

# Three Steps to the Future

**Benedict Evans**

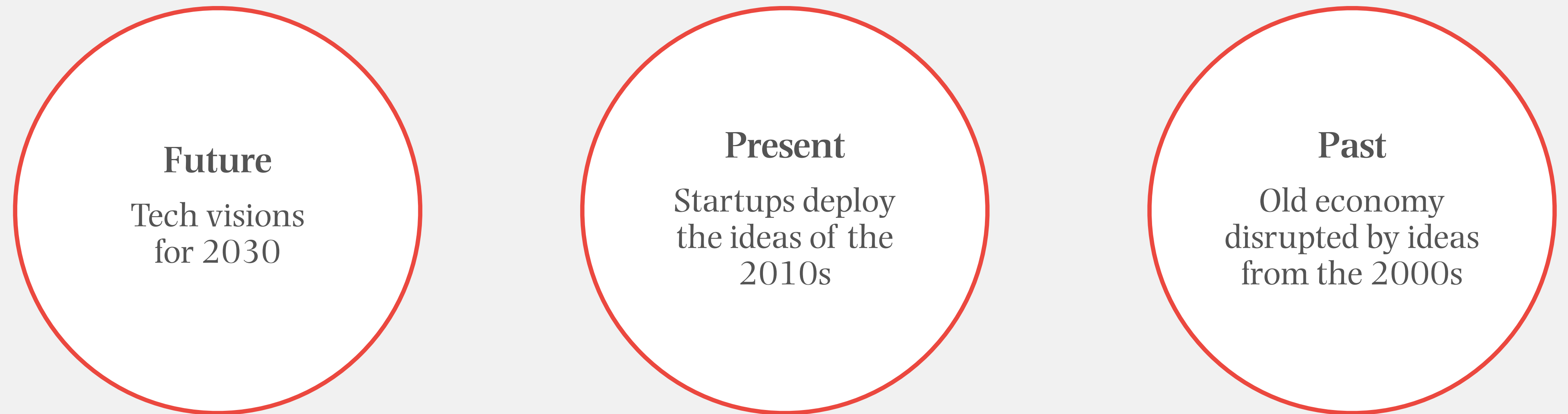
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[www.ben-evans.com](http://www.ben-evans.com)

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# Three steps to the future

Three trends in 2021 - visions versus deployment and disruption



# Future

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# Tech visions for 2030

What do tech people think about for the next decade?



Web3



Metaverse



## Everything else

LEO satellites, plant-based meat, AI, ESG, quantum, robotics, ASICs, 3D printing, China, edge computing, neural interfaces, computational biology, vertical farming, autonomous cars, drones, EVs,...

# The great rebranding

Redefine the vision and set a broader goal, for both VR and crypto

## Cryptocurrencies

Store of value, payments,  
money transfer (and  
speculation)



## Web3

New models for building  
software, internet businesses  
and networks

## VR/AR

Gaming headsets, niche  
industrial tool, science projects



## Metaverse

The next platform after  
smartphones

# Web3

“The Holy Roman Empire is neither holy, nor Roman, nor an empire” - Voltaire

‘Cryptocurrency’ is neither secret nor (only) a currency,  
‘blockchain’ or ‘DLT’ are not databases...

# Web3 - a dream of a next version of the internet

A blockchain is a distributed, open computing system - or at least, that's the plan





# Web3 = Open Source 2

Open source changed how code is written - Web3 tries to change where it runs



# A messianic vision for tech

Like open source and the internet in their early days, a tech movement with a strong dose of religion

Closed and centralised



Open and decentralised

Companies make money



Users make money

All the old problems



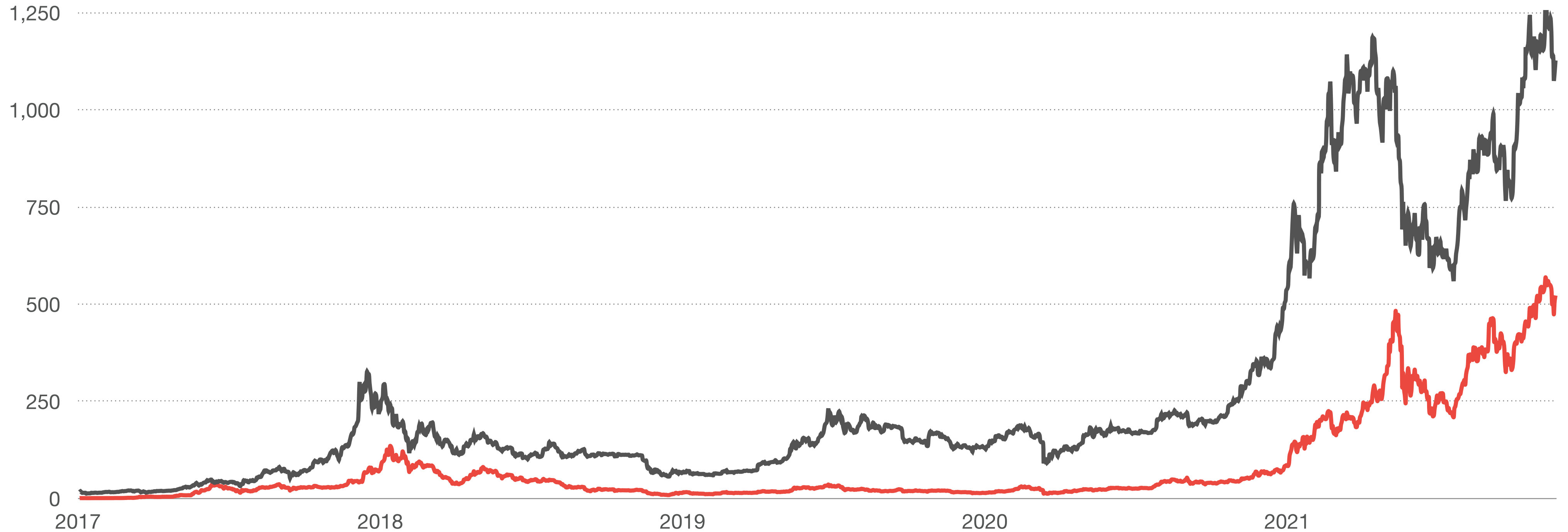
All the old problems, in exciting new ways

# Obligatory market cap chart

Speculation and lots of market mechanics - but also billions of dollars of real money invested

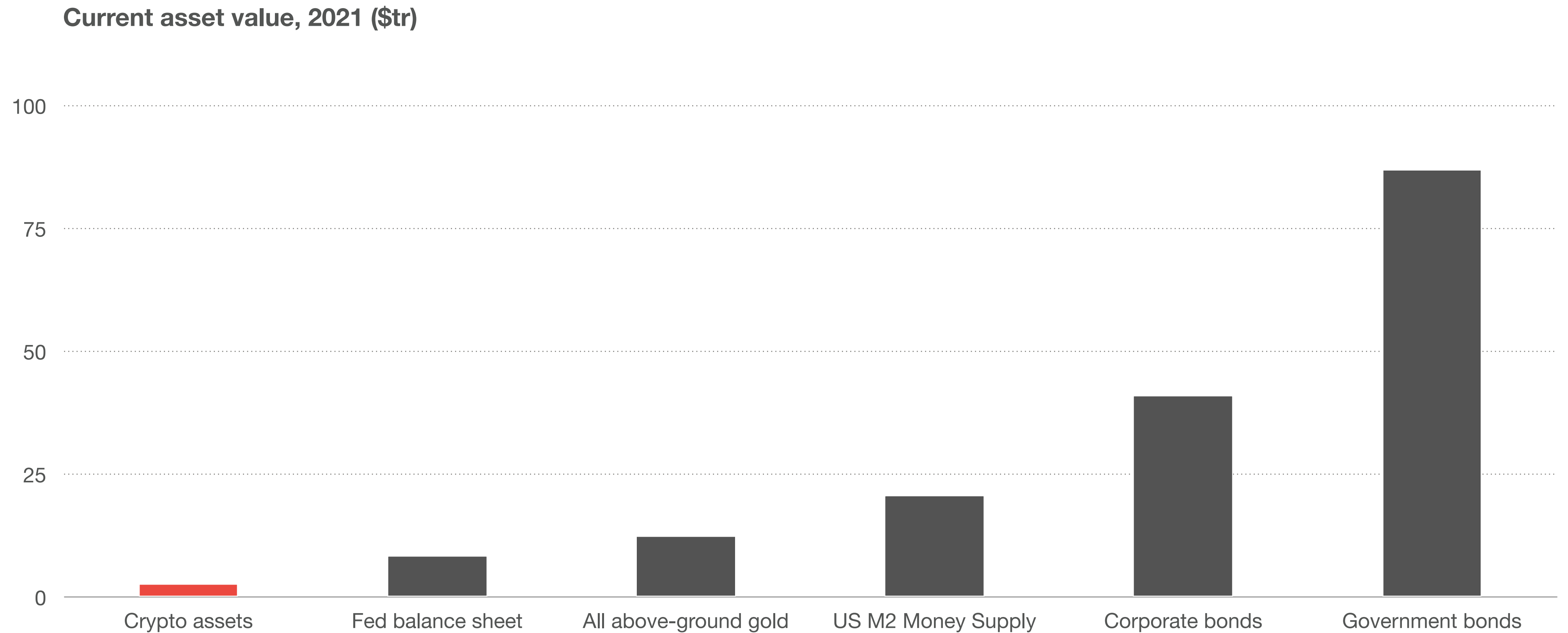
Market capitalisations for the two largest crypto networks (\$bn)

— Bitcoin  
— Ethereum



# The 'store of value' use case

Digital assets as a store of value are now taken somewhat seriously in financial markets



# Traction for software use cases?

Behind the speculation and market caps, what's the traction for applications?

3-4m  
addresses &  
\$60-70bn  
linked to DeFi  
apps (?)

10m+  
Metamask  
MAUs

200k  
OpenSea  
accounts

450k ENS  
domains

# NFTs, today's white-hot idea

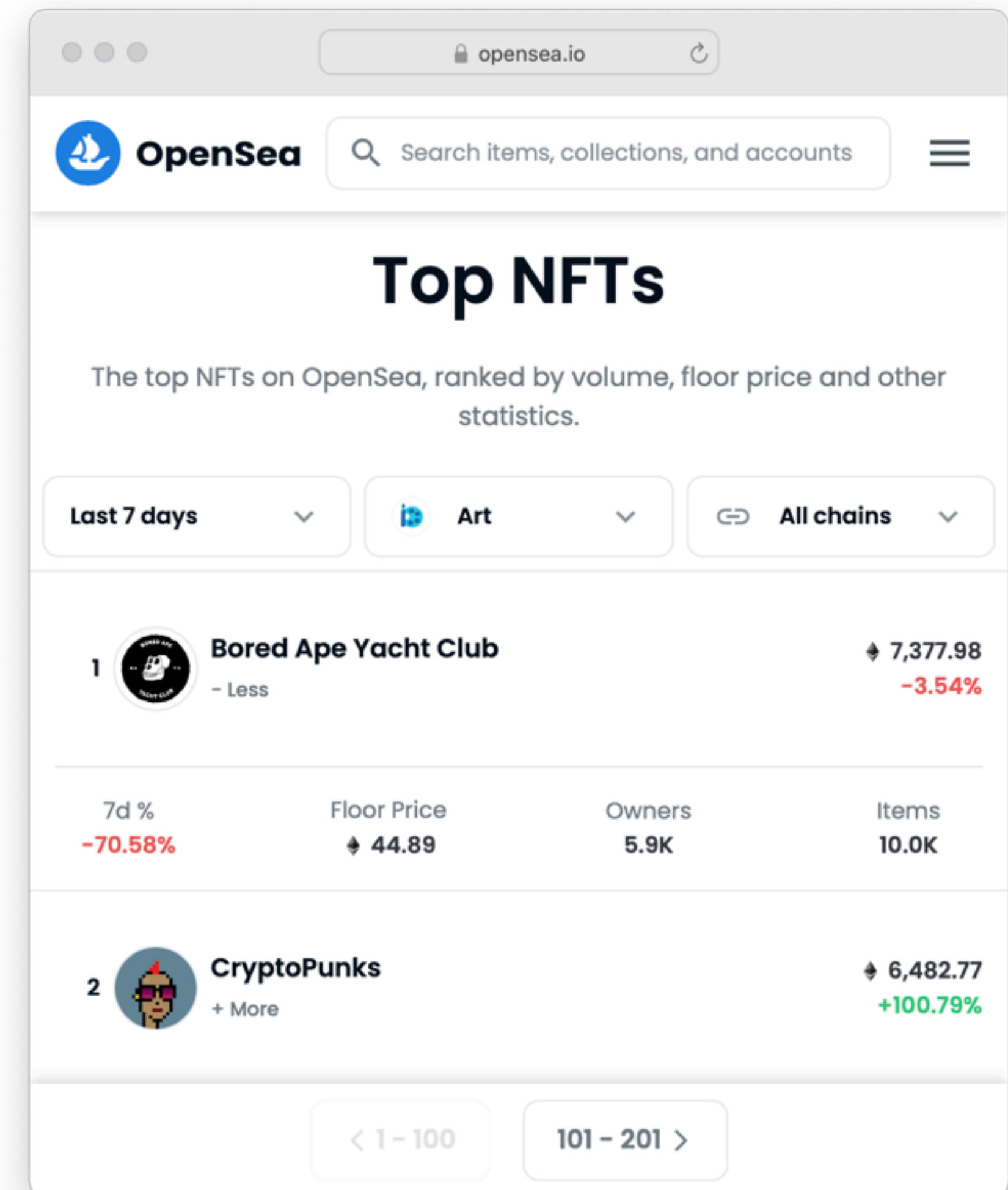
Explosion of interest and quoted value

'Cultural value' versus 'intrinsic value' is not a problematic concept - ask Supreme

But tiny absolute numbers of people so far - by design! - and lots of noise and circularity

Interesting as experiments in digital property...

