What's the next generational change in scale?

The tech industry has had a new centre roughly every 15 years



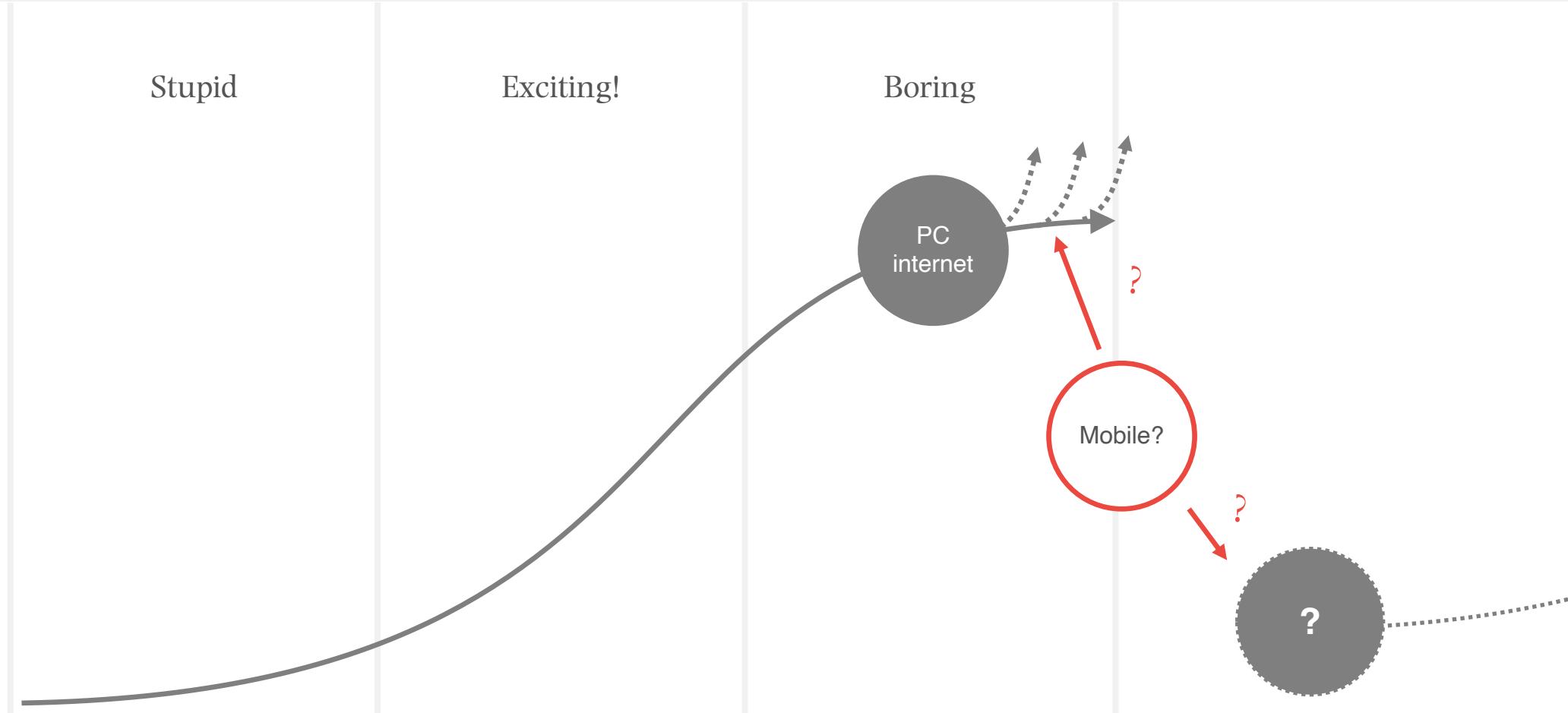
# Can there be another massive increase in scale?

Once you've connected everyone, how do you create a bigger market?



# And is this the new thing, or part of the old thing?

Smartphones began as a PC accessory, but now PCs are a smartphone accessory



# Lots of new things going on, but which is THE thing?

Many new things happening, but what's their scope?

Frontier tech

Quantum, new  
battery chemistry,  
neural interfaces,  
autonomy, AR optics

Important but  
narrow

Drones, IoT, voice,  
wearables, robotics,  
esports, 3D printing,  
VR, micro-satellites

Structural layers

Machine learning  
Crypto?  
(3G/4G/5G)  
(Cloud, still)

The next  
platform?  
AR glasses?

# Tech for the 2020s

A lot of innovation is happening inside tech, but that's no longer the only focus



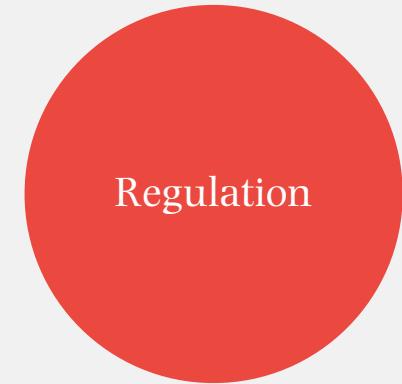
Machine  
learning is the  
new database



Crypto is the  
new open  
source (?)



AR is the next  
smartphone  
(?)



Regulation

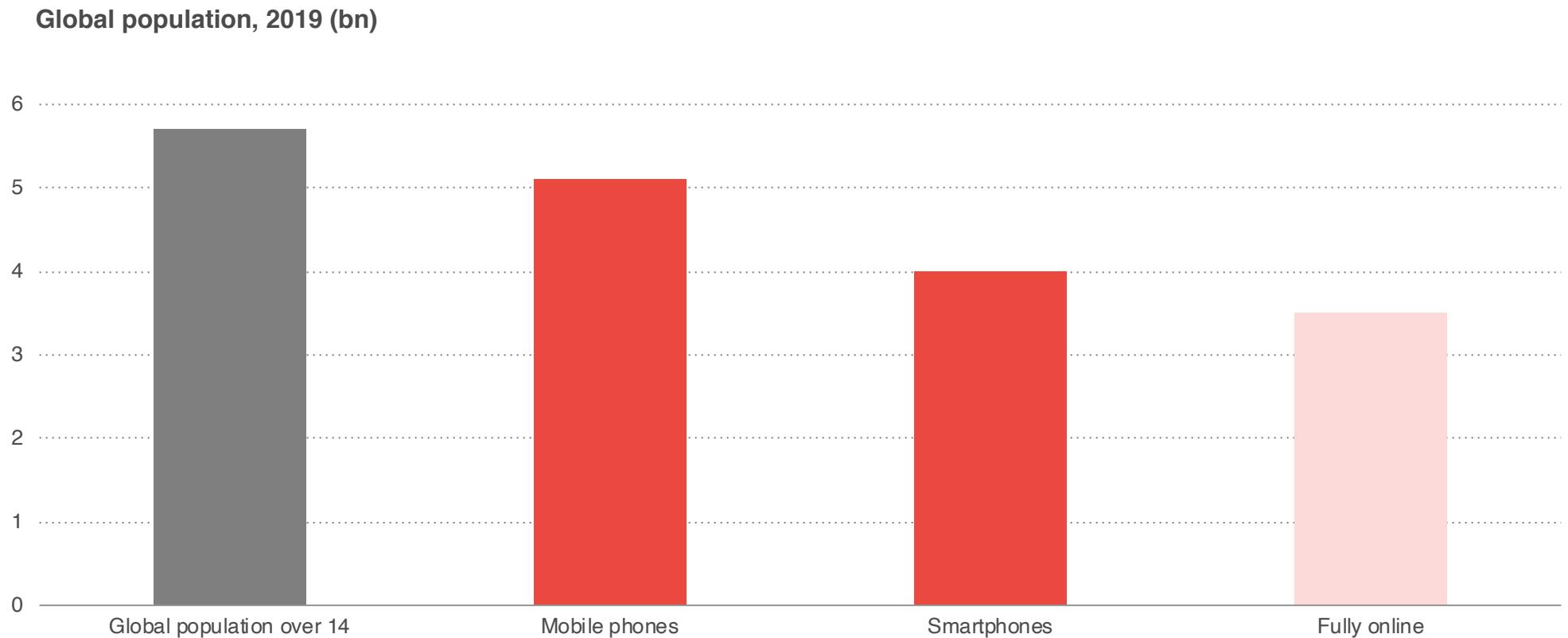
# The Next Big Thing? Regulation and policy

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.

- John Perry Barlow, 1996

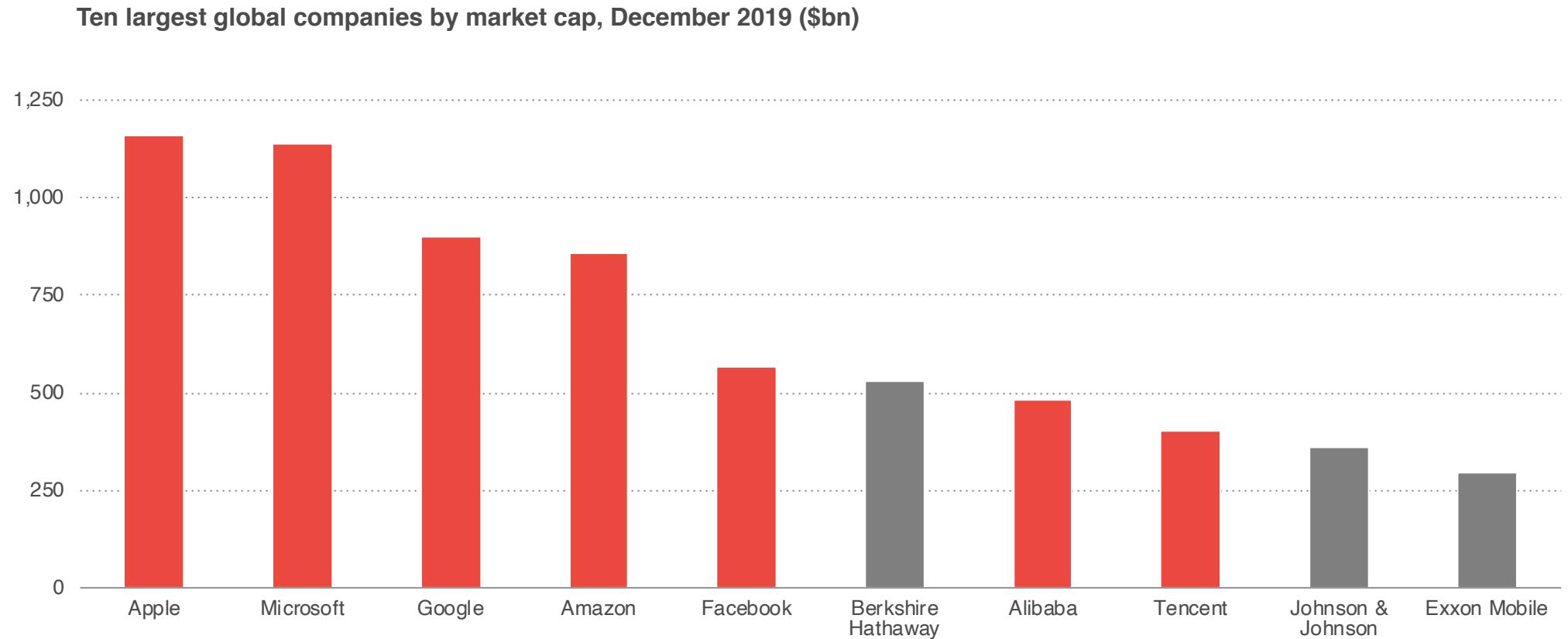
# Then we connected everyone, including the bad people