But also a tech building block with broader use cases

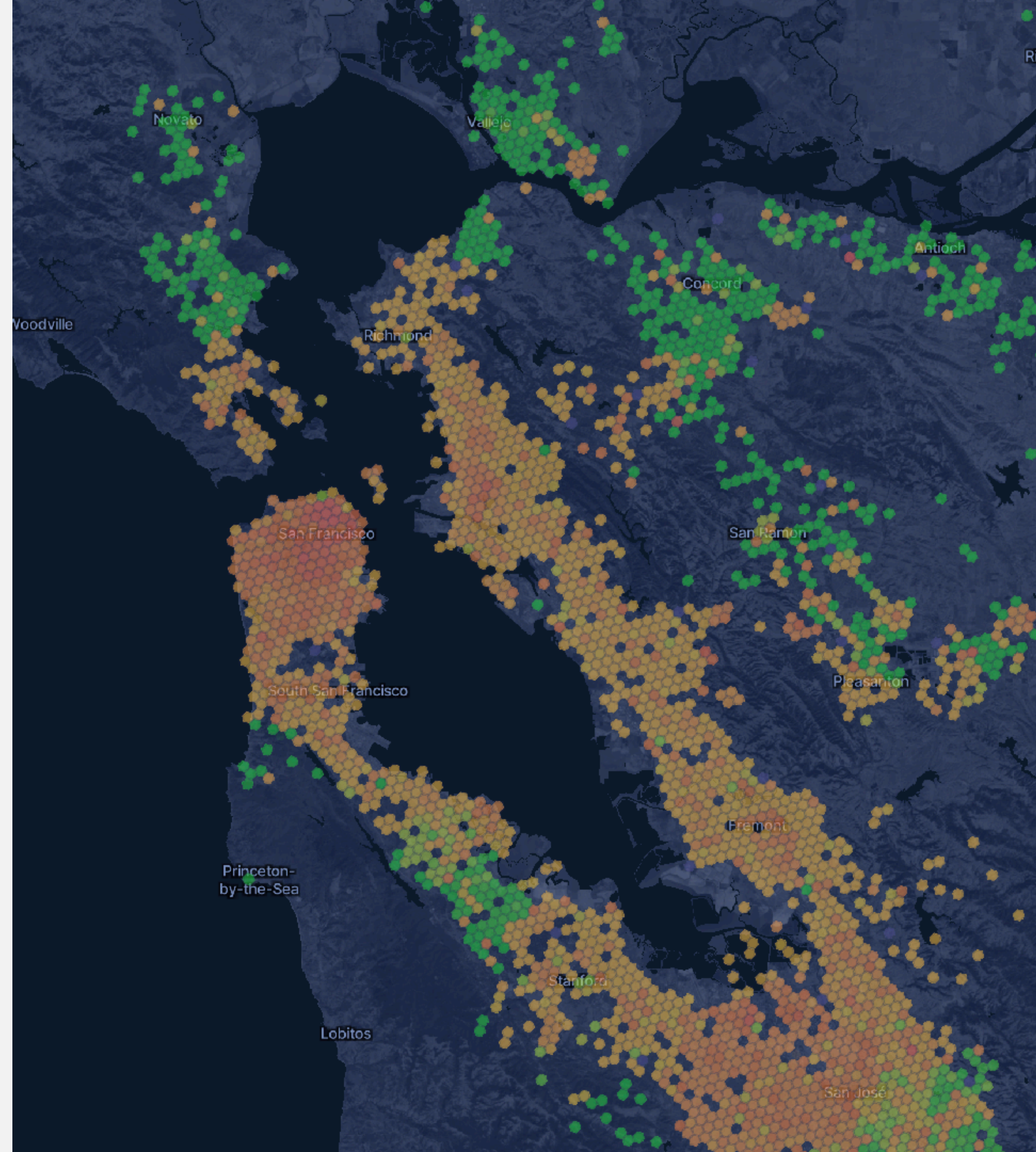




# New incentive structures

Helium is a distributed network of low power, low bandwidth, IoT radio access points

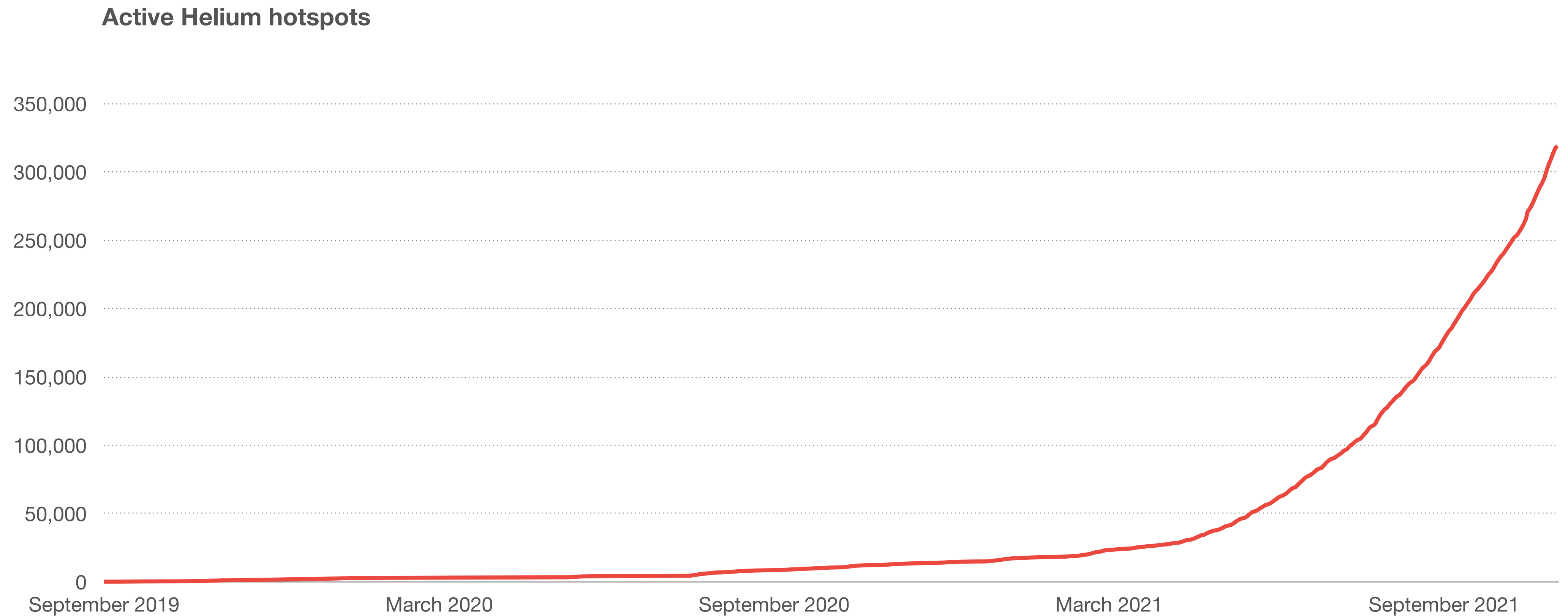
Decentralised incentives, tracking and payment





# A nice adoption curve

Helium proposes a scalable incentive and payment model for a public wireless network





# What are we looking at?

Massive noise, hype and irrational criticism from all directions

## Market caps?

A share price is an opinion of the future;  
operating metrics are data about the  
present

A token price is neither, and both

So - is speculation validation?

## Ponzi schemes?

Currencies, art and social networks are  
based on collective adoption

And early adopters benefit most...

But this is also true of Ponzi schemes

# Early (still!), exciting, unclear


Looks much like the early consumer internet, or open source (but also like lots of other things that never worked)



Deep technical  
understanding  
still needed



Fragmented &  
complex



Massive creative  
energy, but also  
huge uncertainty

Is an iPhone open or closed?

Yes

The iPhone is full of open source software...

And yet it's closed...

And yet there are millions of apps and billions of app installs


So what do open or decentralised mean? Where, and how, at what layers?




# Metaverse

# The metaverse thesis

A vision of a universal screen



VR & AR as the  
next universal  
device after  
smartphones



Games break out  
VR & AR expand  
far beyond games



Self-expression,  
place, identity,  
pop culture

# Mood boards for the future?

Many of these words will probably mean something - but not necessarily like that

## 1994: “Information Superhighway”

Multimedia, GUIs, CD-ROM, interactive TV, convergence, broadband networks, voice recognition, digital... and VR

Disney, AT&T, Bertelsmann, Viacom

## 2021: “Metaverse”

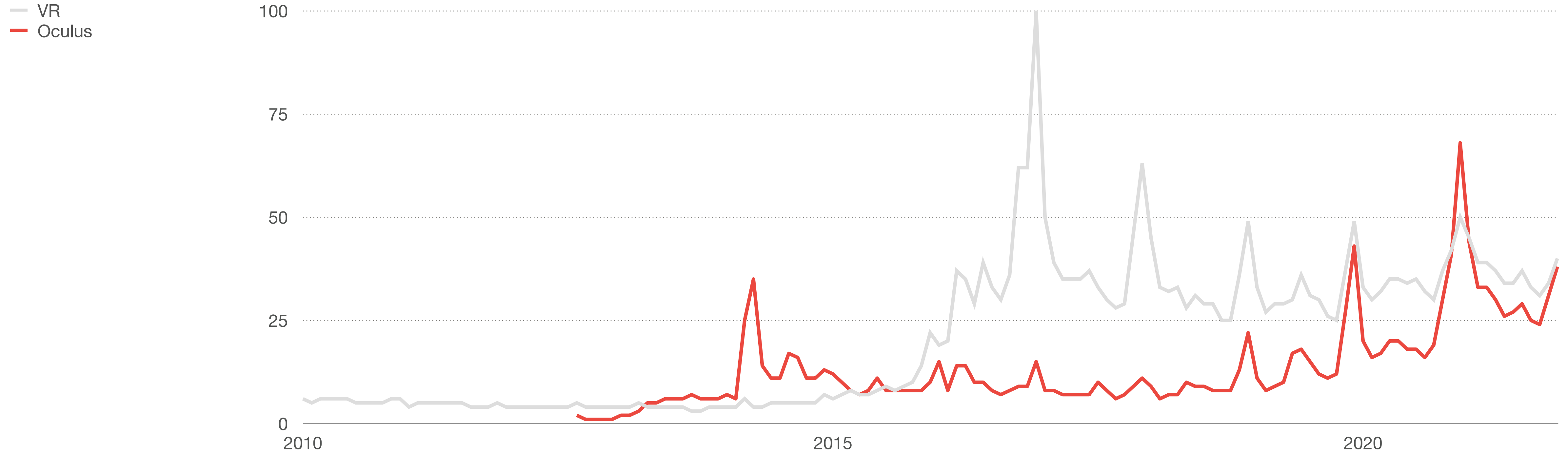
VR and AR, plus games, creator economy, Roblox, digital self, spatial internet & place... (and web3)

Facebook?

# VR traction so far?

Growing interest, and Oculus Quest 2 sold 10m units in 12 months, but it didn't surge in lockdown

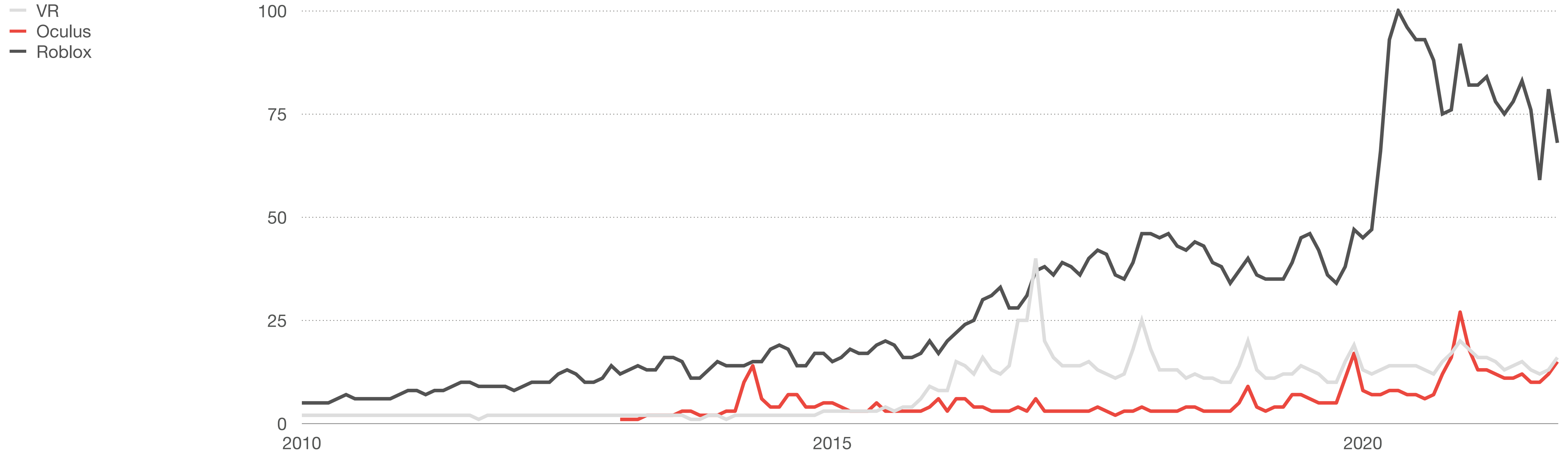
Relative search interest, USA



# Small beginnings

So far, Roblox is a far bigger story (and Apple is keeping quiet)

Relative search interest, USA





# Roblox as a model for the future?

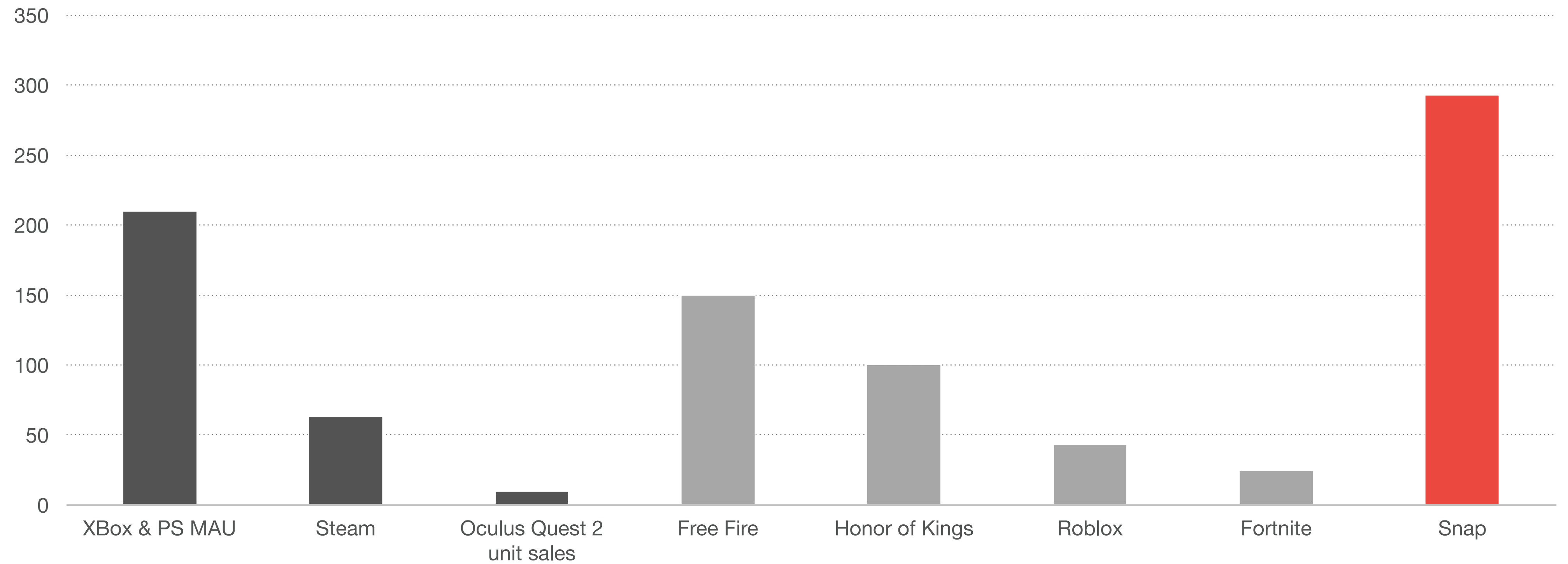
A platform for social and for creating games and experiences, not just the latest hit game



# Games are still relatively small

There are probably 250-350m active 'core gamers' - the same size as Snap and a fraction of the 1bn+ iPhone users

Global daily active users\*, 2021 (m)

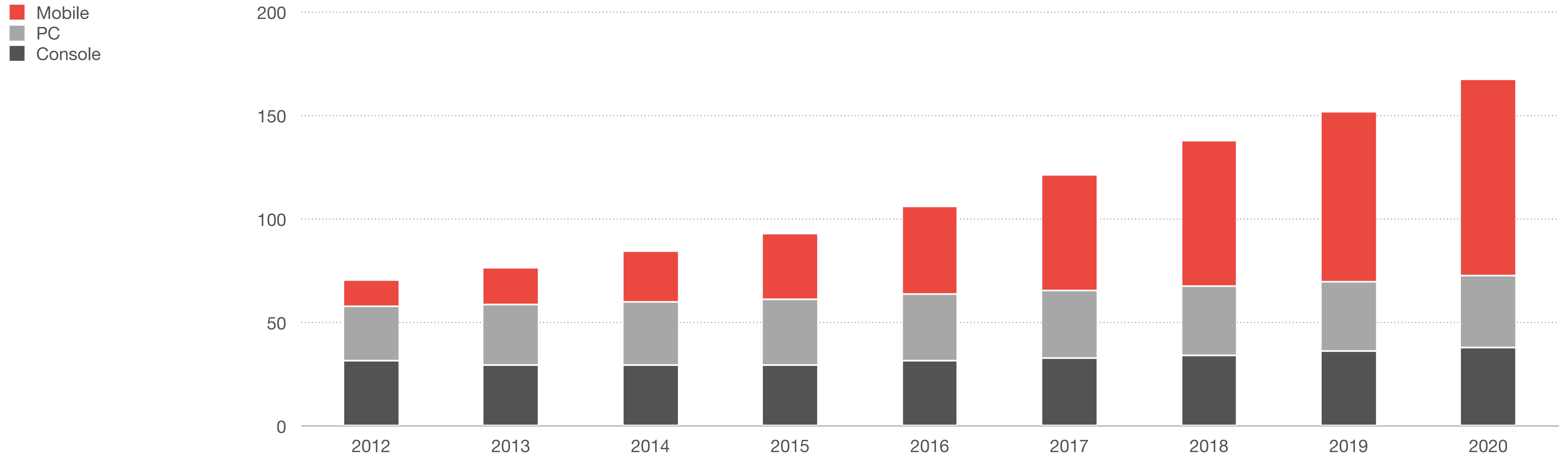


Source: Companies  
\* Except Consoles and Oculus, as stated

# Though mobile has changed the games TAM

Popular estimates of market size show dramatic growth in mobile

Global games revenue estimates (\$bn)



# How universal do VR & AR become?

Moore's Law took 'mobile internet' to everyone - but only took games consoles to a 200m unit installed base



The technology can always get better...