There are 5.5bn adults on earth, 5bn have a phone and 4bn have a smartphone



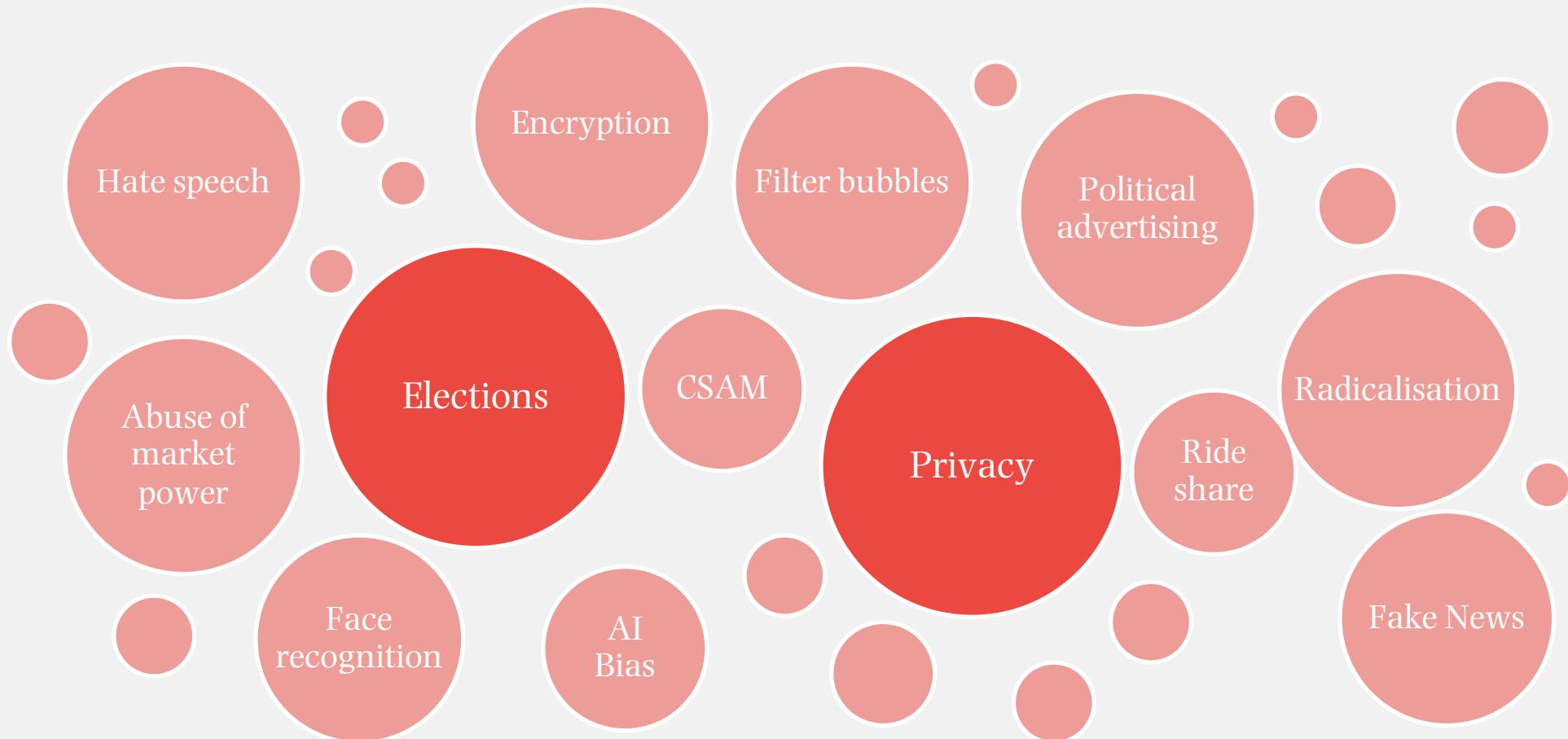
# Which also meant creating huge, scary companies

7 of the 10 largest global companies by market cap are tech



# Now we have issues. So many issues

Every month there's something else to worry about



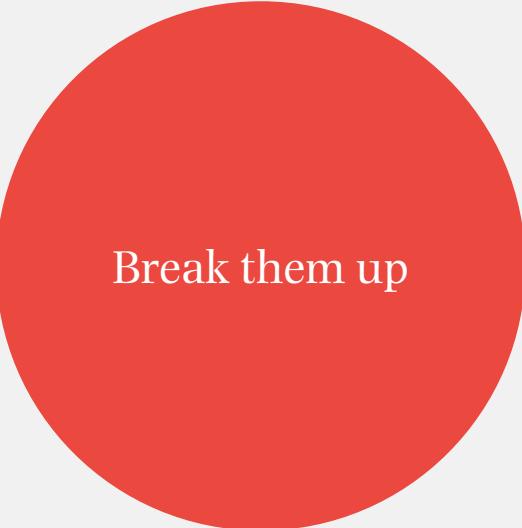
# And this won't get simpler

None of these people exist: these faces are algorithmically generated by a machine learning system



# Naturally, there must be a simple answer

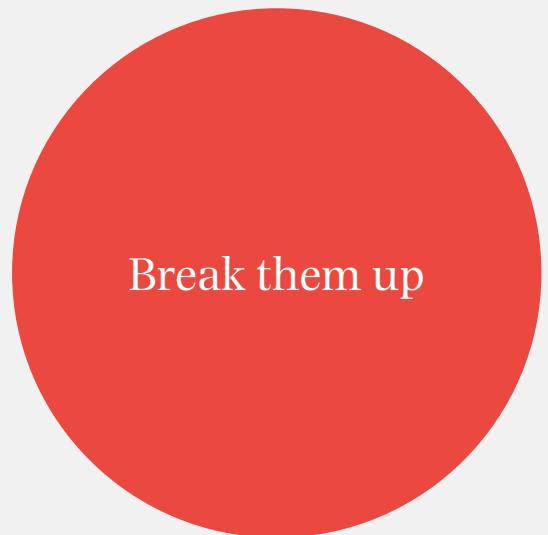
Every complex question has a simple answer



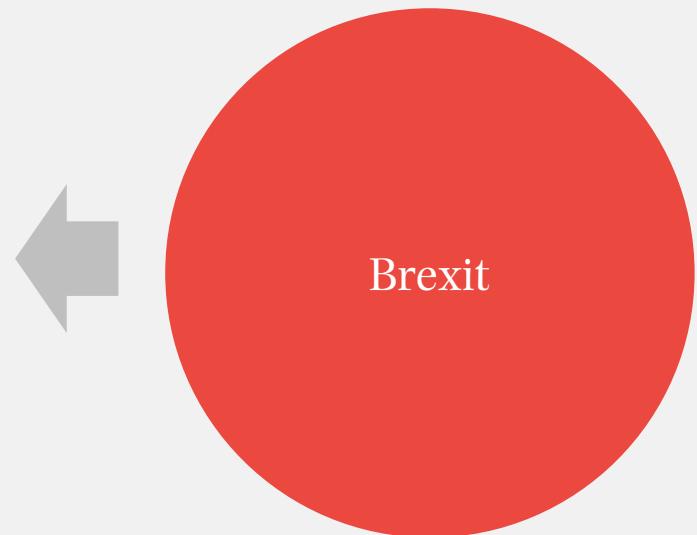
Break them up

# ‘Break them up’ – the Brexit of tech

Every complex question has a simple answer



Into what?  
And which  
problems would  
that solve?



# Also included: a classic moral panic

Coverage of real issues is accompanied by a steady flow of stories that don't stand up to scrutiny

‘Google makes \$4.7bn  
from Google News!’



Extrapolated from a  
2008 guess of ‘\$100m?’

‘The NHS gave Amazon  
our health data!’



Alexa can read bits of the  
public website to you

‘Amazon has private label!’

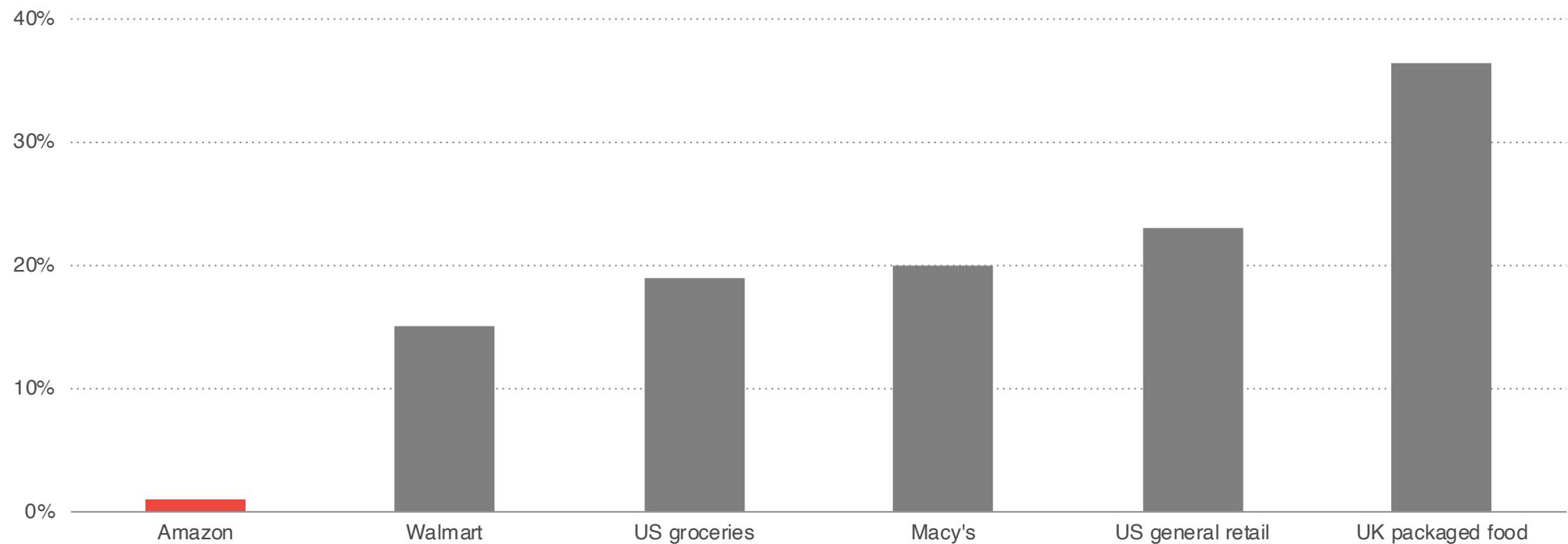


Like all retailers for a  
century

# Moral panic: Amazon does private label

'Well done – you just discovered retail'

**Private Label as % revenue, 2018**

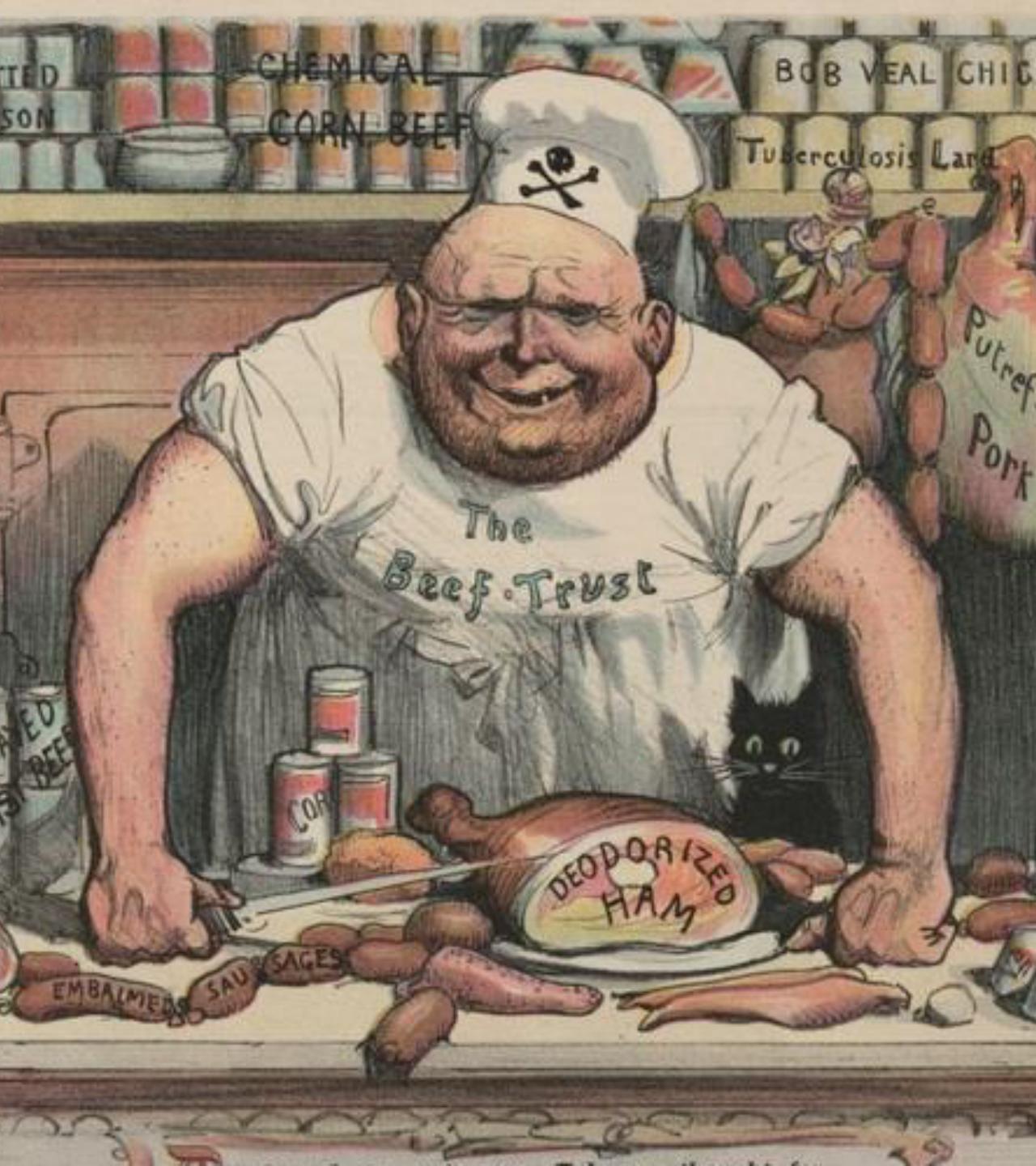


But panics have causes, and consequences

“Industrial food is a good thing, but what’s in the sausages?” - The Jungle, 1906

Maybe we should break up ‘the beef trust’...

But we also need an FDA, ingredient lists, veterinary inspections, hygiene rules...



# So, which problem are you trying to fix?

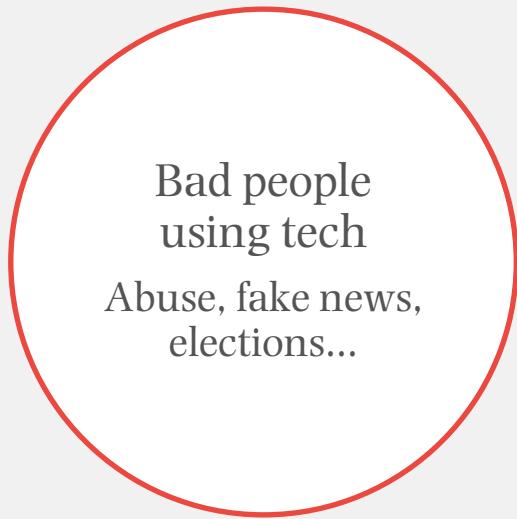
Different types of problem have fundamentally different solutions



Tech companies  
being bad to  
other companies  
Search, app stores,  
ad pricing



Tech companies  
being bad to us  
Privacy, security  
(but not pricing)



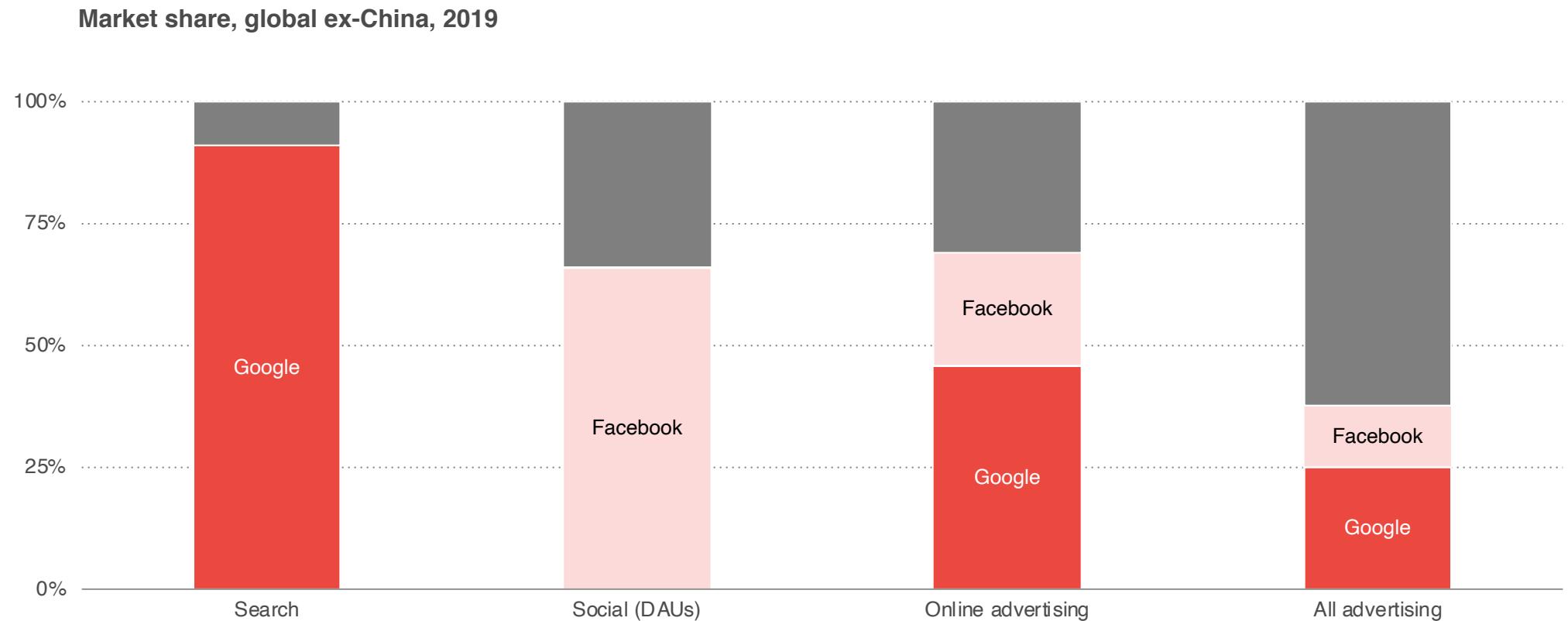
Bad people  
using tech  
Abuse, fake news,  
elections...

Anti-trust:  
Mostly beside the point

---

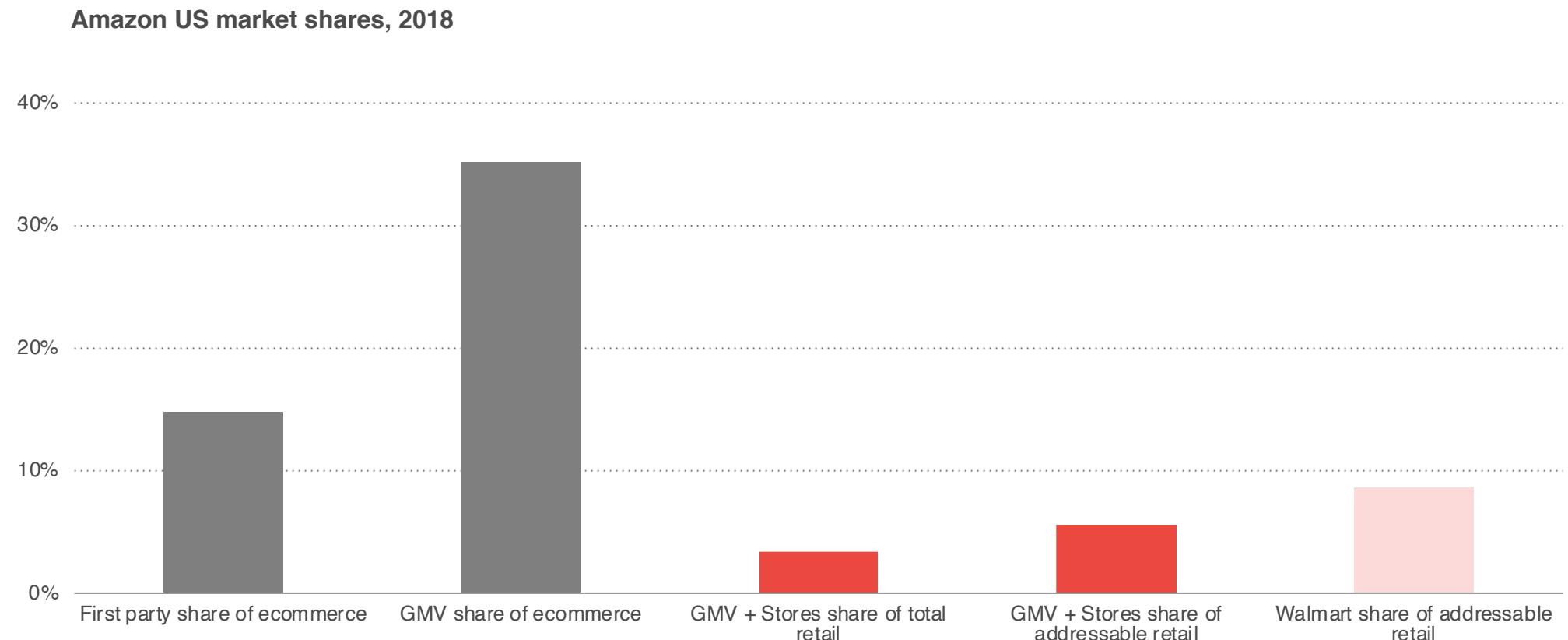
# Google and Facebook clearly have market dominance

Google and Facebook clearly have dominance in major markets: the question is what (if anything) to do



# What's Amazon's market share: 35% or 5%?

Amazon has a third of ecommerce, but is that really the competition?



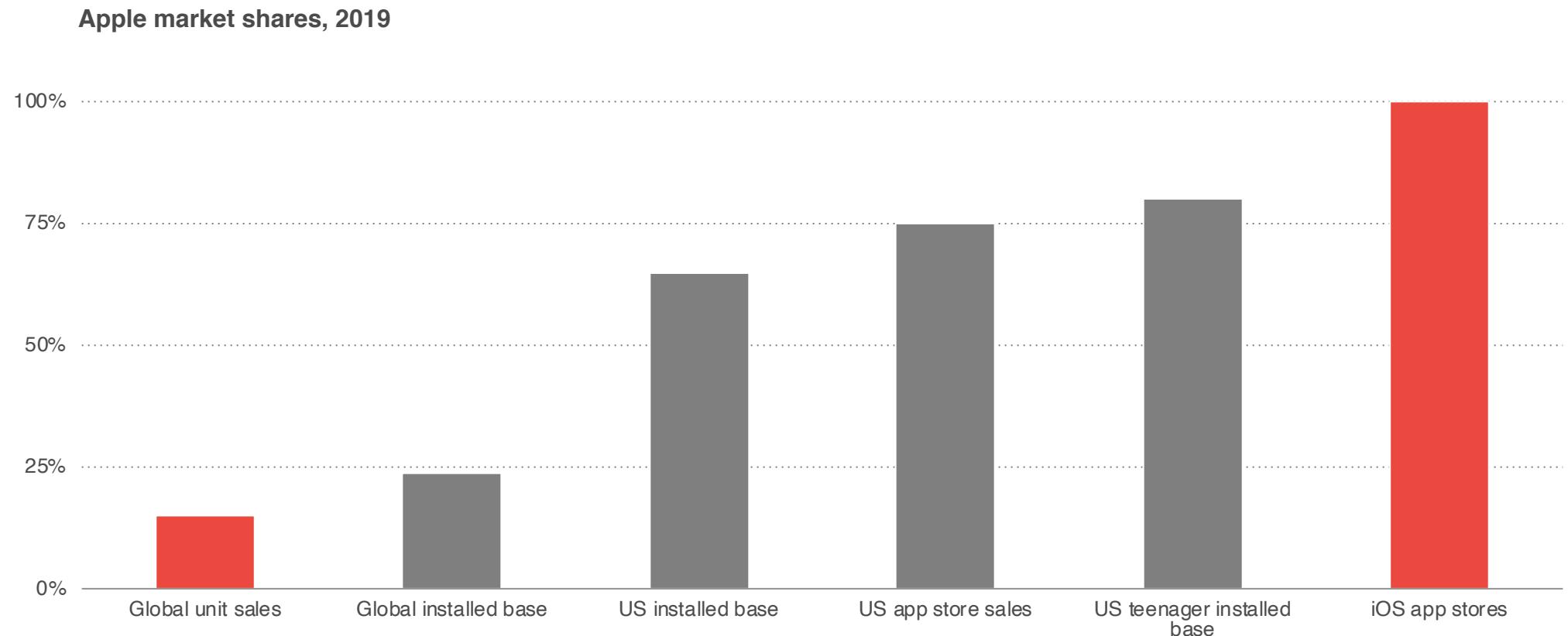
Source: @BenedictEvans, Amazon, Walmart, US Census  
Addressable retail = ex. cars, car parts, gasoline, bars & restaurants

Benedict Evans — January 2020

80

# What's Apple share? Depends which regulator you ask

Apple is the minority player globally, but has 100% of the market for 'iOS app stores'



## Market definition is everything

Regulators make their own decision on what the 'relevant market' is for anti-trust purposes

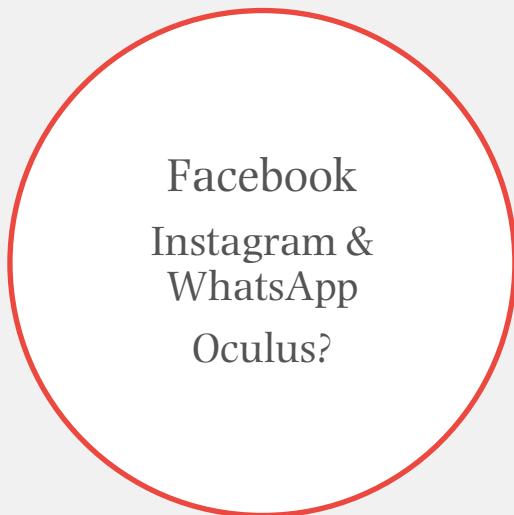
IBM had 100% of the IBM mainframe market

Apple has 100% of the iPhone app store market



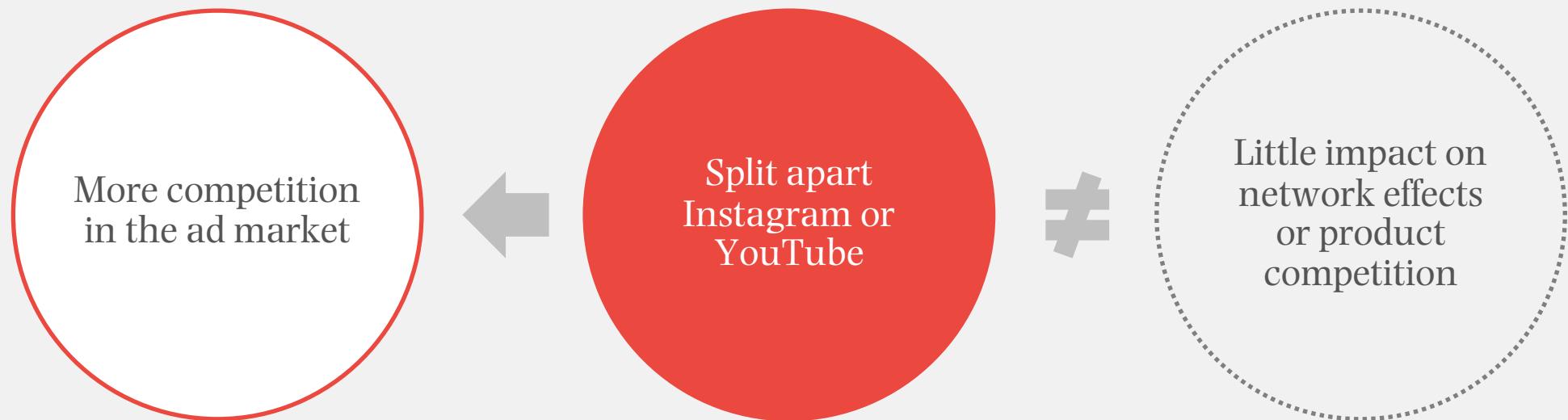
# What could feasibly be split apart?