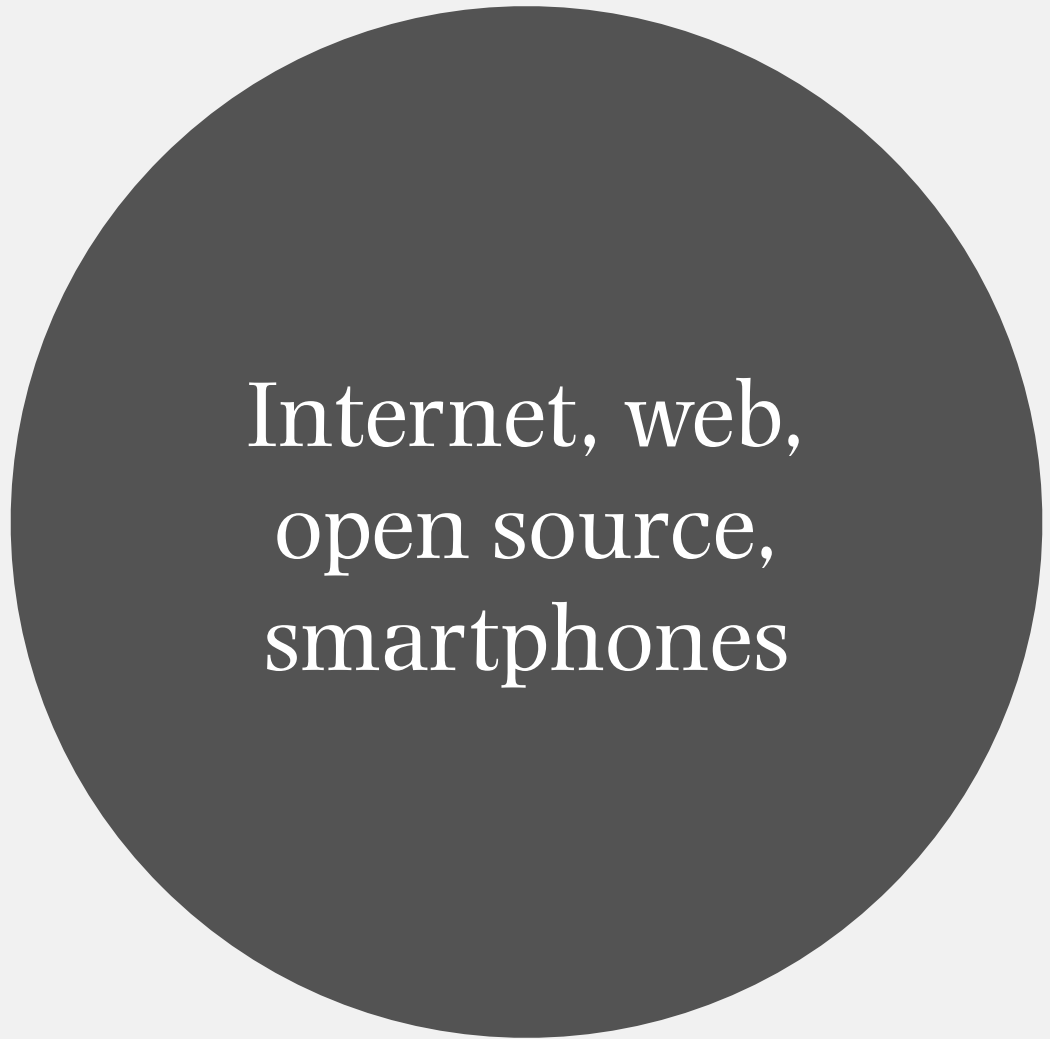


But that doesn't guarantee universal appeal


2030

# “This is amazing - it must be part of the future”

Tech determinism - for both VR and 'crypto' the tech is great, so it must be useful, but how?



Internet, web,  
open source,  
smartphones



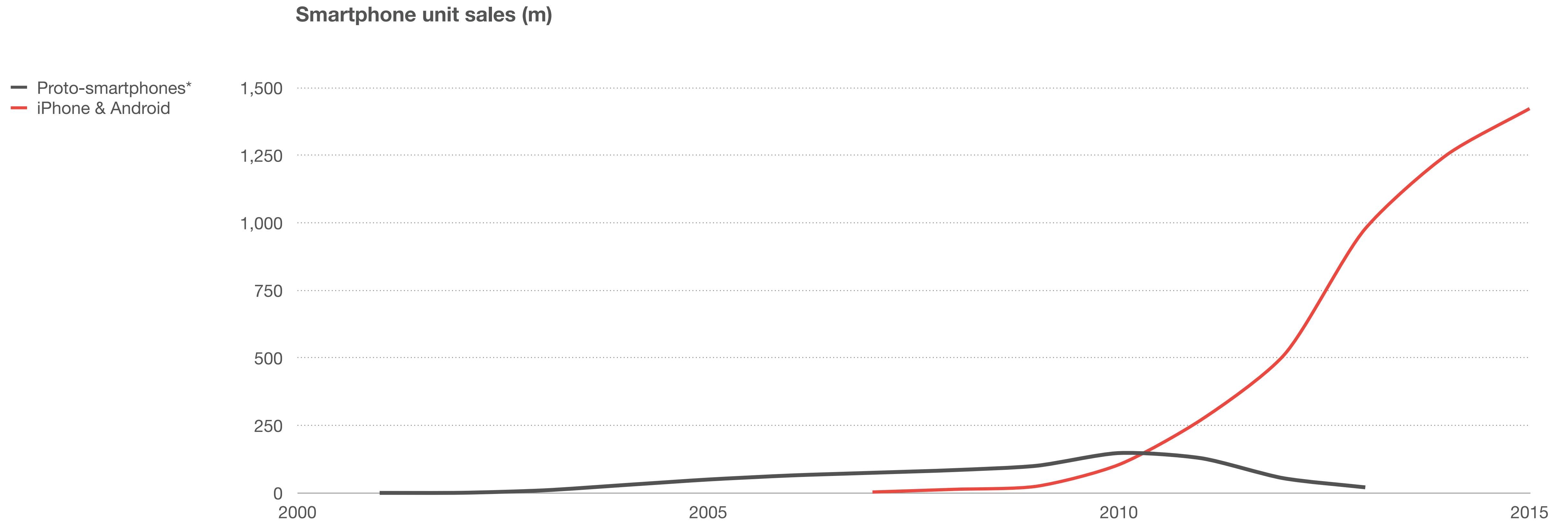
But also drones,  
3D printing,  
games consoles...



And now web3  
and metaverse

# The future can take a very long time

Mobile data didn't take off outside Japan until a decade after the dream began



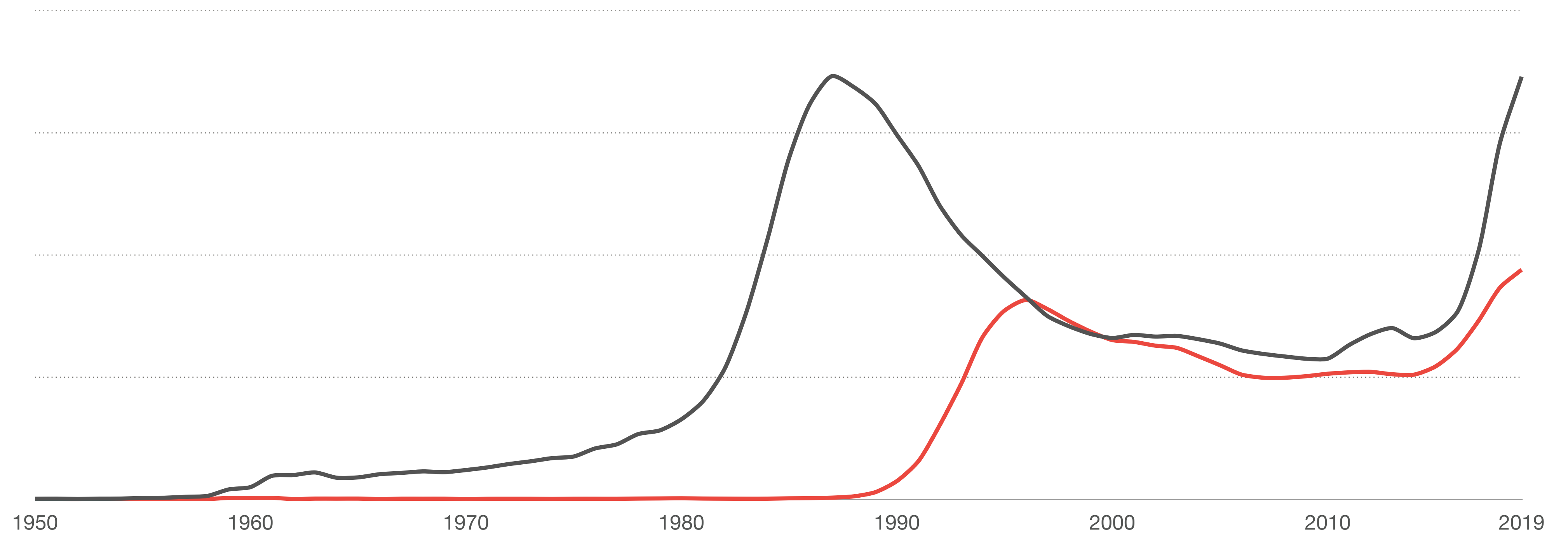
Source: IDC, Companies  
\* S60, Palm, RIM, Windows Phone

# And you can have a winter (or two) on the way

Both AI and VR went through prolonged 'Winters' as the tech lagged behind early enthusiasm

## Term frequency in English-language books

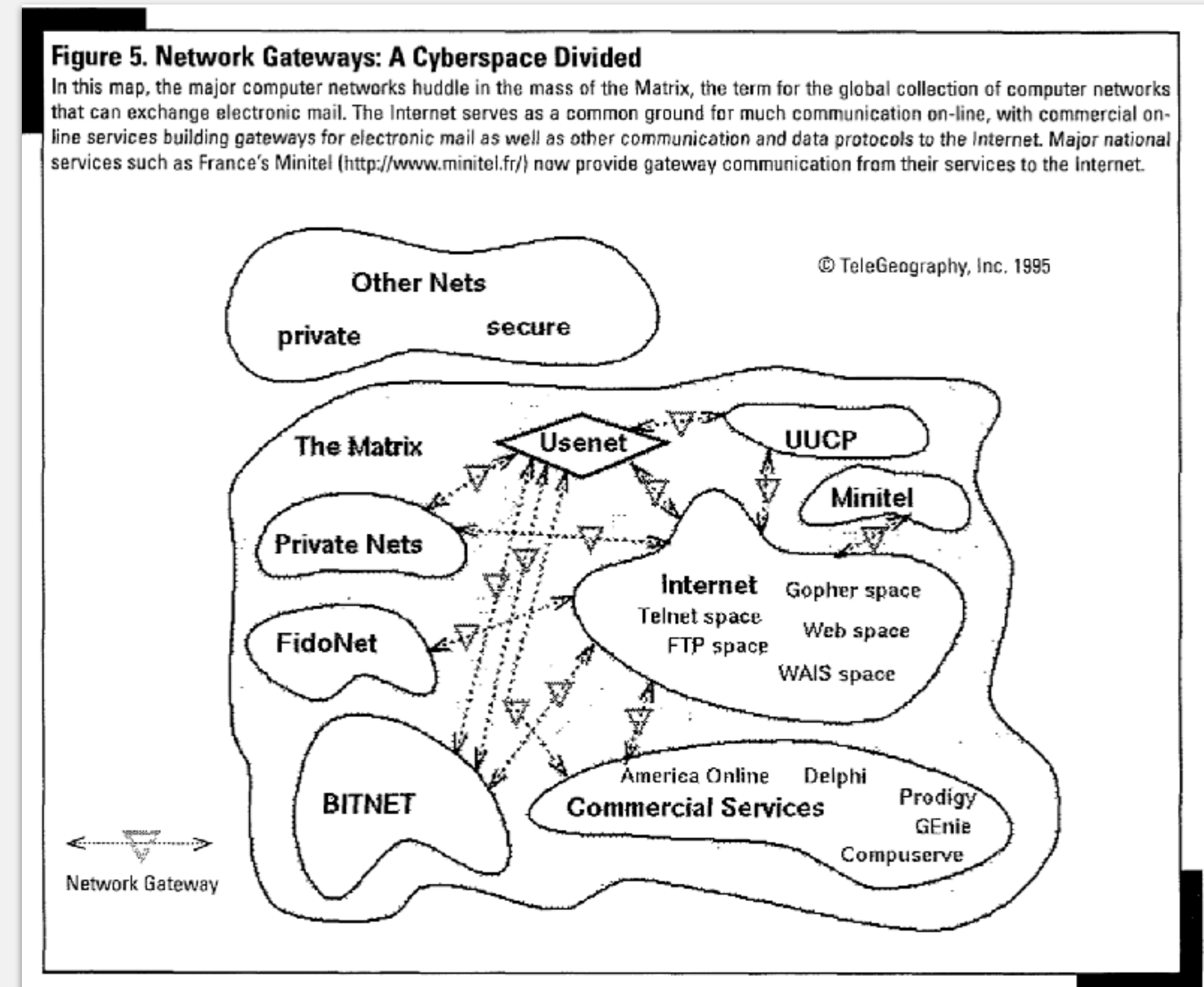
— Artificial Intelligence  
— Virtual Reality





# No-one knows anything

In 1995, the future shape of the 'internet' still looked very unclear



Is it just the internet, or will there still be lots of other networks?

How will FTP, Gopher, Telnet, WAIS and Web interact?

How will the web work? Should the browser be an editor? A server? Should it have images?

# But some things do seem universal

How do we take ownership of digital?



# Present

# Deployment

What are companies building today?

## Deploying all the great ideas from the last decade

SaaS, cloud, machine learning,  
digital transformation, workflows,  
automation, image recognition,  
fintech, voice, video, live  
streaming...

**Web3, Metaverse...  
and everything else**

# 'Digital transformation'

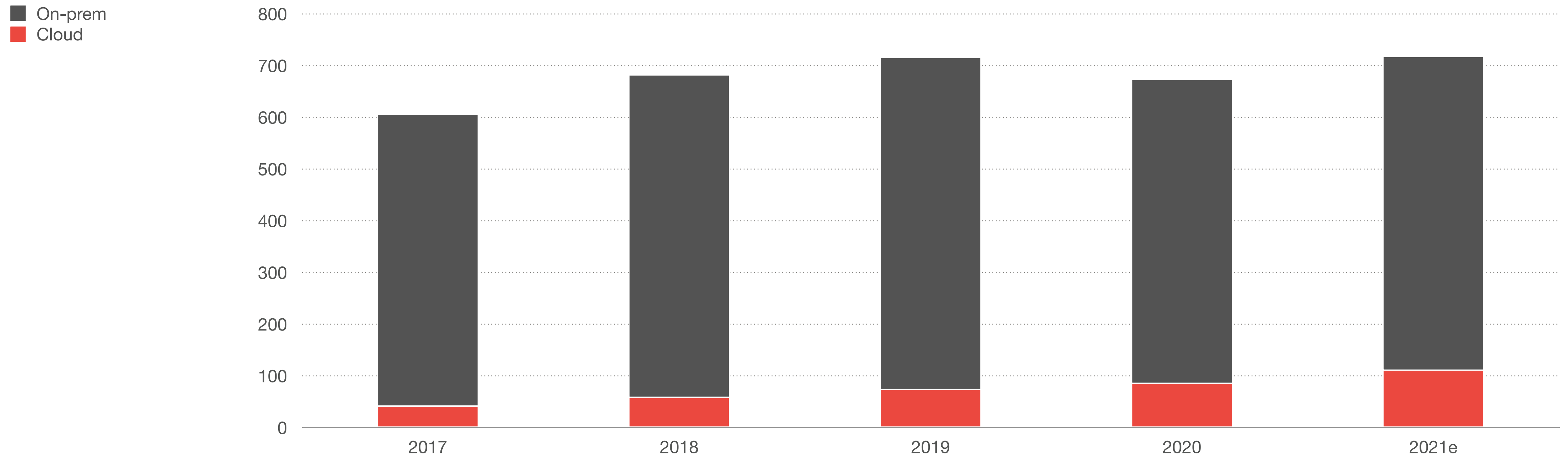
Sounds like a parody of marketing gibberish - but describes a generational change in enterprise tech



# The move to cloud is still just beginning

Only 10-15% of enterprise IT spending has moved to the cloud so far, and 20-30% of workflows

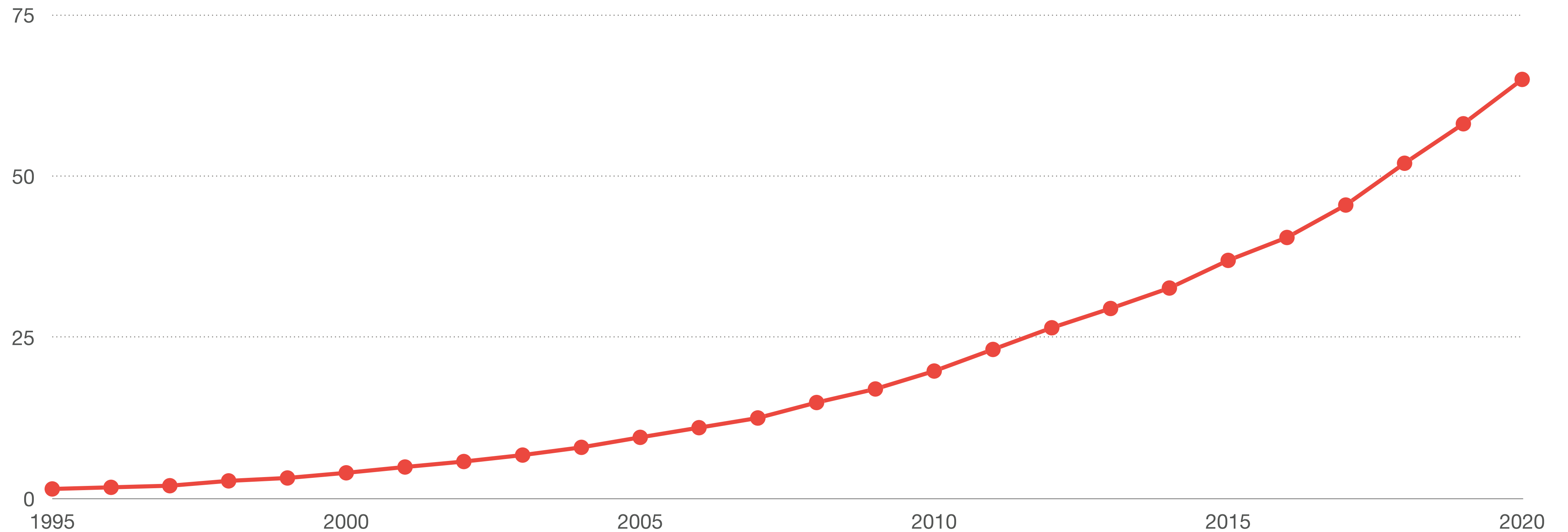
Global enterprise IT spending (\$bn)



# Old paradigms have a long half-life

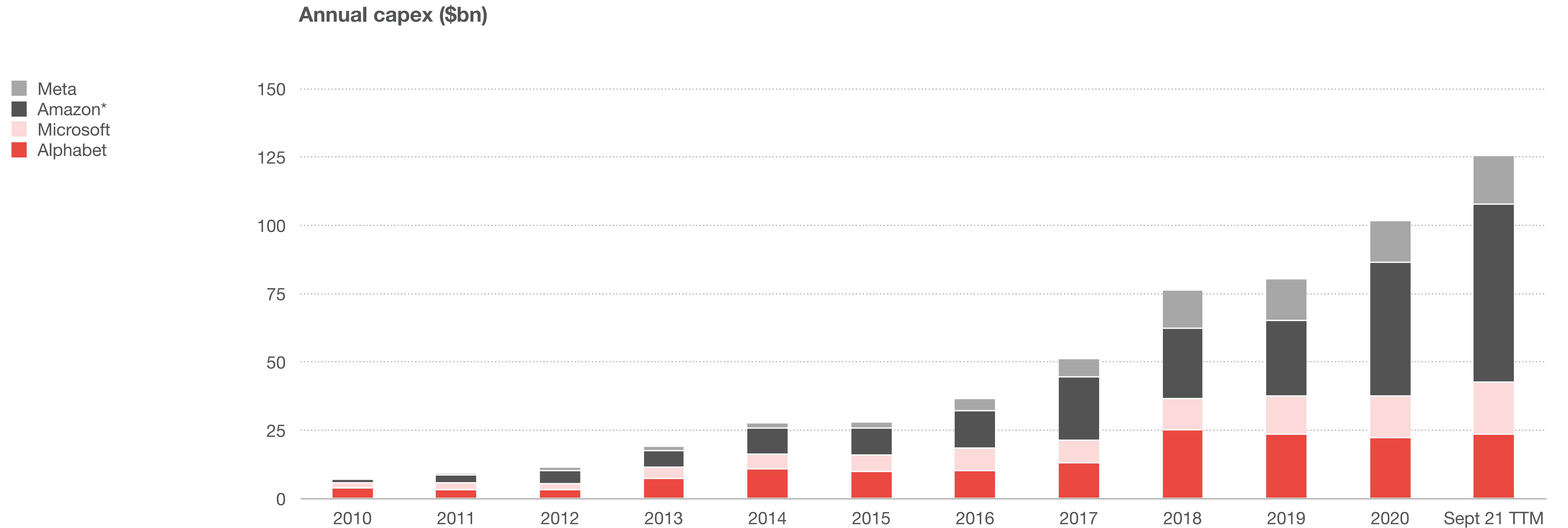
Mainframes are still out there, decades after the rest of tech moved on to bigger things

**IBM Mainframe installed computing capacity (million MIPS)**



# Rise of the 'hyperscalers'

Alphabet and Microsoft alone are spending over \$40bn this year on cloud infrastructure



Source: Companies

\* Includes both data centres and delivery fulfilment. Cash capex and lease obligations



# How much software?

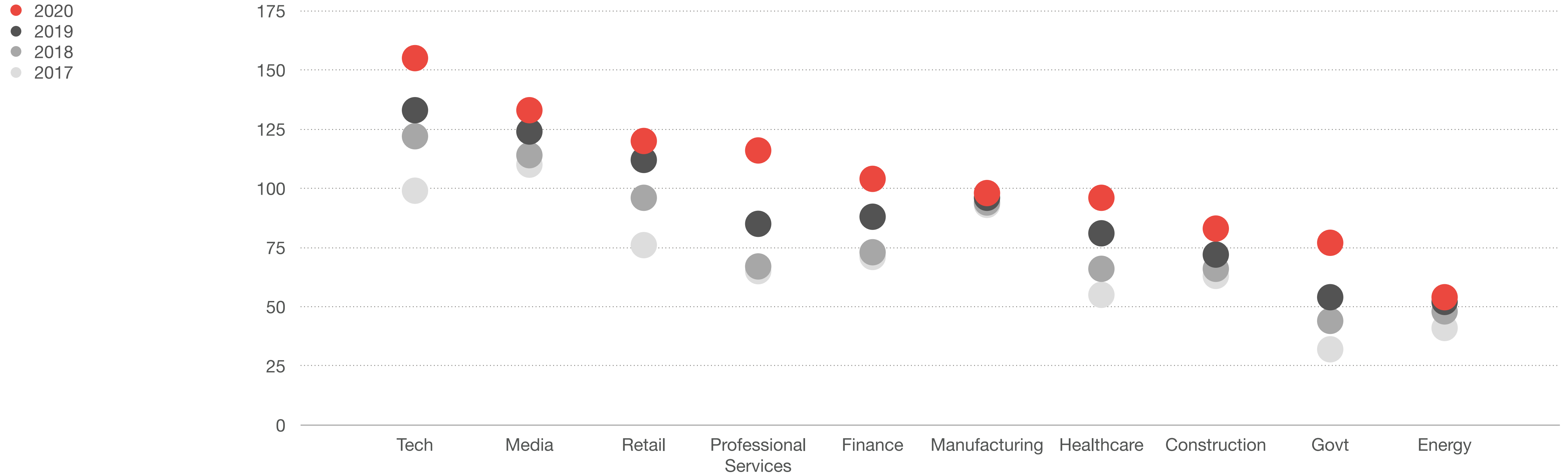
SaaS / cloud deployment model plus expansion of industry and capabilities means a step change in the opportunity



# SaaS means far more software

SaaS operating model has meant a structural change in the amount of software companies can use

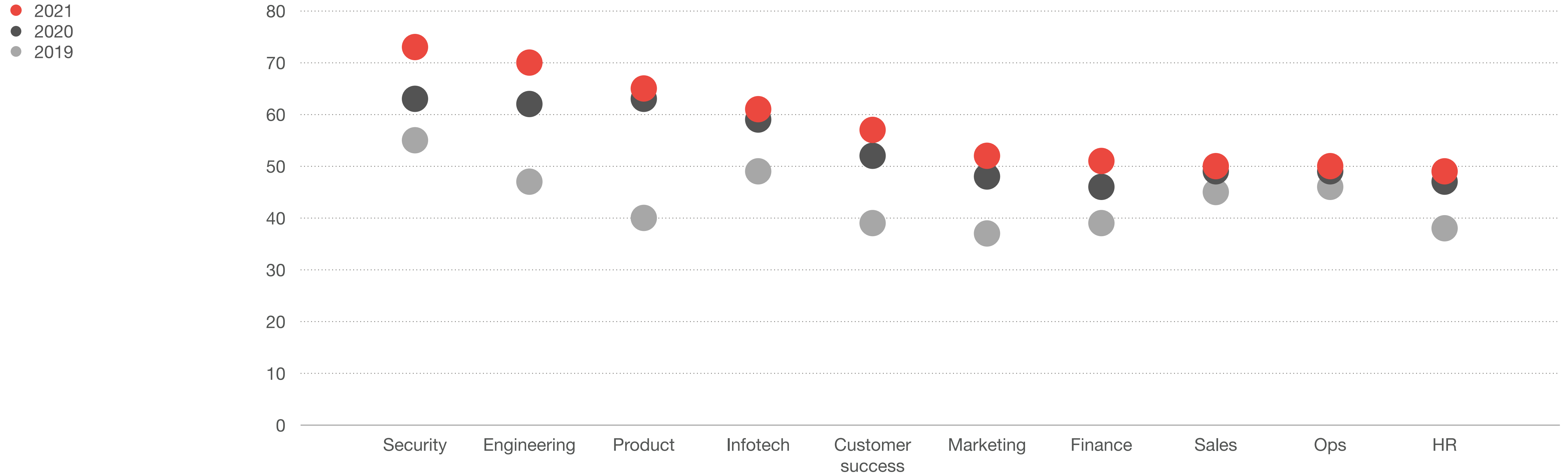
Average number of SaaS applications per Okta customer, by industry



# Even within teams

SaaS operating model has meant a structural change in the amount of software companies can use

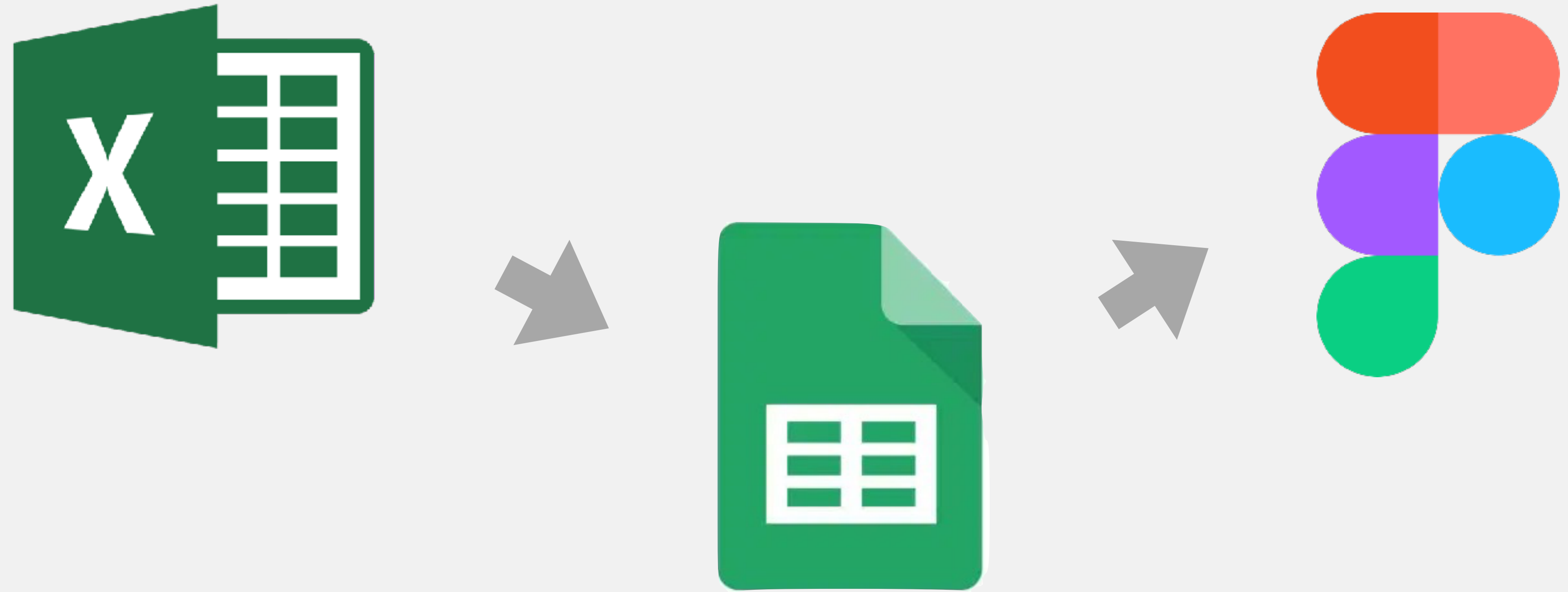
Average number of SaaS applications per team