Coherent case that YouTube, Instagram & WhatsApp, and AWS are viable stand-alone businesses



# But what kinds of competition would breakups affect?

Breakups would affect ad competition, but not product competition – unlikely to create a flood of YouTube alternatives



And...

Do people worry about 'big tech' because  
Google & Facebook might be overcharging  
WPP, and Apple is mean to Spotify?

Or are the real concerns elsewhere?

# Which problem are you trying to fix?

Few of the issues that make people worry about 'big tech' relate to anti-trust



Tech companies  
being bad to  
other companies

Solved by anti-trust:  
either breakups or  
conduct regulation



Tech companies  
being bad to us

Limited anti-trust  
relevance



Bad people  
using tech

No anti-trust relevance

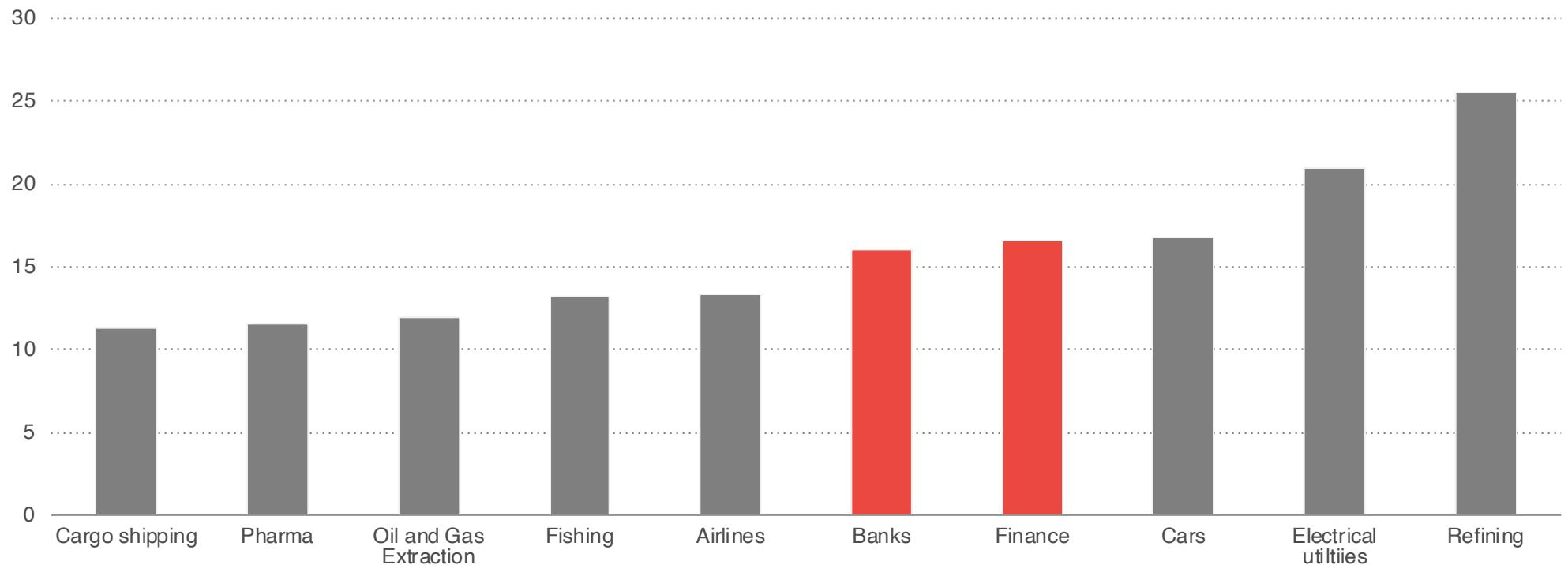
Regulation:  
Boring, complex,  
somewhat effective

---

# ‘Tech’ becomes a regulated industry

Lots of industries are subject to specific, technical regulation, and tech will become one of them

US Federal industry-specific regulation index, 2014



# We don't actually regulate 'banks'

We won't regulate 'tech' – we'll have lots of different regulation for different issues and companies



# Is this a ‘tech’ problem?

Is this a new problem, or an old problem expressed in a new way?



Is that a 'tech' company?

Or is it a bank, but with a website?

# Where is the liability?

In a massively disaggregated industry, there are many parties that might touch a problem at some point

Landlord  
IRS  
Market counterparties  
Auditor  
Microsoft Excel  
SEC  
Phone company  
Suspicious peers



Bernie Madoff

Presume complexity, across domain and country

The reality of regulation is complex and multimodal



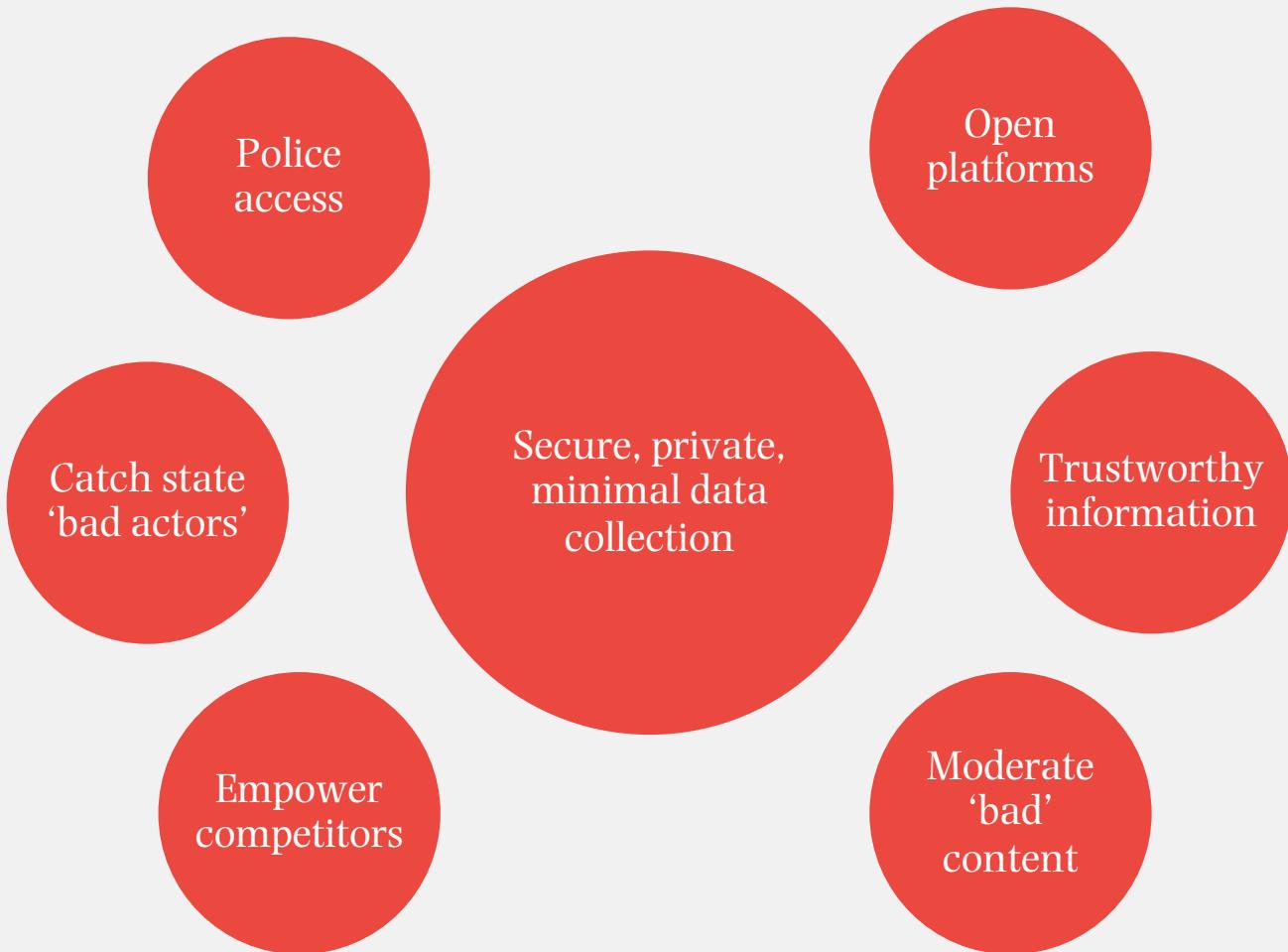
Source: Moody's Analytics Global Banking Regulatory Radar

Benedict Evans — January 2020

# Do we know what we want?

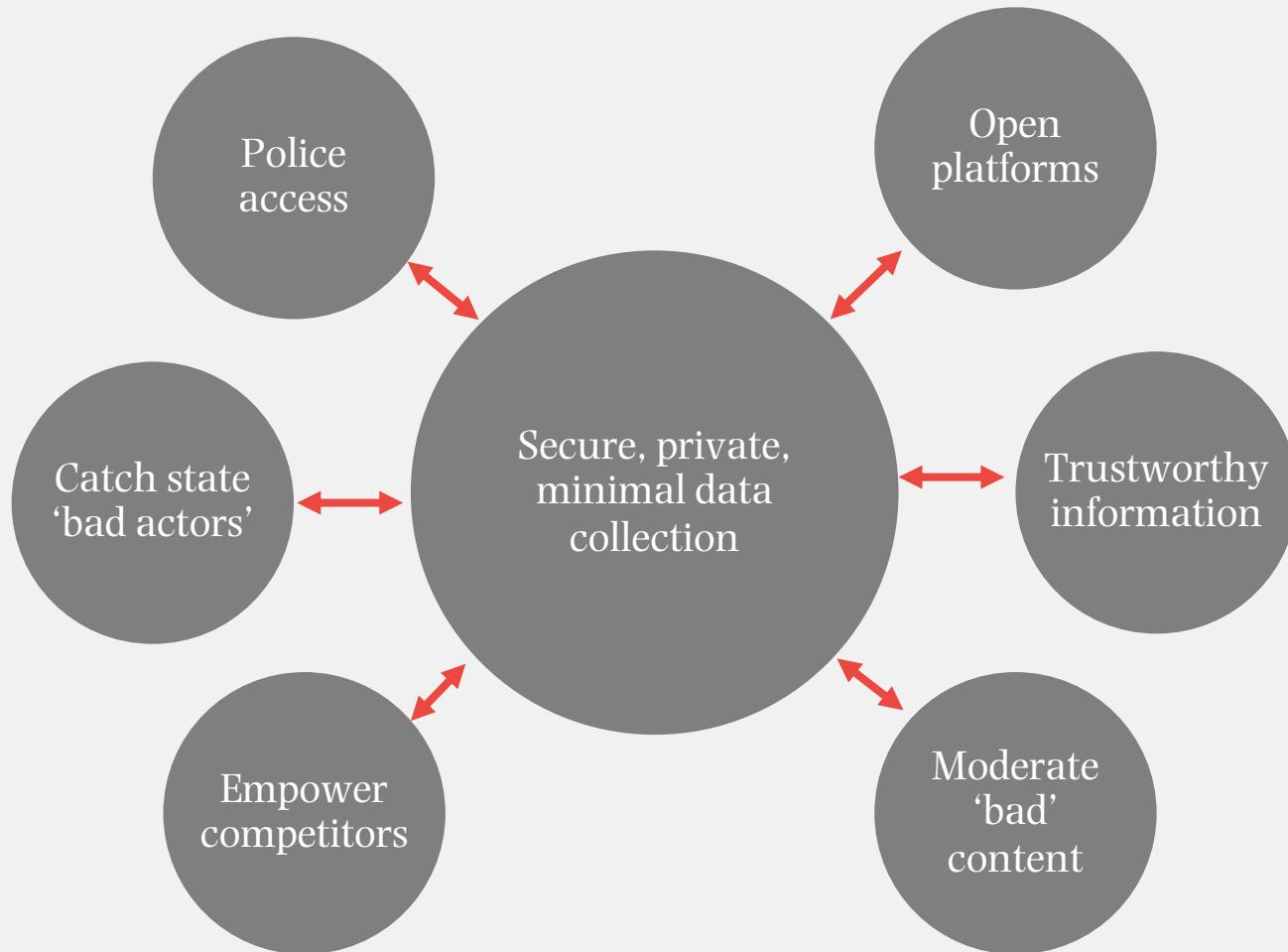
---

# Where to start? We have a wish list...



# All of these are trade-offs

Do we want platforms to know and control what happens on their networks, or not? Or both?



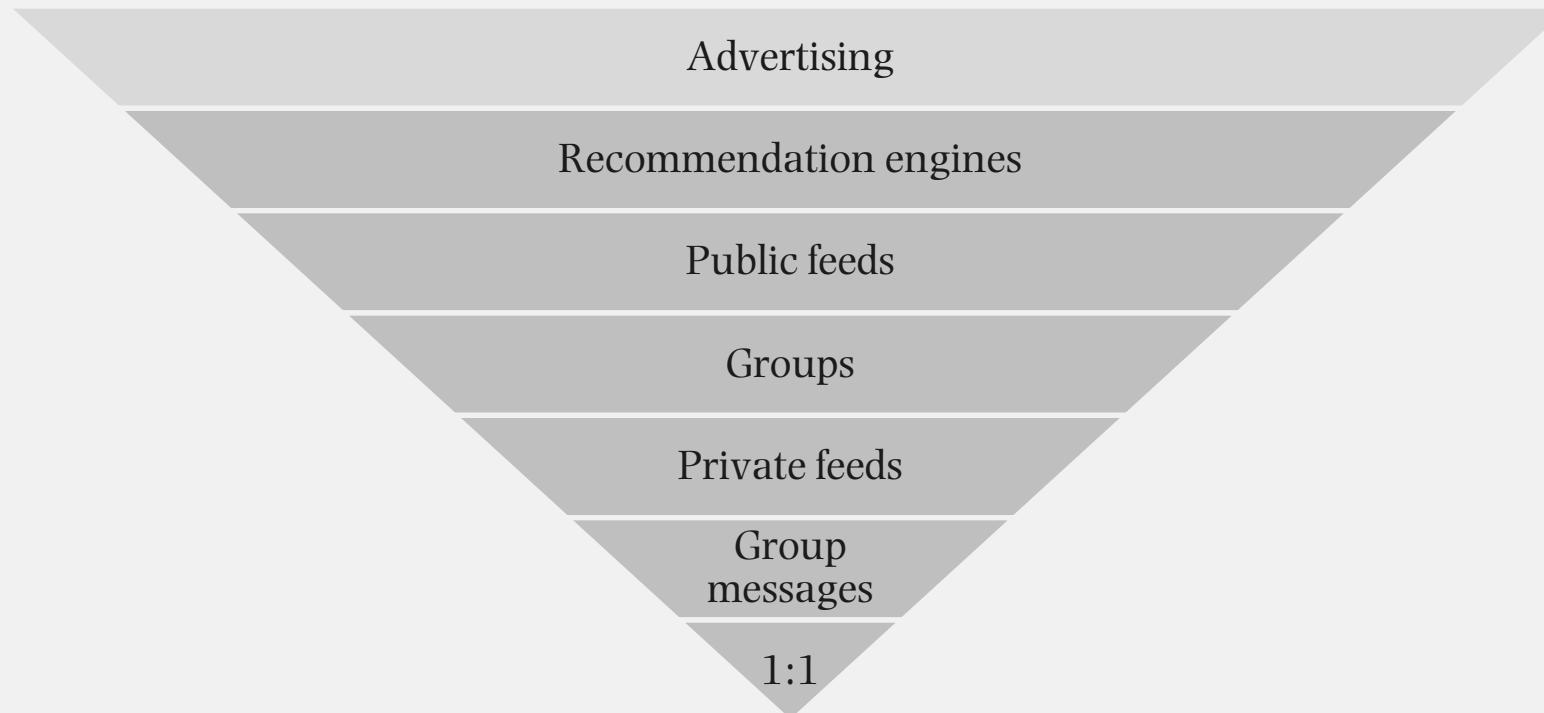
# Case study: content moderation

Easy to say, but do we know what we want?

There's bad stuff on your platform – take it down

# What does 'take down' mean?

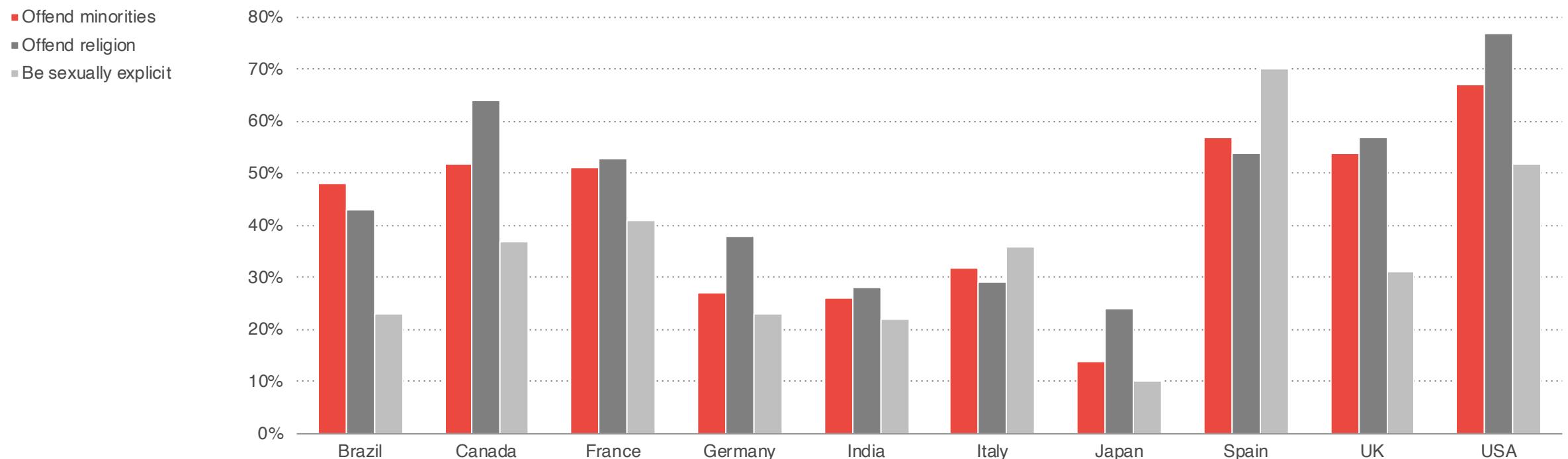
‘Social networks’ are a mix of many publishing forms with different speech and distribution models



# What does 'bad' mean?

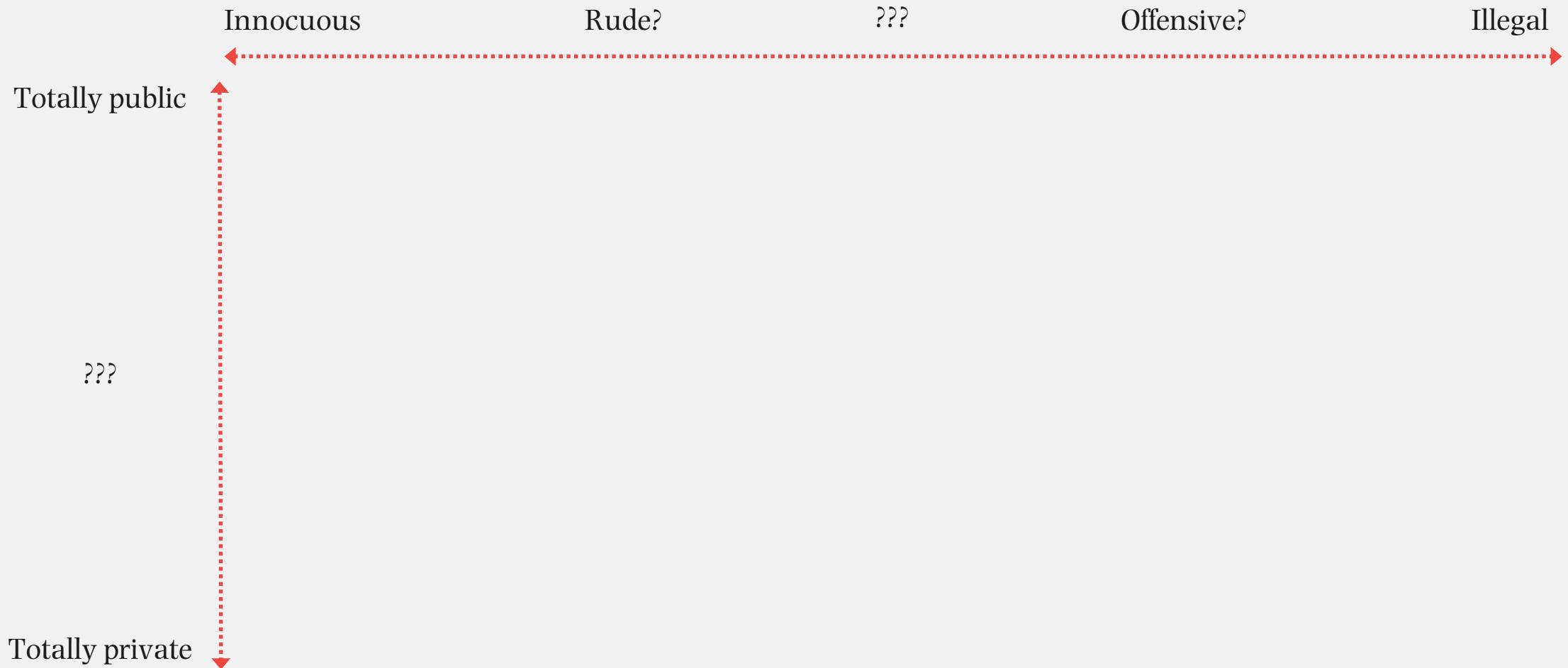
It's not just 'China' - liberal democracies have widely varying attitudes to free speech

Percentage believing that people should be free to:



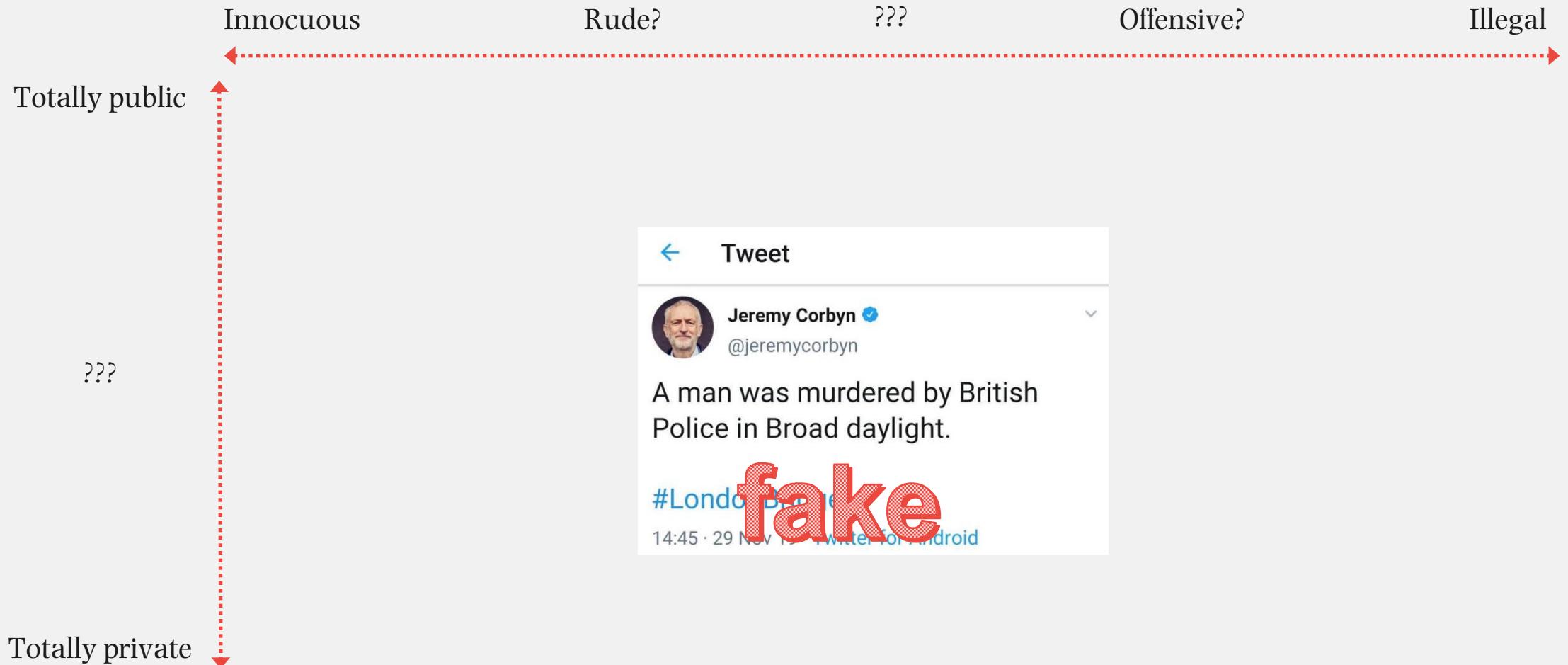
# Do we know what we want?