Source: Productiv  
Data includes both SaaS SSO and proprietary analysis

# The cloud means workflows, not better file shares

Don't put your spreadsheet on the web - find a better way to do the job



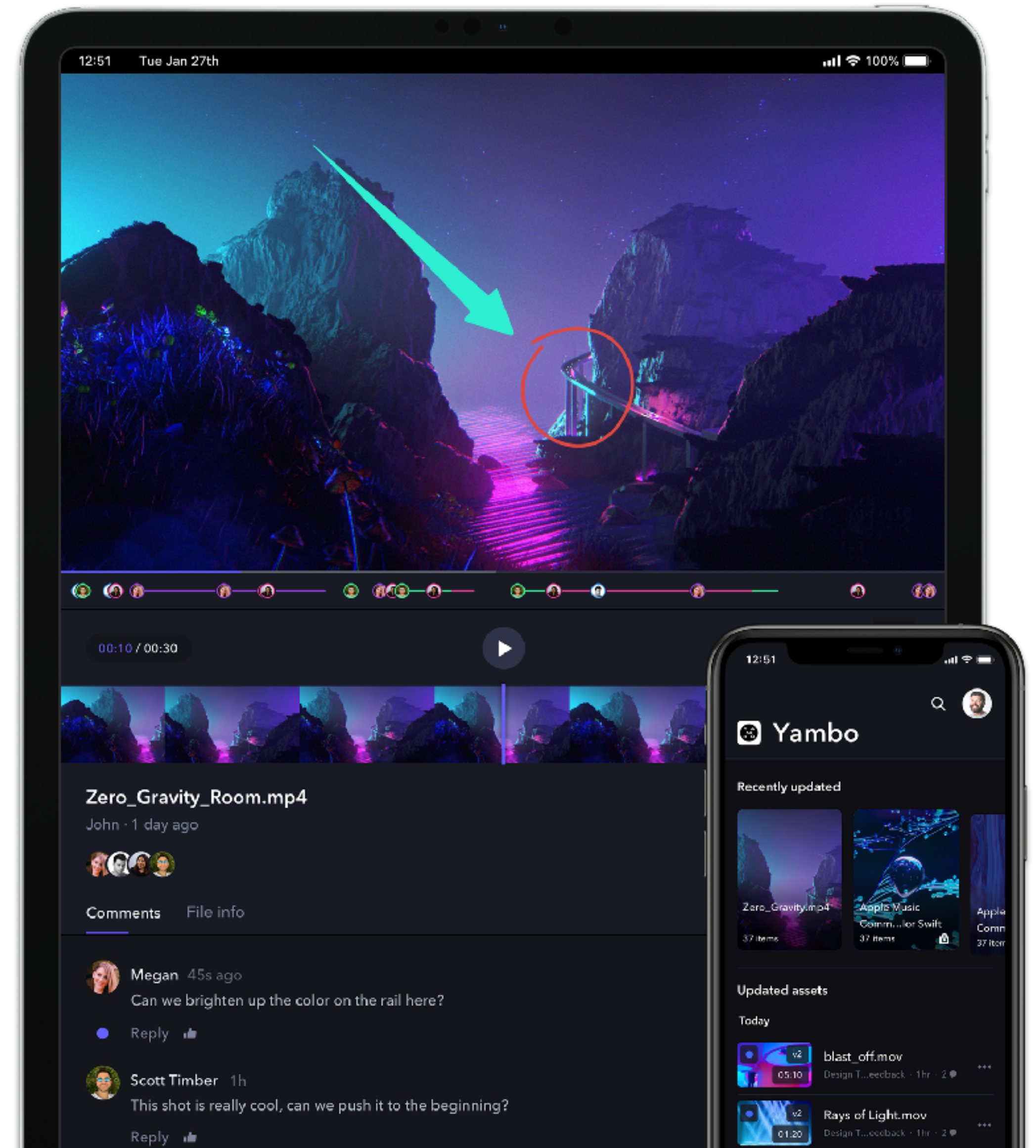


# Frame.io

Workflow for professional video

Replaces email, Slack, file share, Google sheets and lots more email

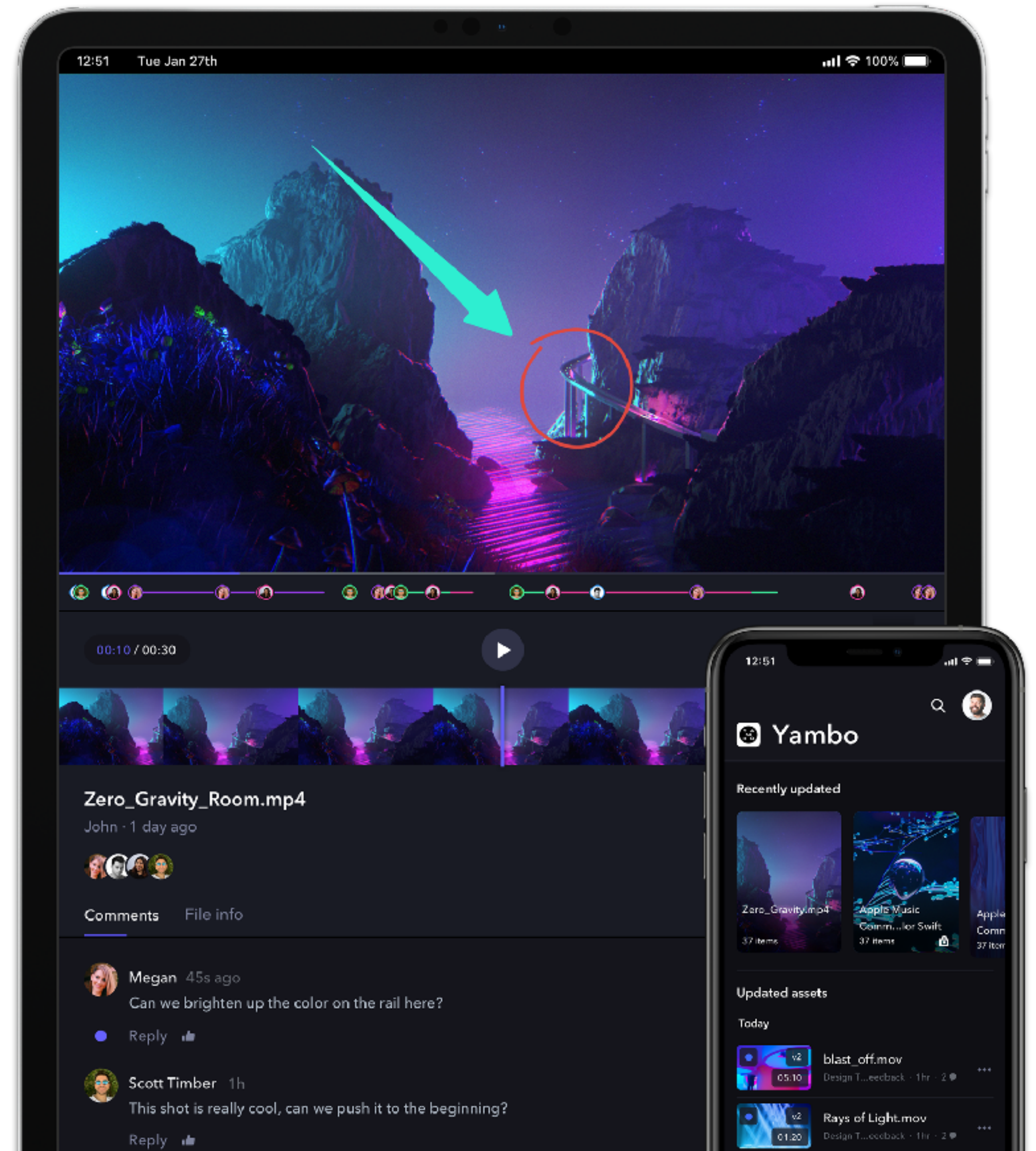
Machine learning everywhere - but invisible





# Frame.io - welcome to 2005

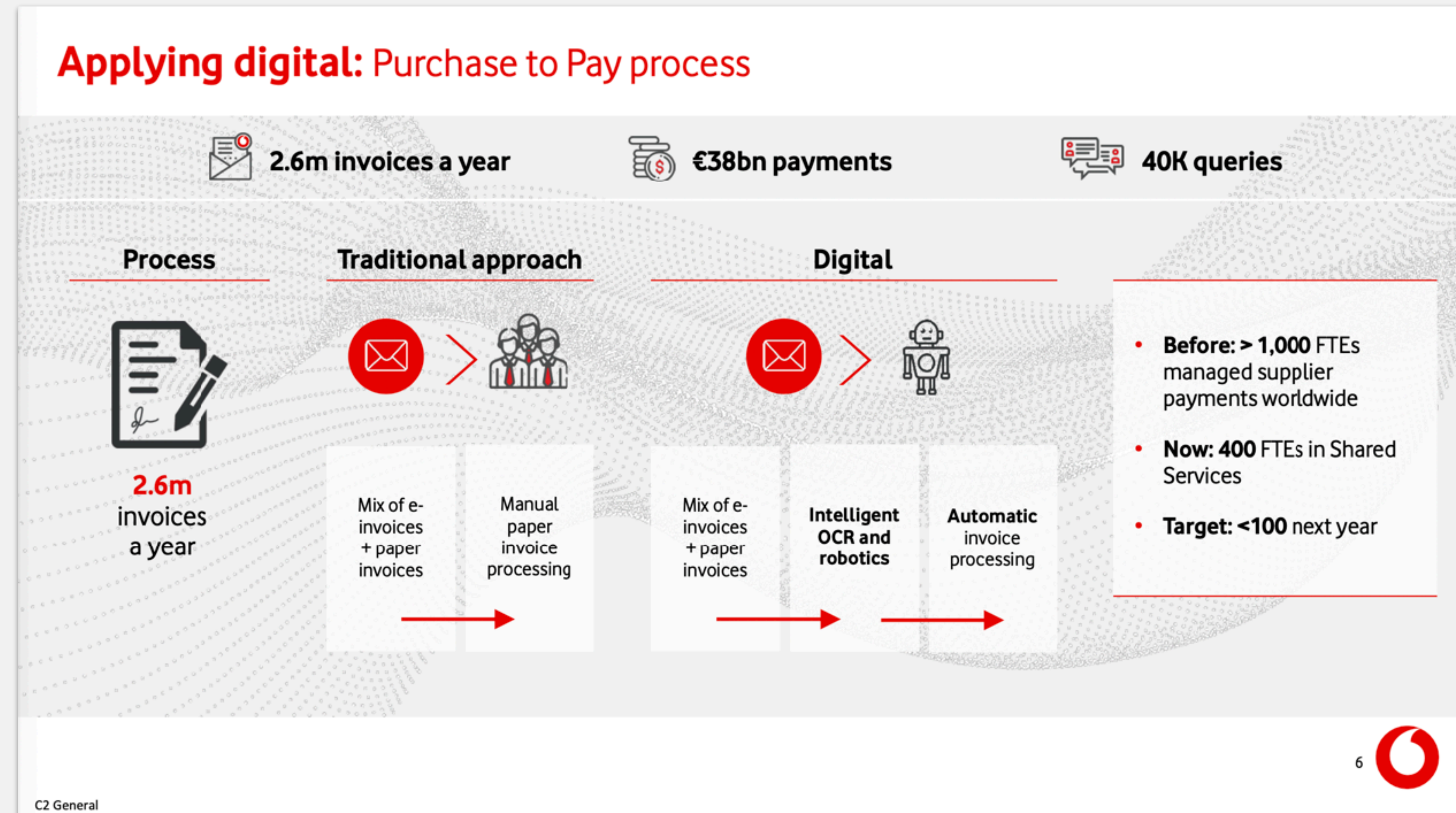
15-year-old concept ('Google Docs for video!') but the tech and the market are finally ready





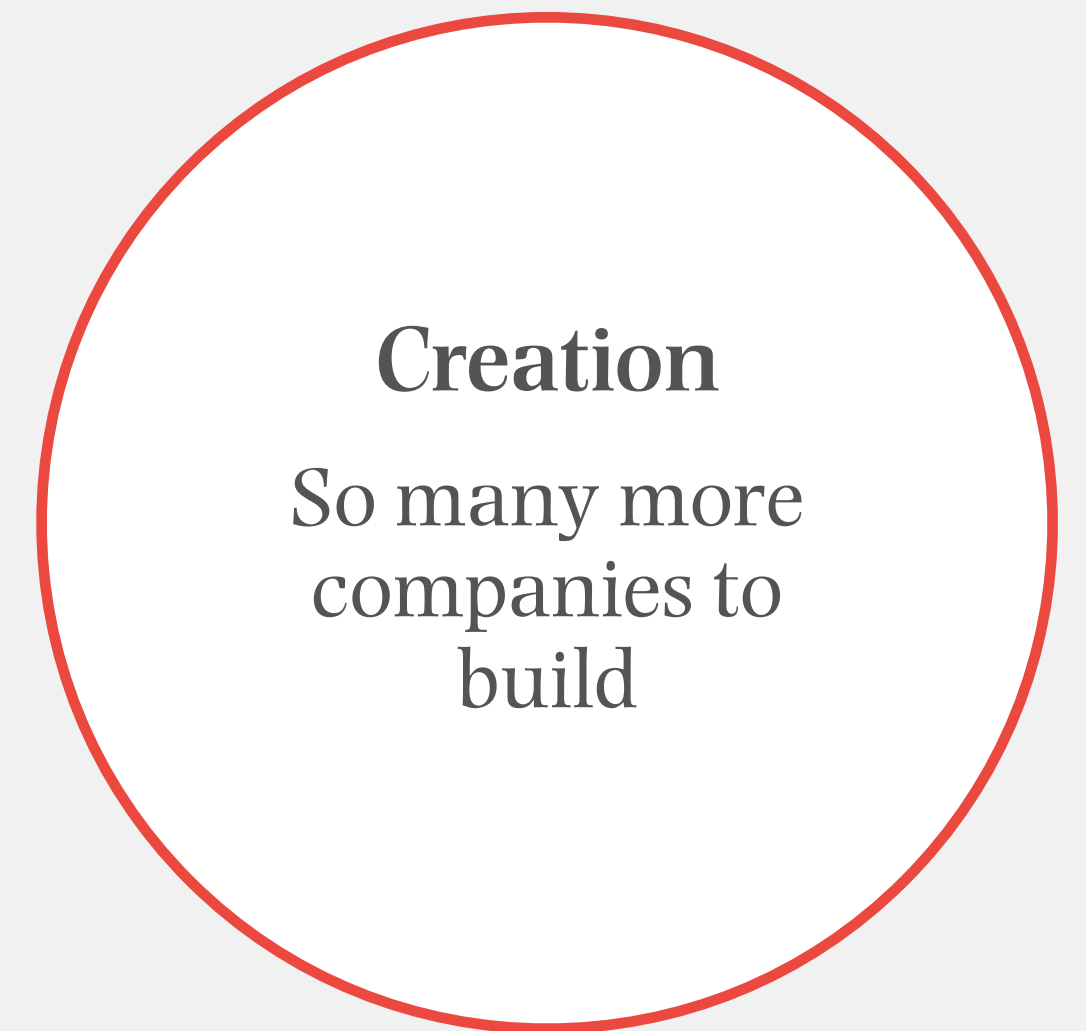
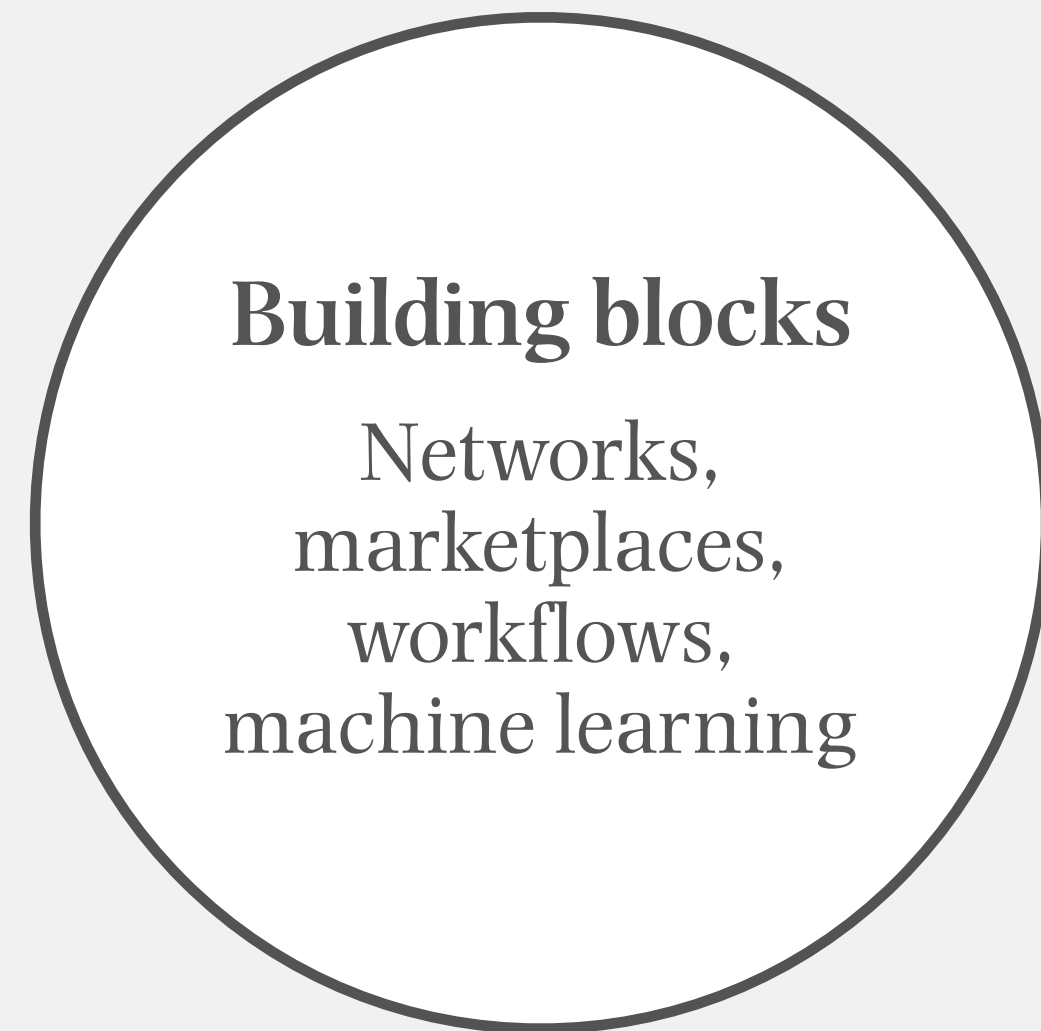
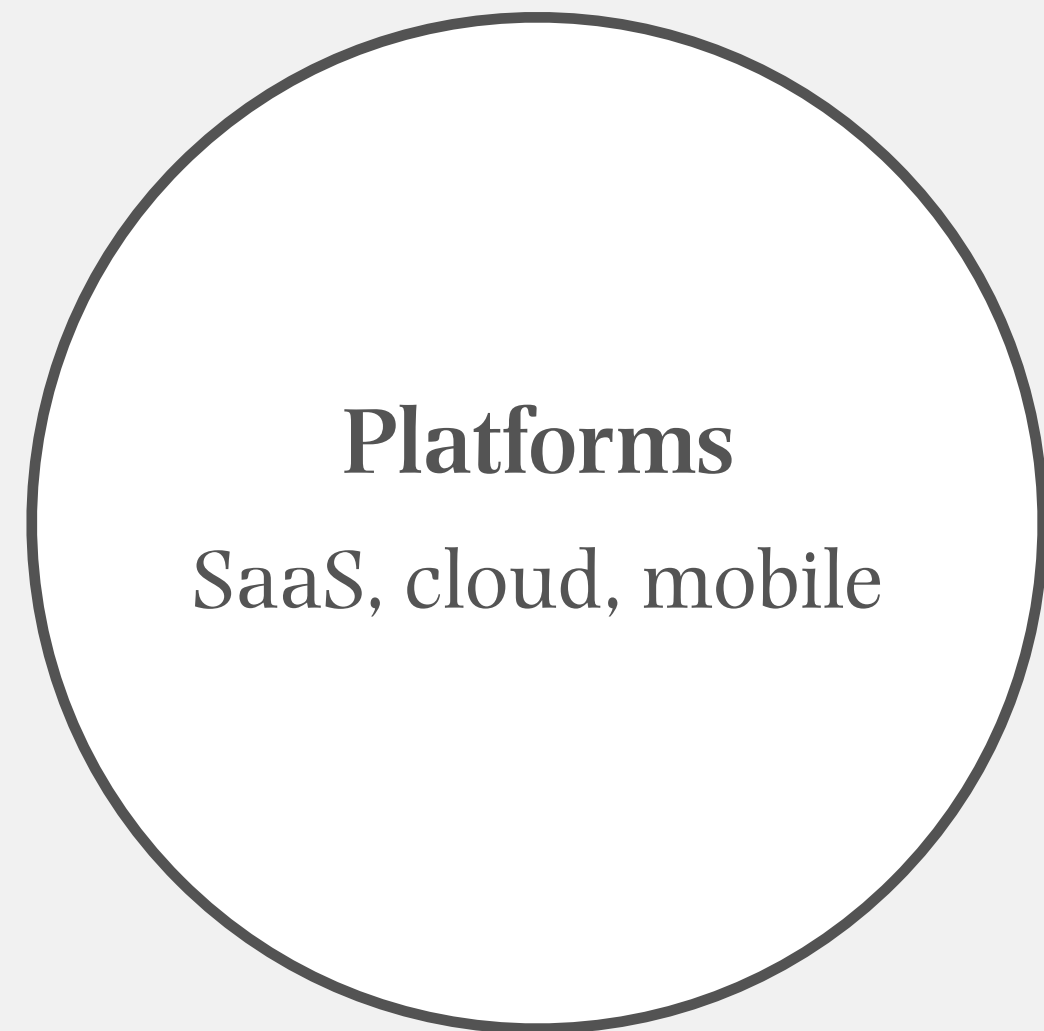
# Remaking companies

Vodafone had 2.6m invoices, 40k queries & 1k payments FTEs - how would you change that?



# Mass deployment

Thousands more companies deploying everything we learned in the last decade, in ever more places





# Past

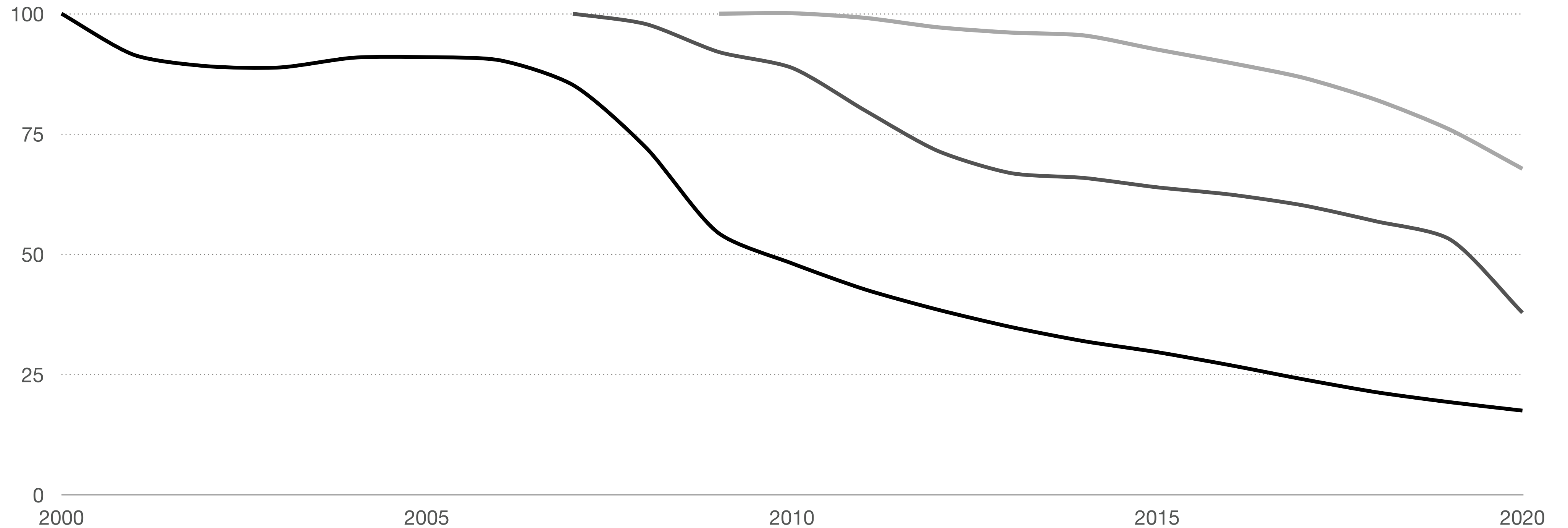
Everything the internet did to music or newspapers is now happening to everyone else

# When do the atoms stop mattering?

As the internet removes physical barriers to entry, one industry after another is disrupted

Decline from peak, USA (indexed)

- Pay TV subs
- Book store revenue
- Newspaper ad revenue

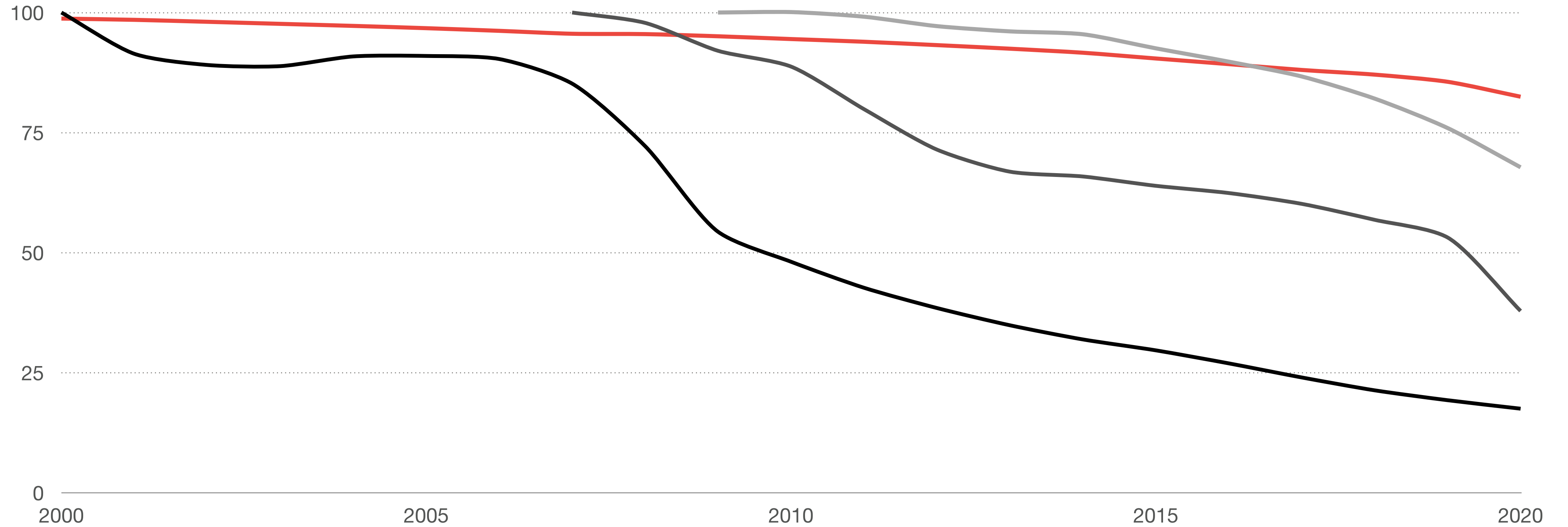


# And how fast?

If pay TV fell 'gradually, then suddenly', retail has been a boiled frog

Decline from peak, USA (indexed)

- Pay TV subs
- Book store revenue
- Newspaper ad revenue
- Offline share of retail



# The great unbundling

“The internet breaks apart old value chains and creates new ones” - and we could have said that in 1995

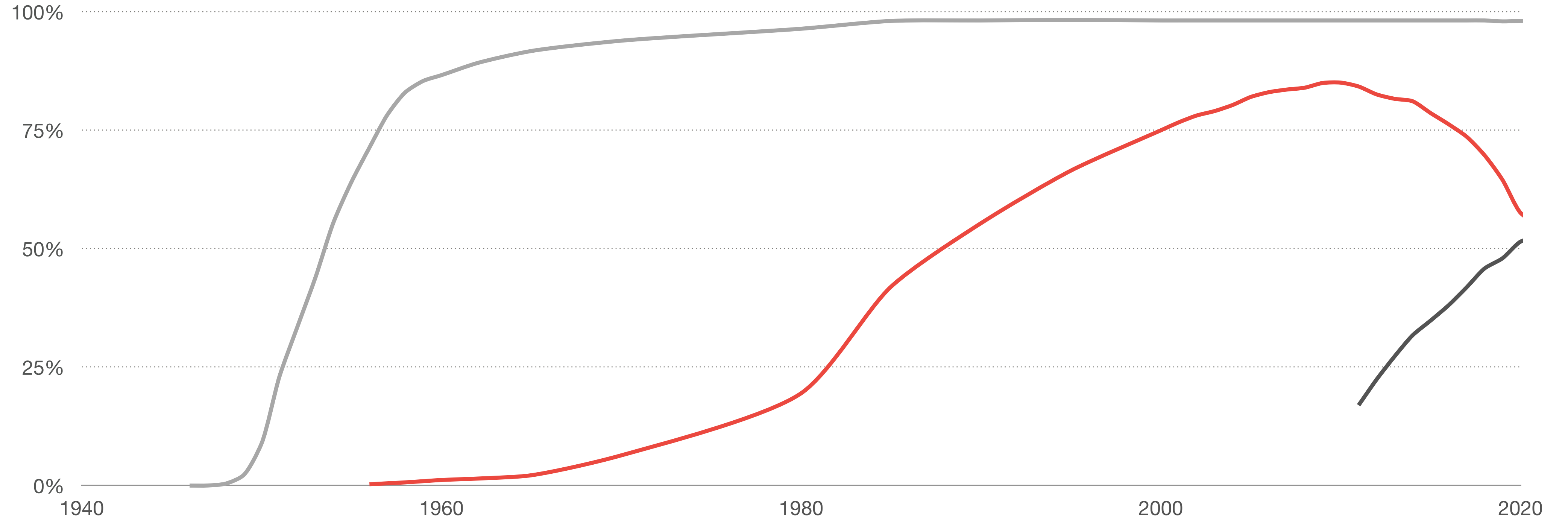


# TV unbundles...

US pay TV penetration is down a third from the peak

## US TV household penetration

- TV
- Pay TV
- Netflix streaming



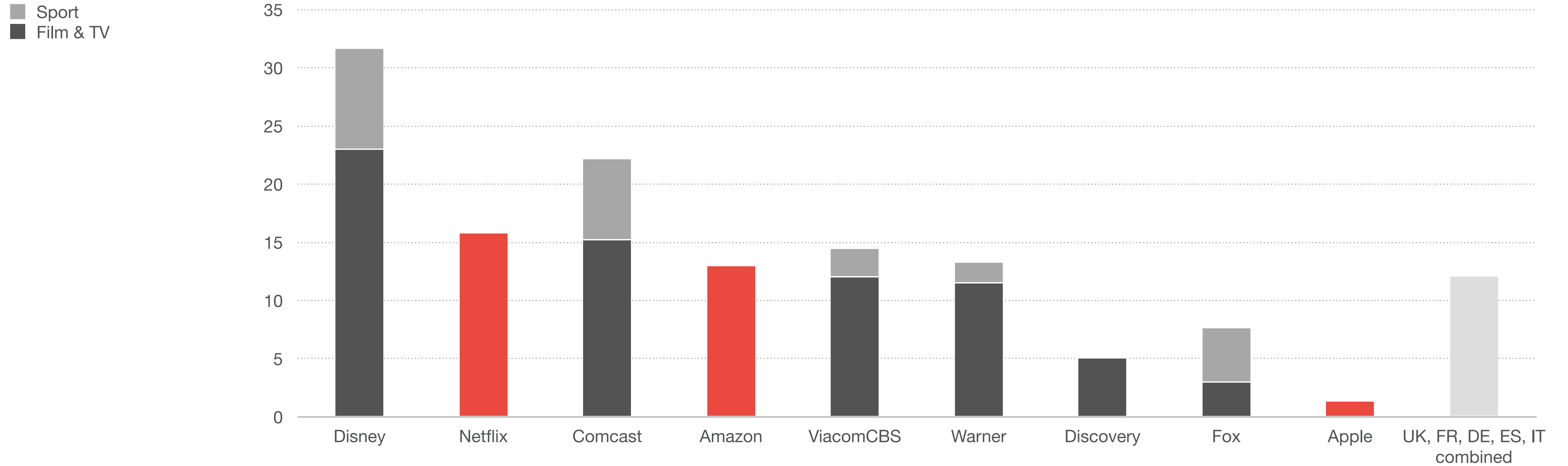
“Is the Albanian army going to take over the world? I don’t think so”