We lack consensus on what's bad enough to 'take down', and on what 'take down' even means



# Do we know what we want?

We lack consensus on what's bad enough to 'take down', and on what 'take down' even means



# China, digital sovereignty and digital extra- territoriality

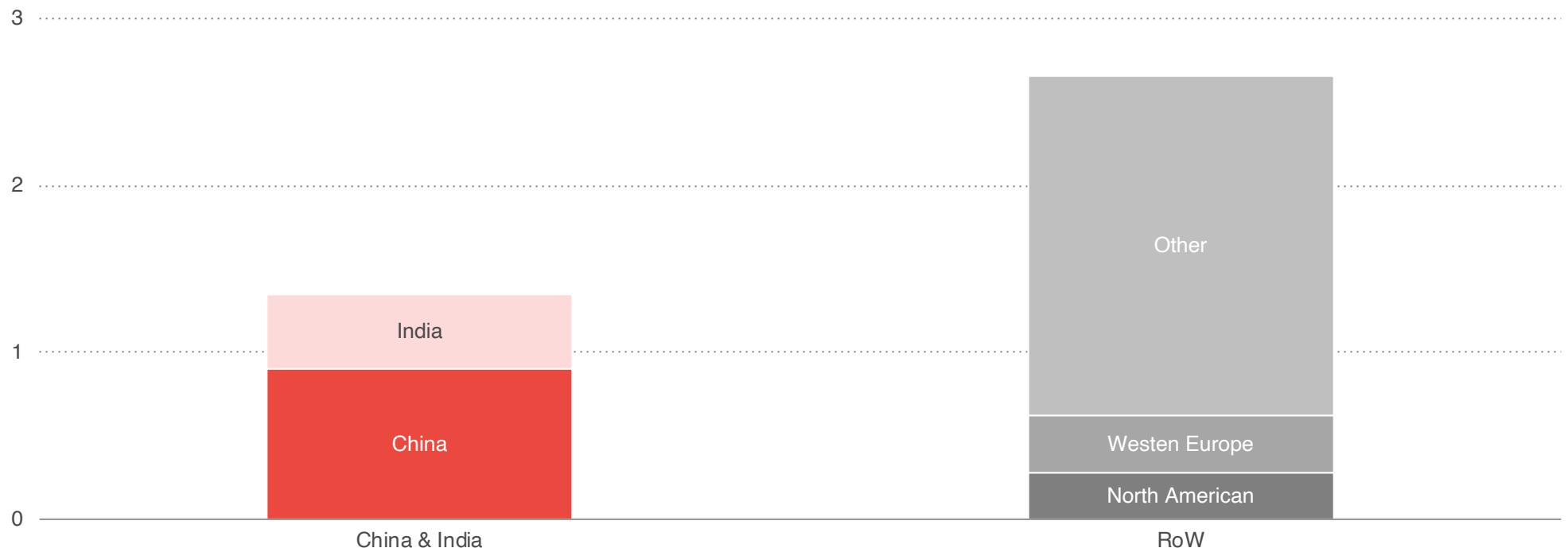
---

“War is God's way of teaching  
Americans geography.”

# The end of the American internet

China and India have 5x more smartphones than the USA

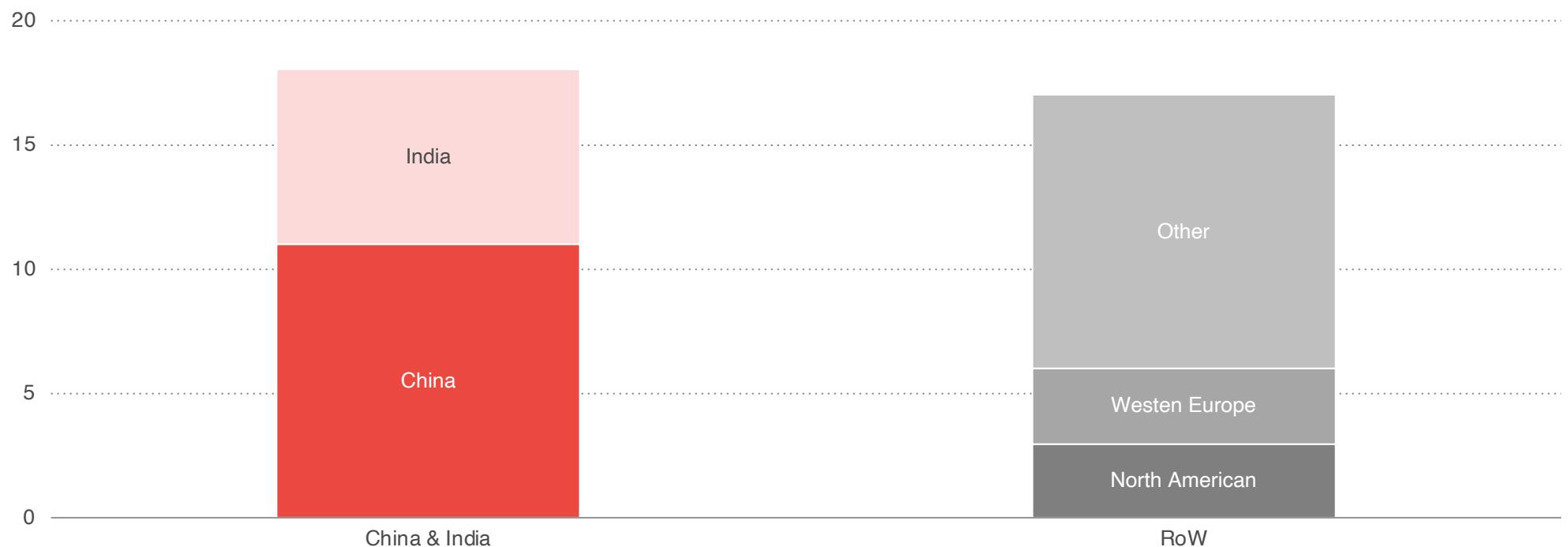
Smartphone users, June 2019 (bn)



# The end of the American internet

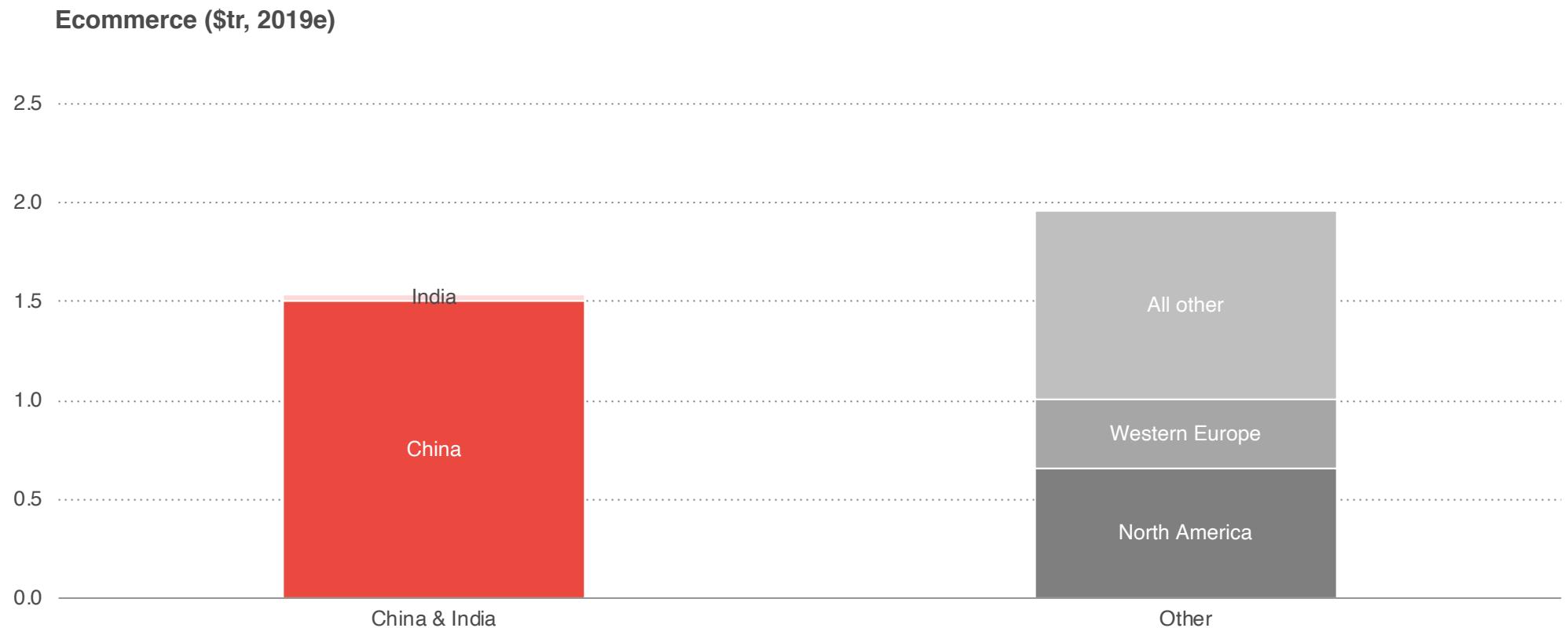
China and India use more mobile data than the rest of the world combined

Mobile data, June 2019 (EB)



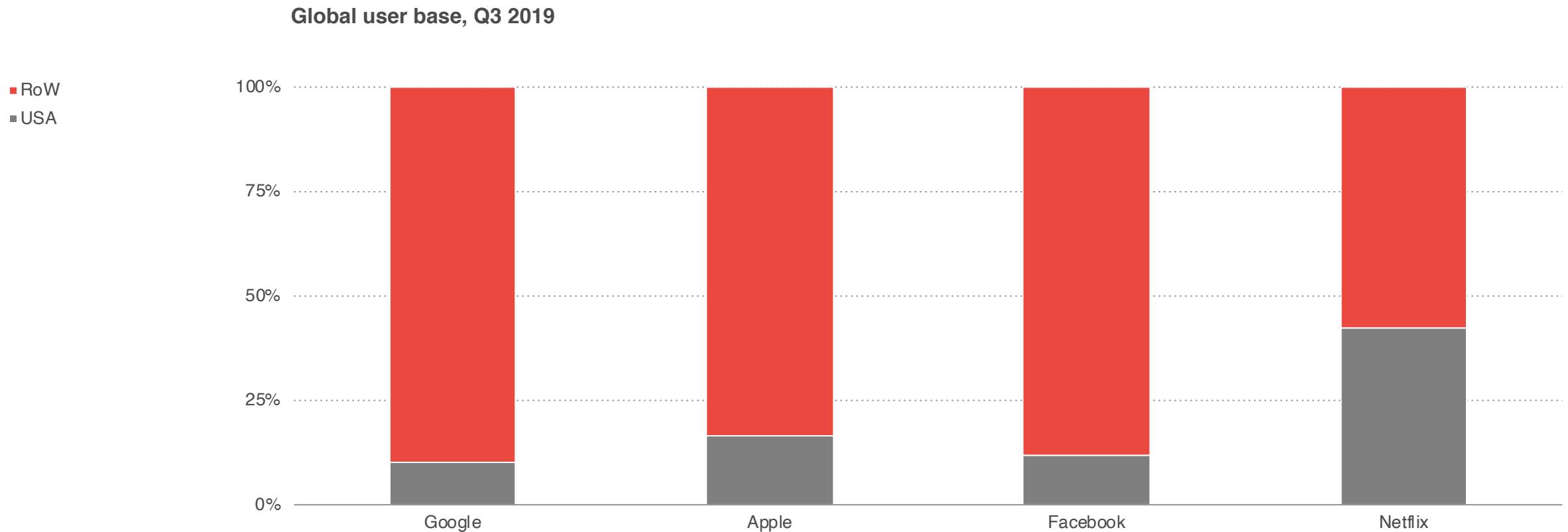
# The end of the American internet

40% of global ecommerce value is in China



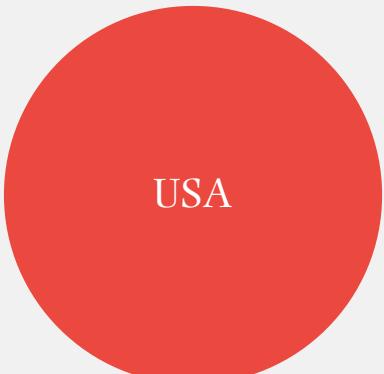
# American companies, global reach

“But the US constitution says!” is no longer an adequate answer



# Regulatory competition?

At least three jurisdictions competing, with different politics but also different regulatory cultures



USA



EU



China



California,  
Singapore,  
UK, etc

# Digital extraterritoriality

How do you apply domestic laws to a global medium, and to citizens who may be abroad?

## Austria

EU court holds that an Austrian libel take-down order applies globally

## Singapore

State's right-of-reply must be applied to posts seen in Australia

## GDPR & CCPA

Laws apply to EU/CA citizens wherever they are

# Global reach means a lowest common denominator

Extra-territorial regulation means companies start complying with the harshest rule that applies, wherever it is

**Los Angeles Times**

Unfortunately, our website is currently unavailable in most European countries. We are engaged on the issue and committed to looking at options that support our full range of digital offerings to the EU market. We continue to identify technical compliance solutions that will provide all readers with our award-winning journalism.

**Chicago Tribune**

ely, our website is currently unavailable in most countries. We are engaged on the issue and looking at options that support our full range of digital offerings to the EU market. We continue to identify technical compliance solutions that will provide all readers with our award-winning journalism.

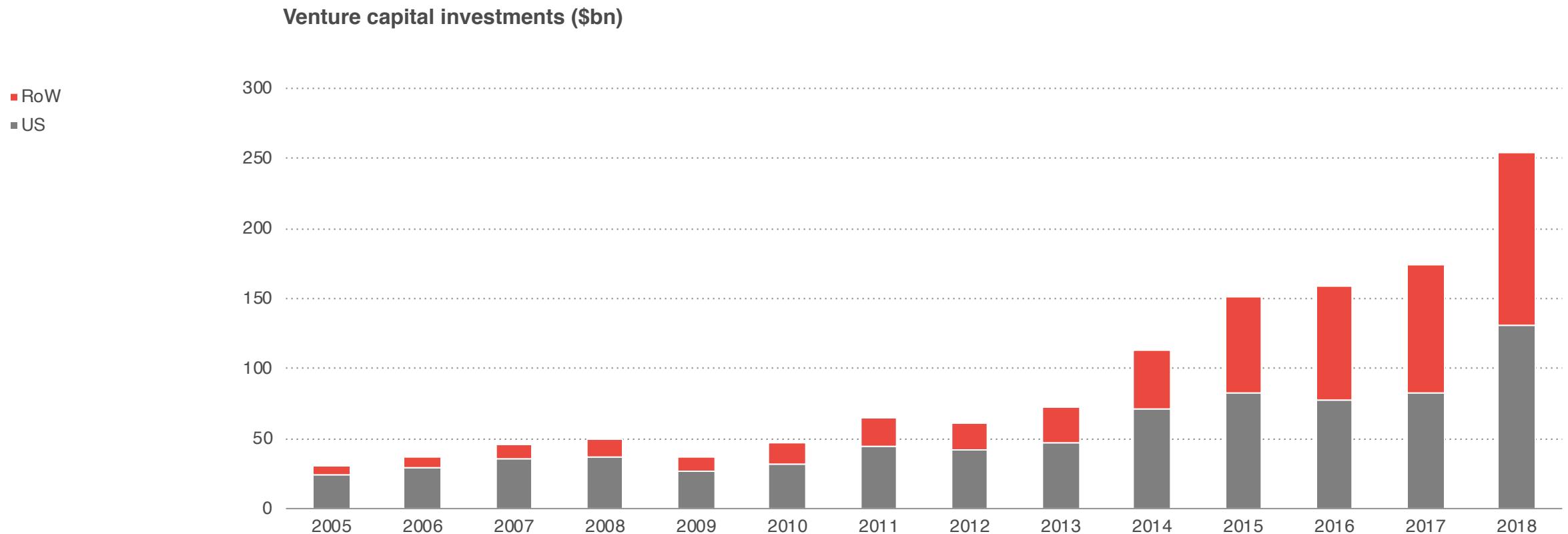
Tiktok: not just your standards?

When the community standards being enforced may not be your community's standards



# There will be many more TikToks

The US can no longer assume that every hot new thing will be made in the US



# China and the NBA...



# And every other brand

‘Don’t forget Taiwan is part of China’



VALENTINO



VERSACE



Calvin Klein

*fresh*<sup>®</sup>

G A P

# From sovereignty (or protectionism) to extraterritoriality

Again, how do local rules apply to global systems?



# The future – compliance and moderation as a service?

GCP/AWS/Azure all now rolling this out – will Facebook join them?

The image is a composite screenshot showing three different cloud service provider interfaces and a blog post. On the left, the Microsoft Azure Content Moderator interface is displayed, featuring a 'Sign Up' button and a 'Machine - Assisted Moderation' section. In the center, the Google Cloud AI & Machine Learning Products page is shown, with a 'Contact sales' button and a 'Get started for free' button. On the right, a blog post from AWS titled 'Enhanced Content Moderation is now available for Amazon Rekognition Video' is displayed, with a timestamp of 'Posted On: Feb 13, 2019'. The blog post discusses the features and benefits of the new moderation service.

**Content Moderator**

Sign up for the Content Moderator service to moderate with human review, your colleagues, and config...

**Sign Up**

**Machine - Assisted Moderation**

**Google Cloud**

AI & Machine Learning Products

Contact sales Get started for free

AI & Machine Learning Products > Cloud Vision API > Documentation > Guides

**Detect explicit content (Safe Search)**

Contents

- Safe Search detection requests
- Set up your GCP project and authentication
- Explicit content detection on a local image
- Explicit content detection on a remote image

★ Note: We've recently added new features or fields to Safe Search Detection. See the [release notes](#) for details.

**Safe Search Detection** detects explicit content such as adult content or violent content within an image. This feature uses five categories (`adult`, `spoof`, `medical`, `violence`, and `racy`) and returns the likelihood that each is present in a given image. See the [SafeSearchAnnotation](#) page for details on these fields.

**aws**

Contact Sales Support English My Account Create an AWS Account

Products Solutions Pricing Documentation Learn Partner Network AWS Marketplace Custom > Q

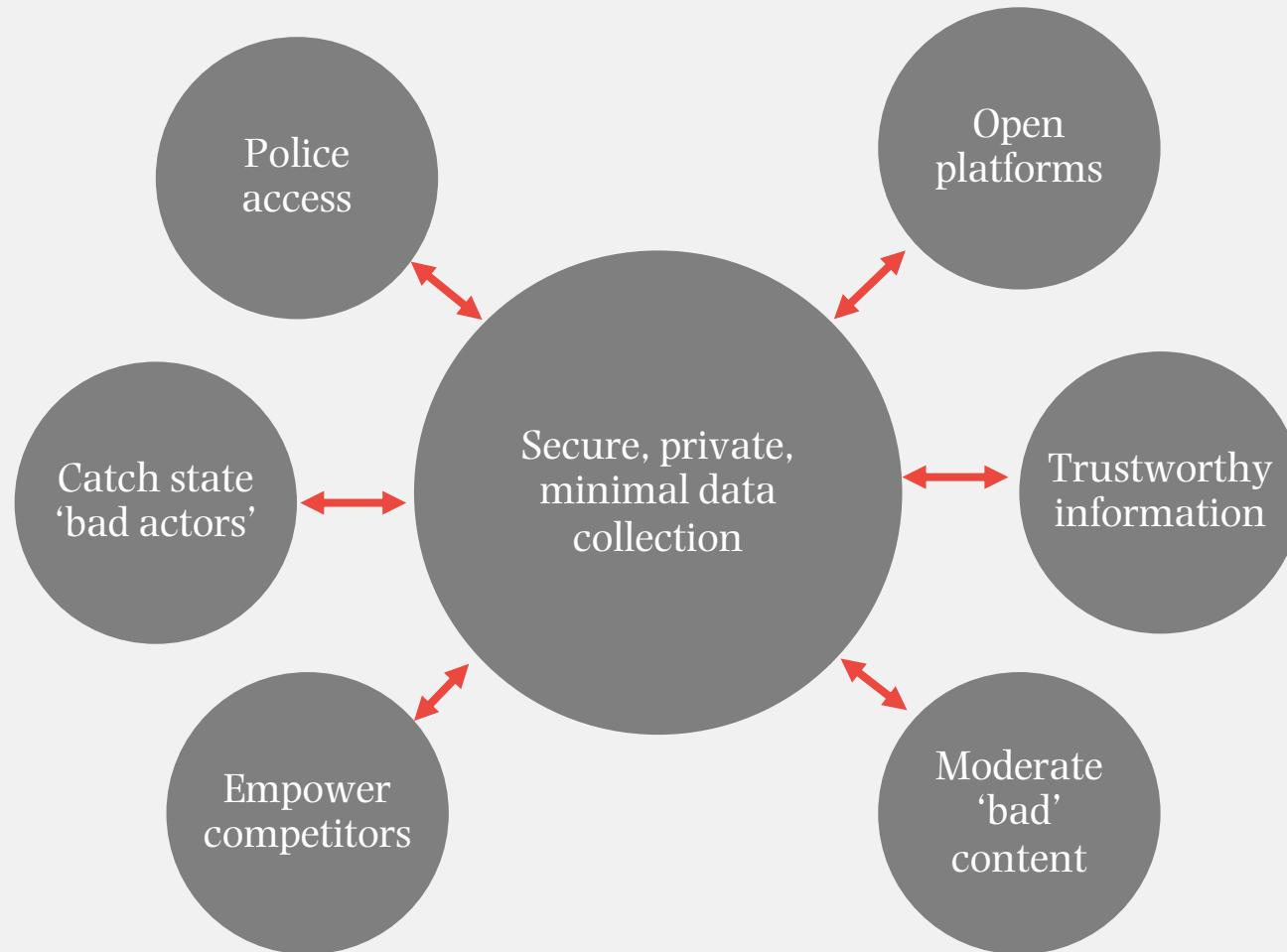
## Enhanced Content Moderation is now available for Amazon Rekognition Video

Posted On: Feb 13, 2019

Amazon Rekognition Video is a deep learning-based video analysis service that can identify objects, people, text, scenes, and activities, as well as detect unsafe content. Content Moderation for Amazon Rekognition Video can identify various types of explicit and suggestive content, as well as timestamps for where such content appears during the video. Amazon Rekognition Video now comes with an enhanced moderation model that reduces false positive rates by 40% on average without any reduction in detection rates for truly unsafe content. Lower false positive rates imply lower volumes of flagged videos to be further reviewed by human moderators, leading to higher efficiency and more cost savings. Moreover, Amazon Rekognition provides a hierarchical set of moderation labels that can be used to create business rules to handle different geographic and demographic requirements. For more details on supported labels, please see [this page](#). No machine learning experience is required to get started.

# But what will happen when regulators conflict?

When local regulators assert global coverage and make incompatible demands, who yields first?



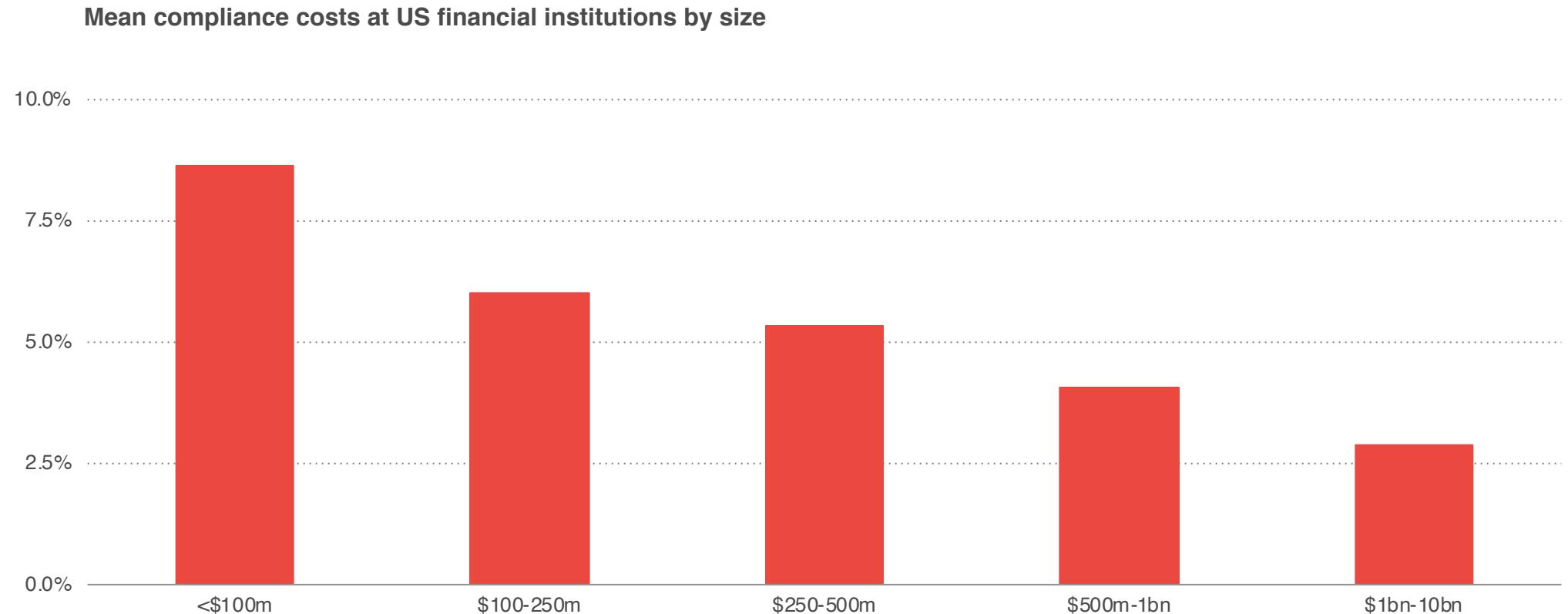
# And this may get even more complicated