Jeff Bewkes, CEO of Time Warner, on Netflix, 2010

# New entrants and aggregators emerge

New entrants outspending most legacy content manufacturers

2021e content budgets (\$bn)



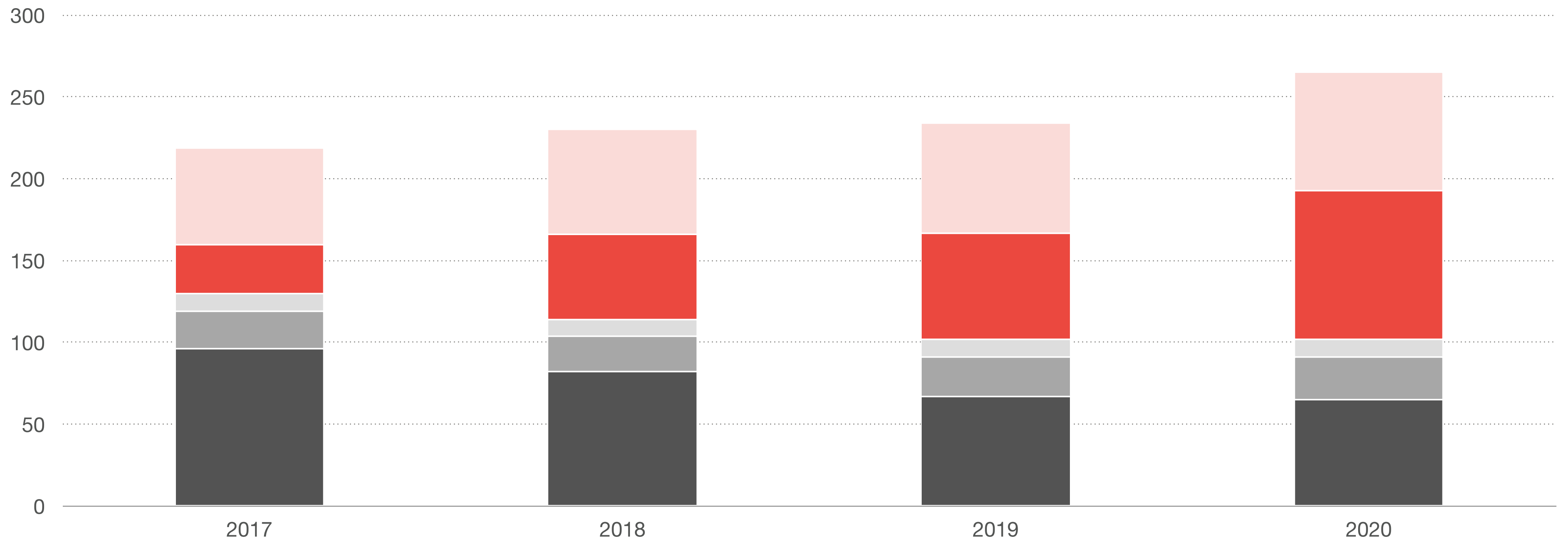


# Big fish become small fish

For UK 16-34s, streaming from US companies is now bigger than total viewing for the entire UK TV industry

UK 16-34s daily video viewing (minutes)

- YouTube
- Subscription streaming
- Broadcaster VOD
- Recorded
- Live TV



# New control points?

Apple announced the Apple TV and iPhone at the same event in 2007...

But TV software was a backwater for a decade

Now the TV has become a battleground, powered by the shift from live to streaming

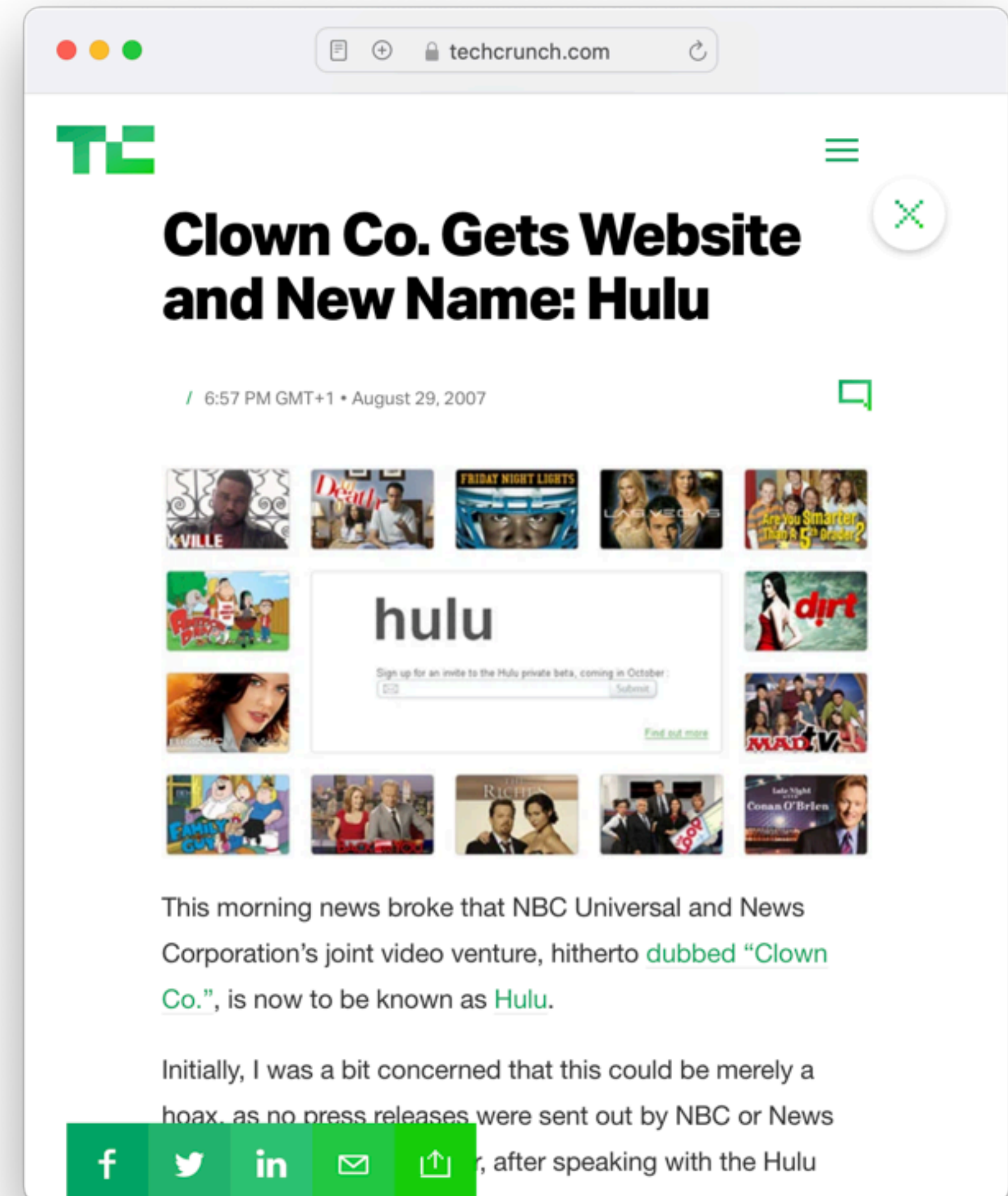
And the target is \$200bn of legacy TV advertising



# Welcome to 2007

YouTube launched in 2005, and Hulu in 2007

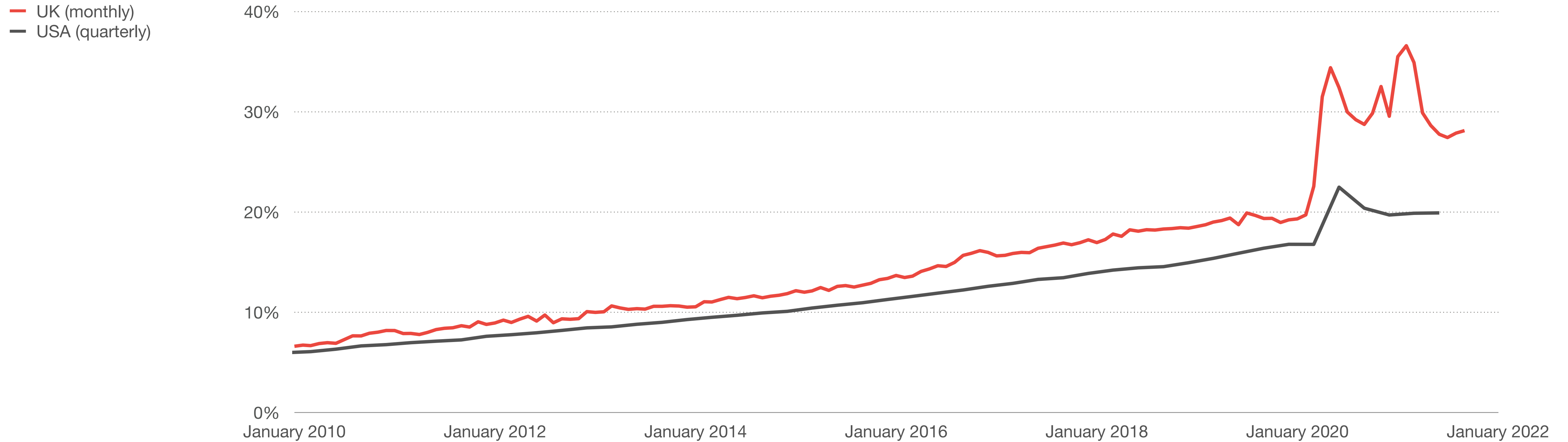
Deploying old ideas that are finally ready to work



# Retail unbundles

Lockdown has pulled forward future adoption - but much less in the USA than elsewhere

Ecommerce as a share of addressable retail\*



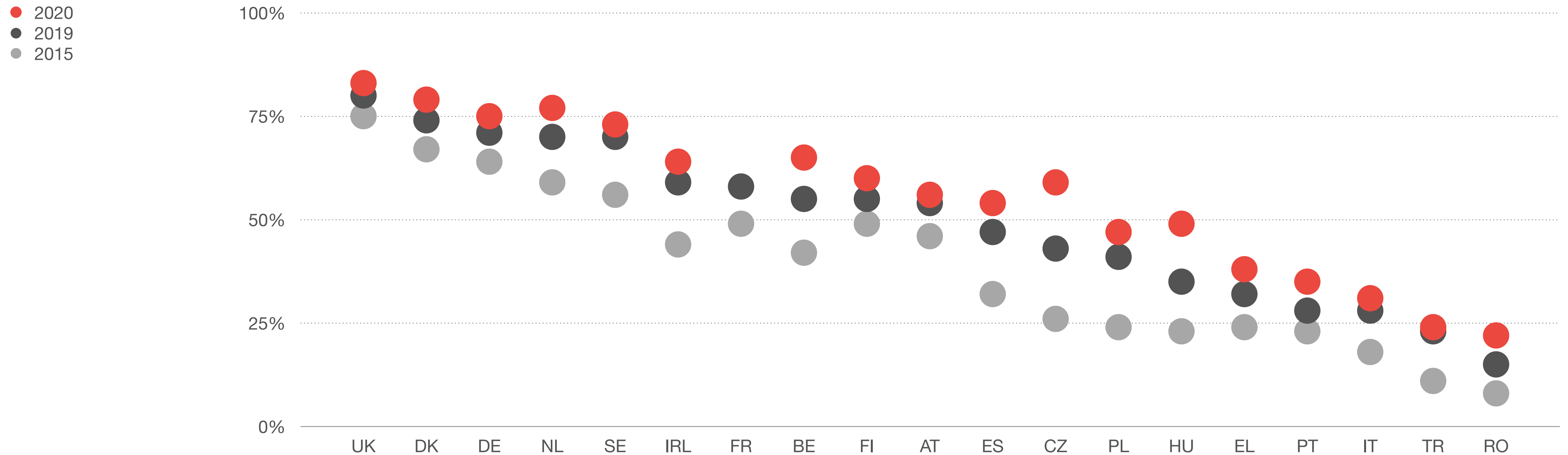
Source: ONS, US Census  
\* Excluding cars, car parts, fuel, bars & restaurants. Seasonally adjusted



# (The future is unevenly distributed)

Over 80% of people in Britain buy online regularly, but less than a third of Italians