Part of the point of crypto is to remove central control – and hence sovereignty



# The only certainty: regulation as a regressive tax

Much of regulation is a fixed cost that affects new entrants disproportionately



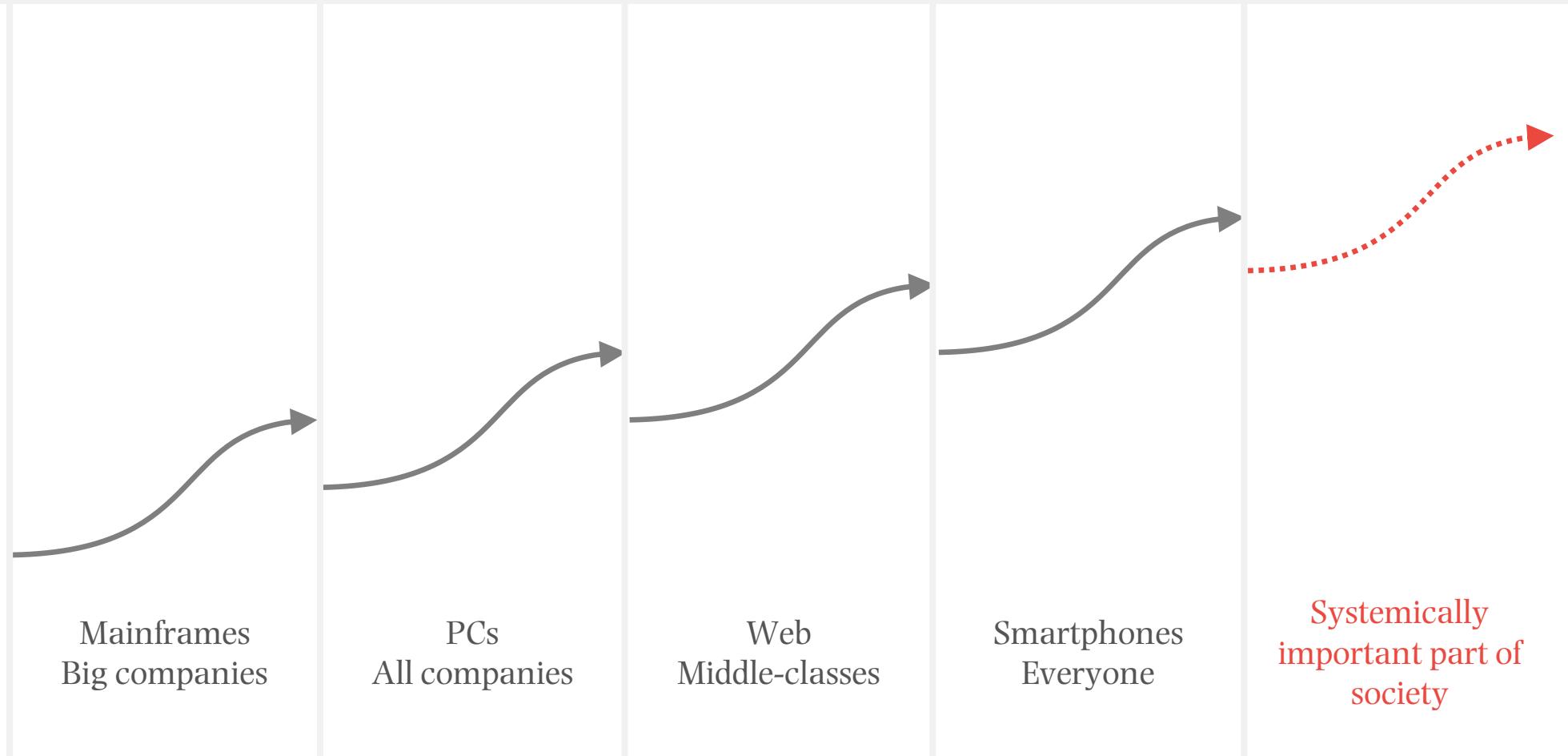
# Conclusion: welcome to the world

Software ate the world, so all the world's problems get expressed in software

(We connected everyone, including the bad people)

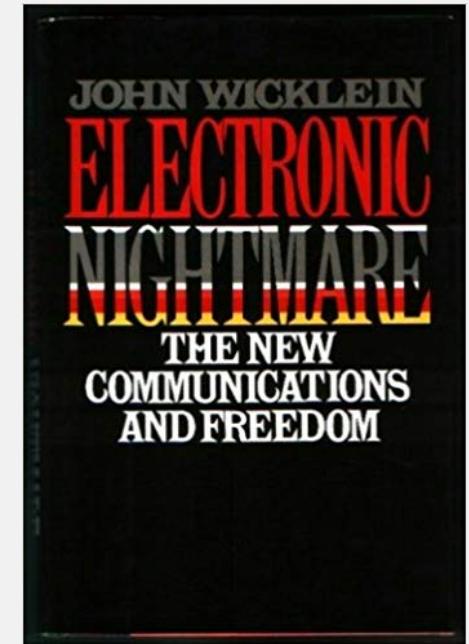
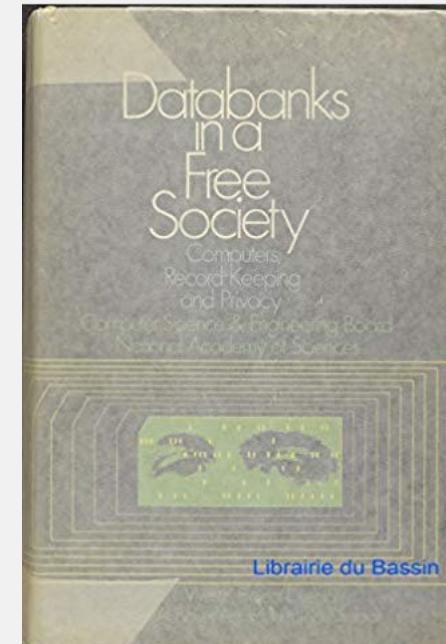
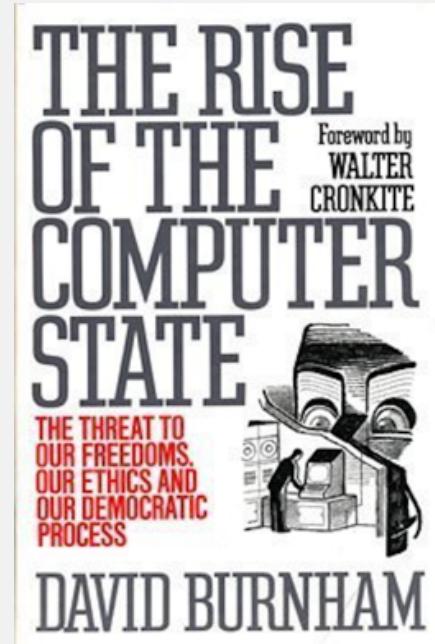
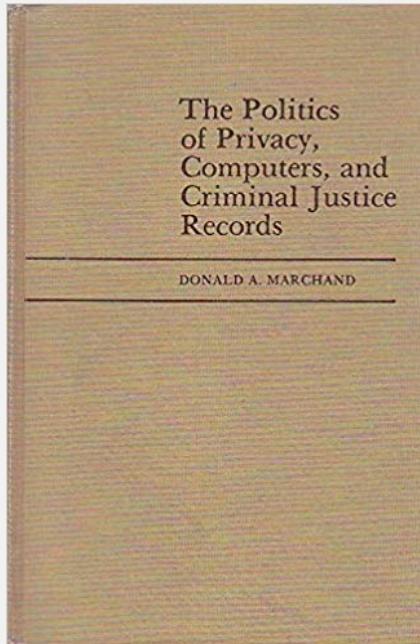
# What's the next cycle?

Tech has become part of the world, so it gets regulated as part of the world



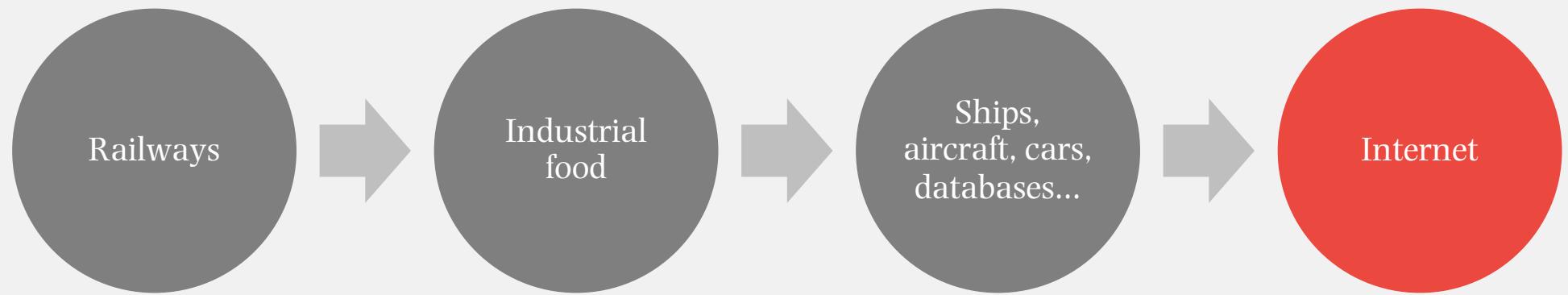
# Worrying about tech isn't new

The late 70s and early 80s saw another wave of concern around computing and automation



# Every wave of tech changes the world, and gets regulated

Every important tech gets industry-specific regulation



# Tech has changed its attitude...

The ideology of tech has changed, and AI has changed what's possible, but some things remain impossible

“Censorship is bad”



Yes to moderation...  
But whose decision is it?

“We can't moderate 100bn  
messages a day”



AI changes this...  
If we also hire 30k human  
moderators

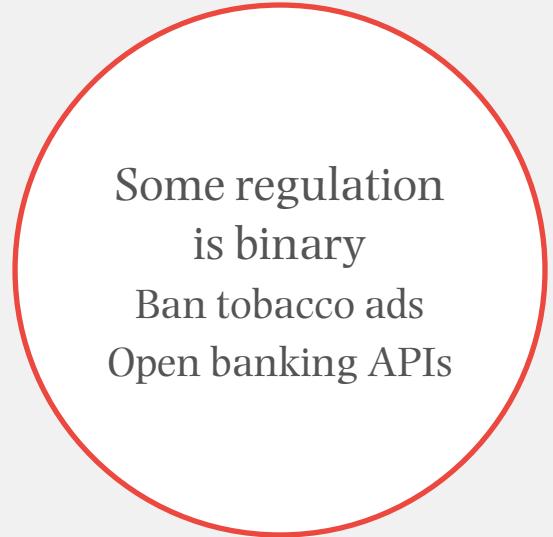
“You can't build a secure  
platform with a back door”



You can't build a secure  
platform with a back door

# And this also needs new understanding in policy...

Regulating tech is complex and full of tradeoffs. But, this is true of all regulation – law and policy are the art of the possible



Some regulation  
is binary  
Ban tobacco ads  
Open banking APIs



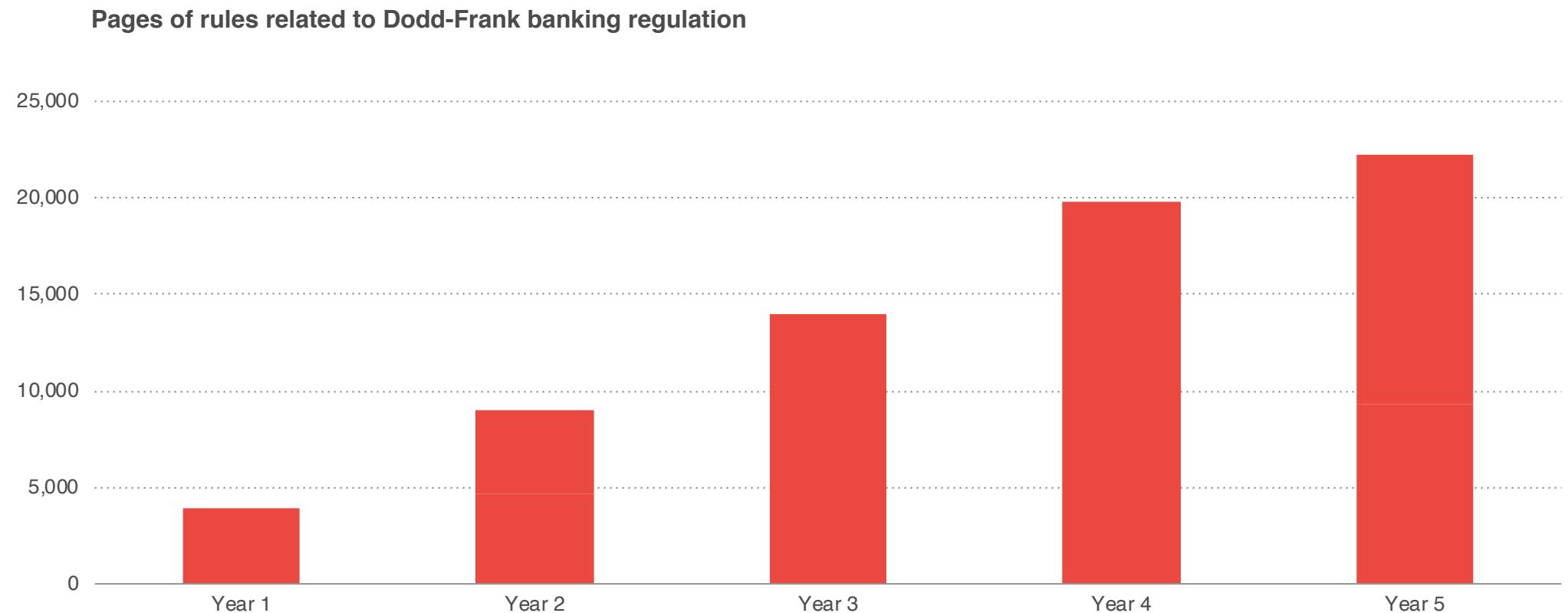
Most is ‘best  
reasonable effort’  
Try to prevent fraud  
Try to block CSAM



Some things are  
just not possible  
Ban inflation  
Block all bad content  
instantly

# The growth chart for the 2020s

Welcome to a regulated industry



# Thank you

**Benedict Evans**

January 2020

[www.ben-evans.com](http://www.ben-evans.com)

---