Percentage of population buying online in last 3 months, Europe

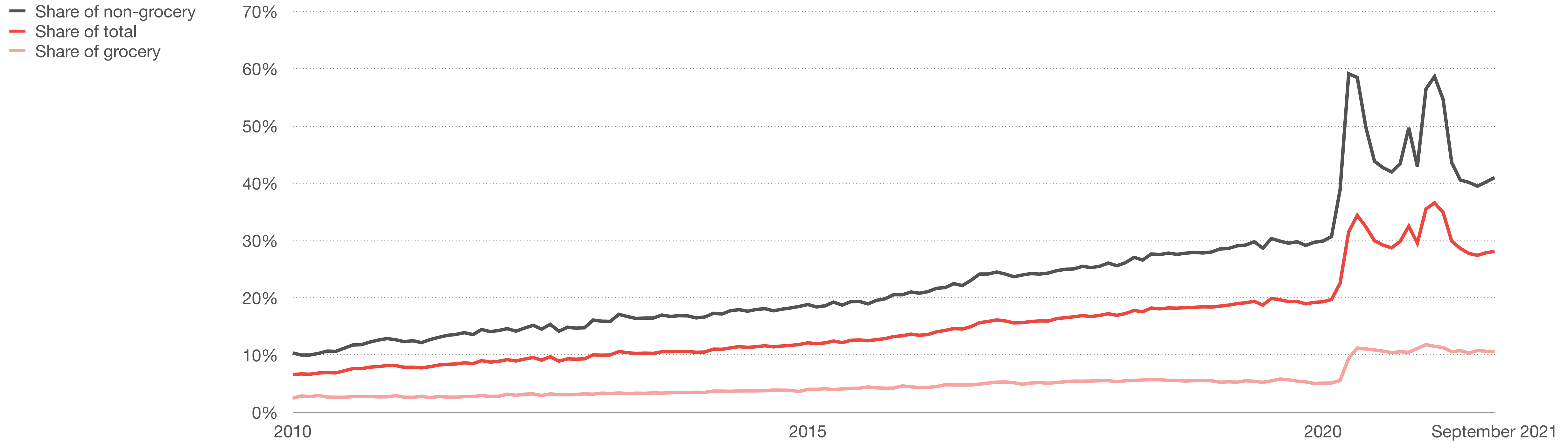


Source: Eurostat. Data for France in 2020 not available

# Retail unbundles

Excluding grocery, 40% of UK retail spending is now online

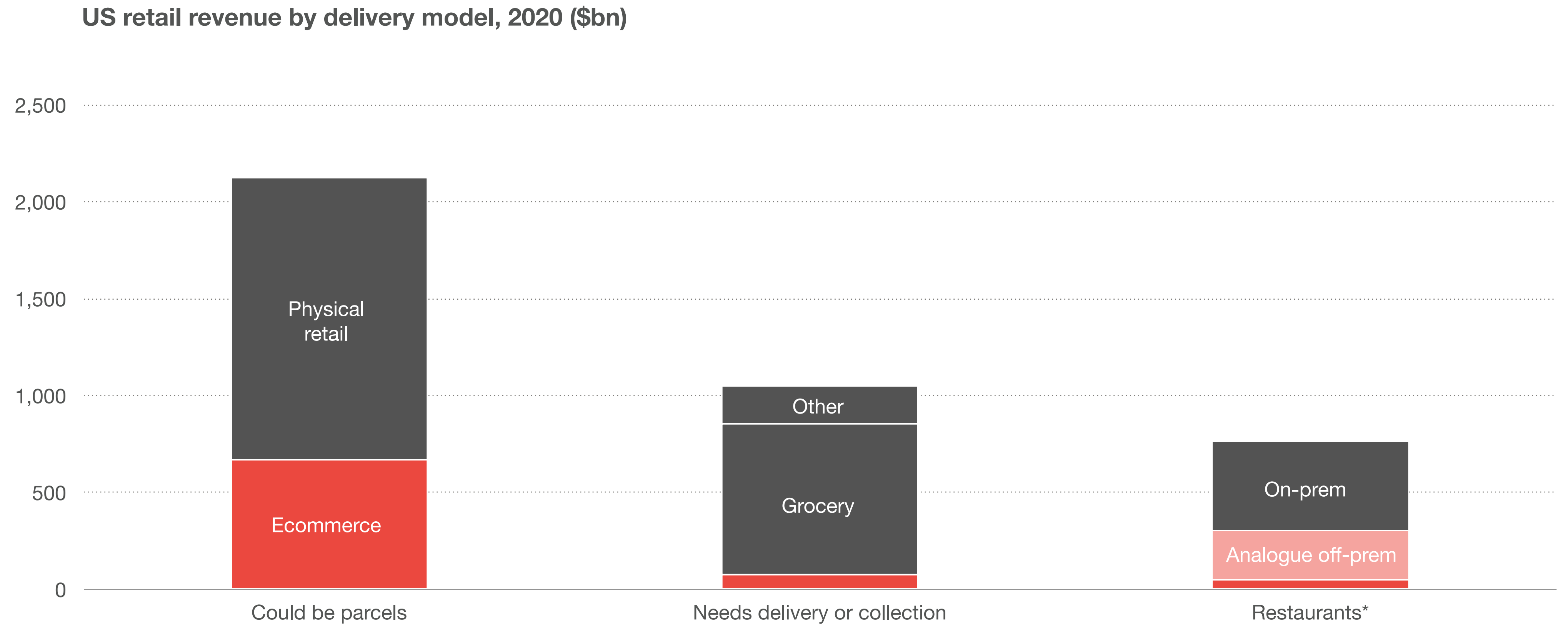
UK ecommerce as % retail\*



Source: ONS  
\* Excluding cars, car parts, fuel, bars & restaurants. Seasonally adjusted

# Everyone buys anything online - the question is how

Cardboard boxes versus hand delivery, trucks and bikes



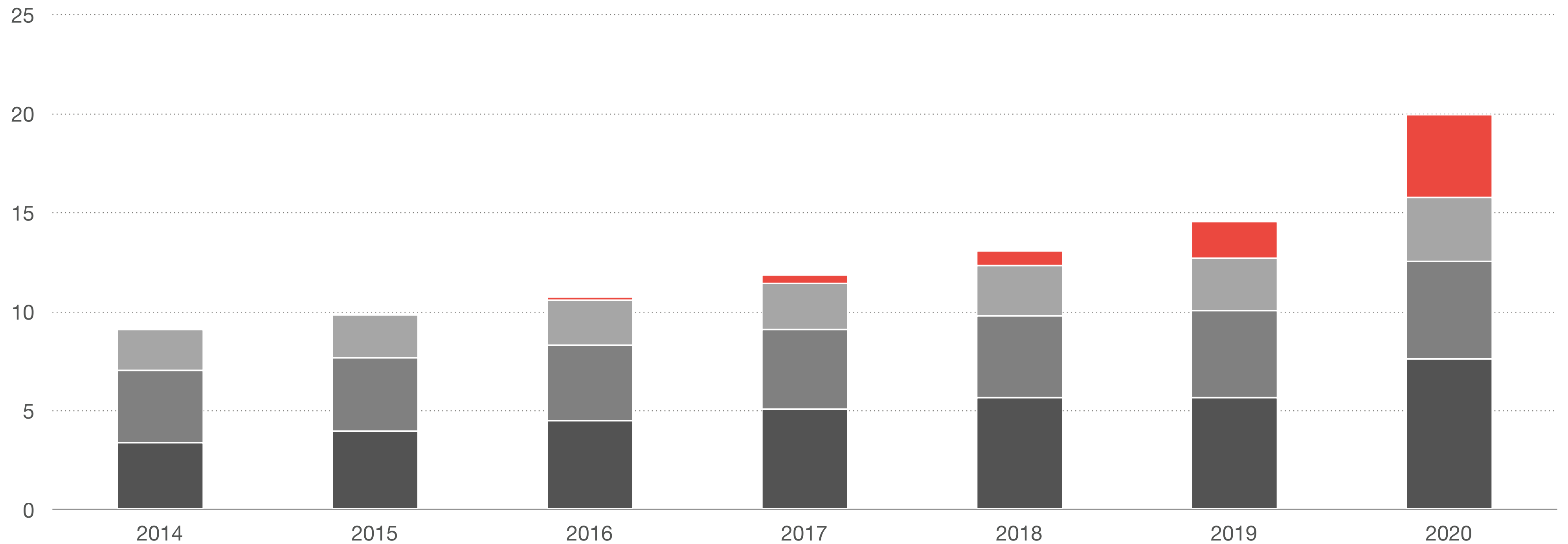
Source: US Census. Cars, car repair & gasoline not shown. \* 2019

# New logistics models

Amazon spent \$74bn on shipping in the last 12 months, and expects to be larger than UPS or Fedex in the USA by 2022

Annual US parcel volume (bn)

- Amazon Logistics
- Fedex
- UPS
- USPS



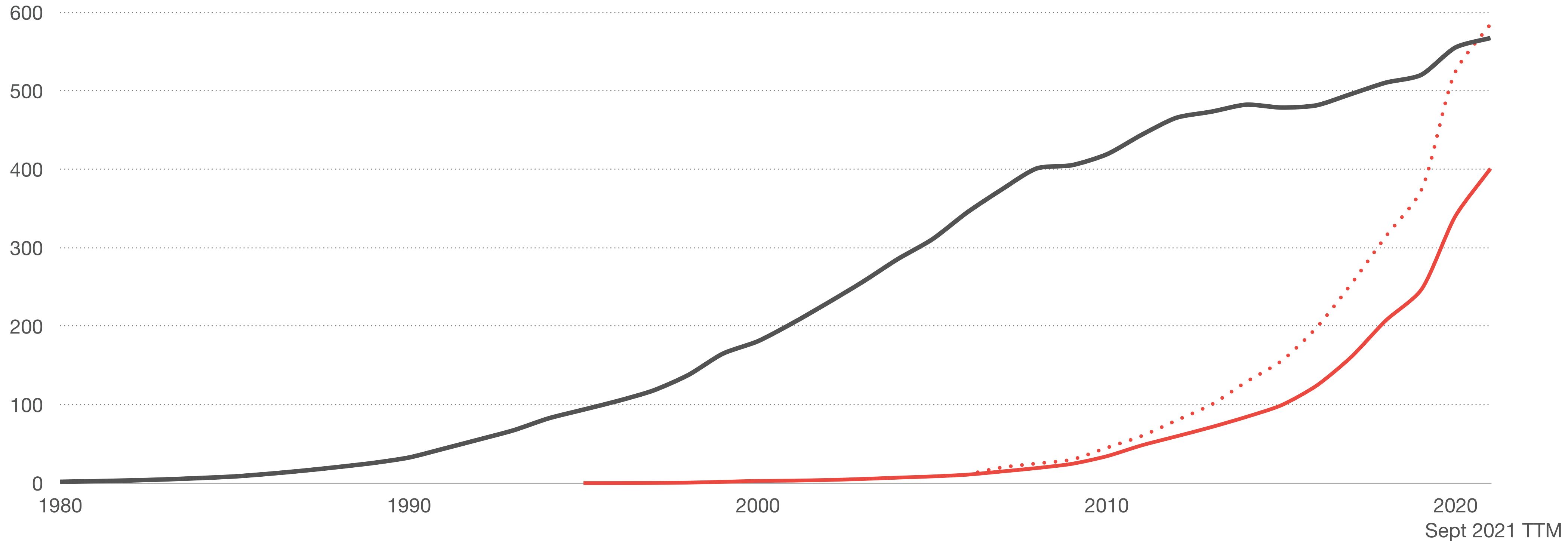


# New channels, new aggregators

The e-commerce leader is on track to overtake the car-commerce leader

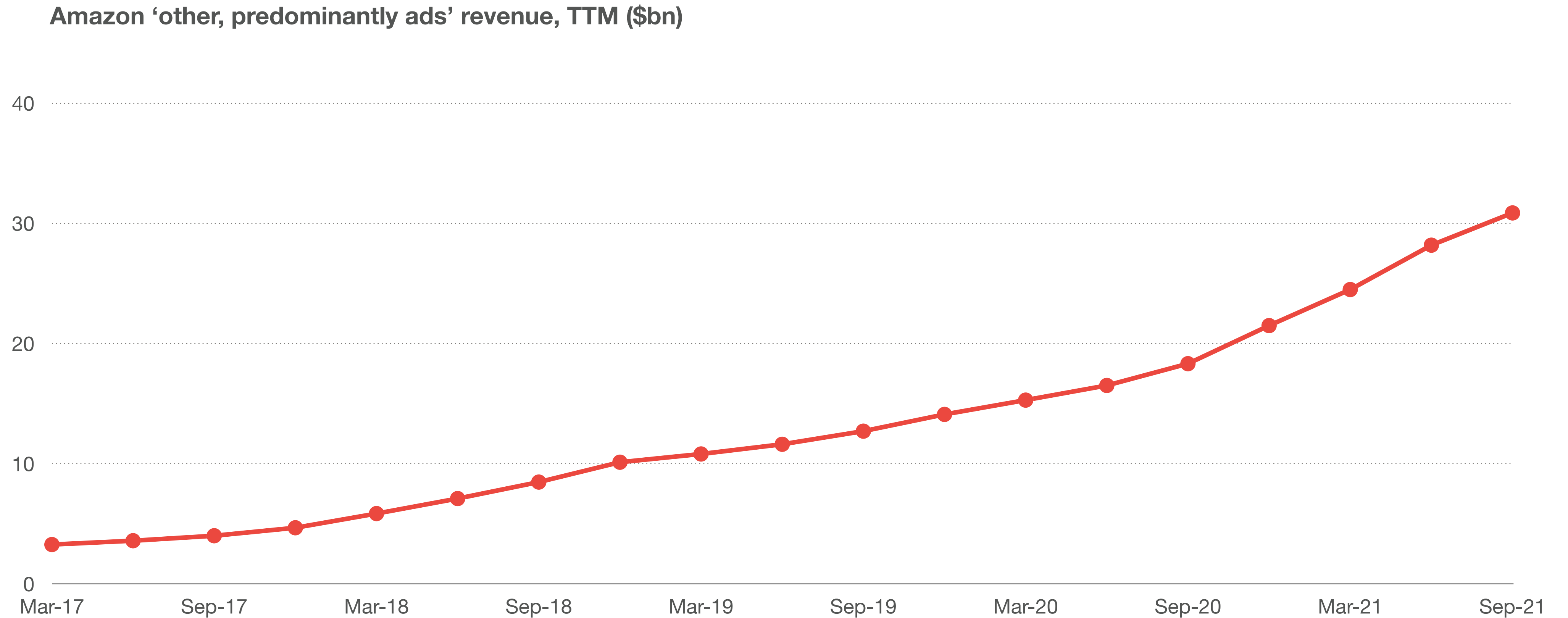
Retail revenue (\$bn)

- Walmart net sales
- Amazon ex. AWS
- Amazon GMV (e)



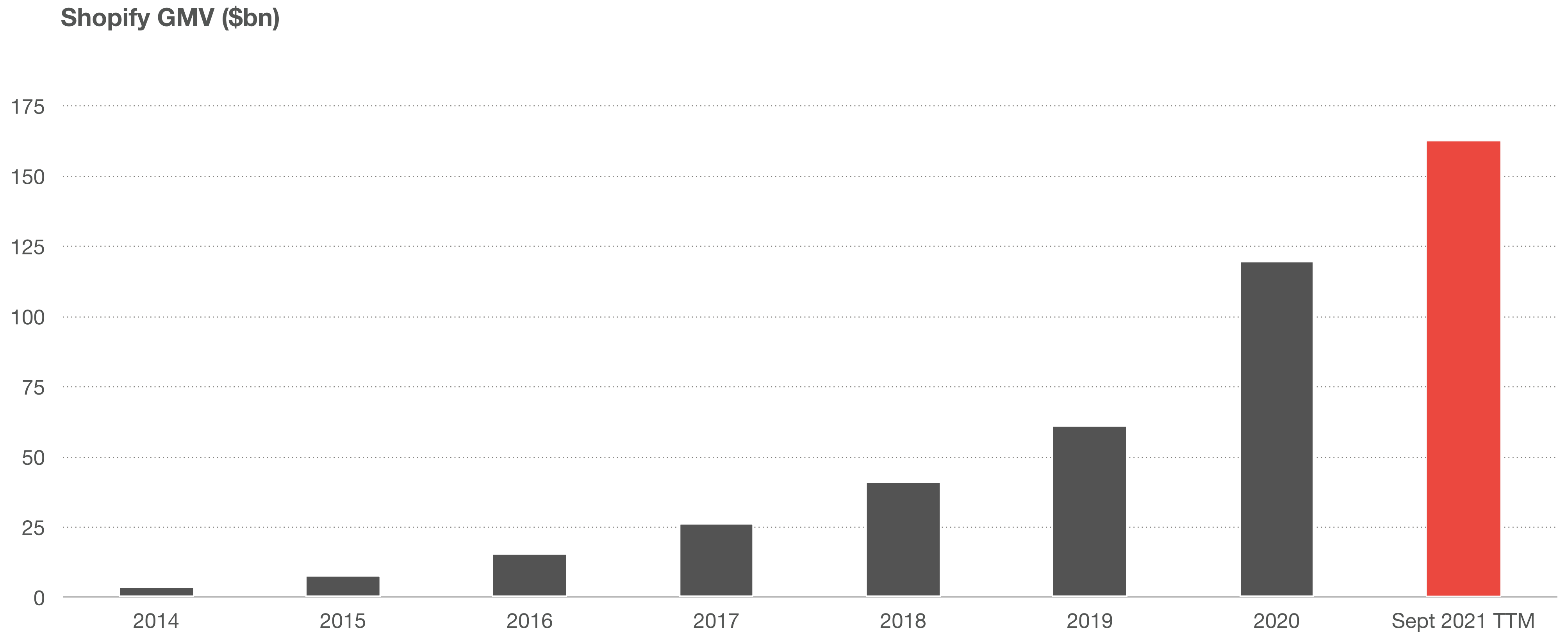
# New channels have new toll booths

'Merchant media' - Amazon has >\$25bn of ad revenue, possibly producing more cash than AWS



# Endless waves of new competitors

Shopify powered over \$160bn of e-commerce in the last 12 months

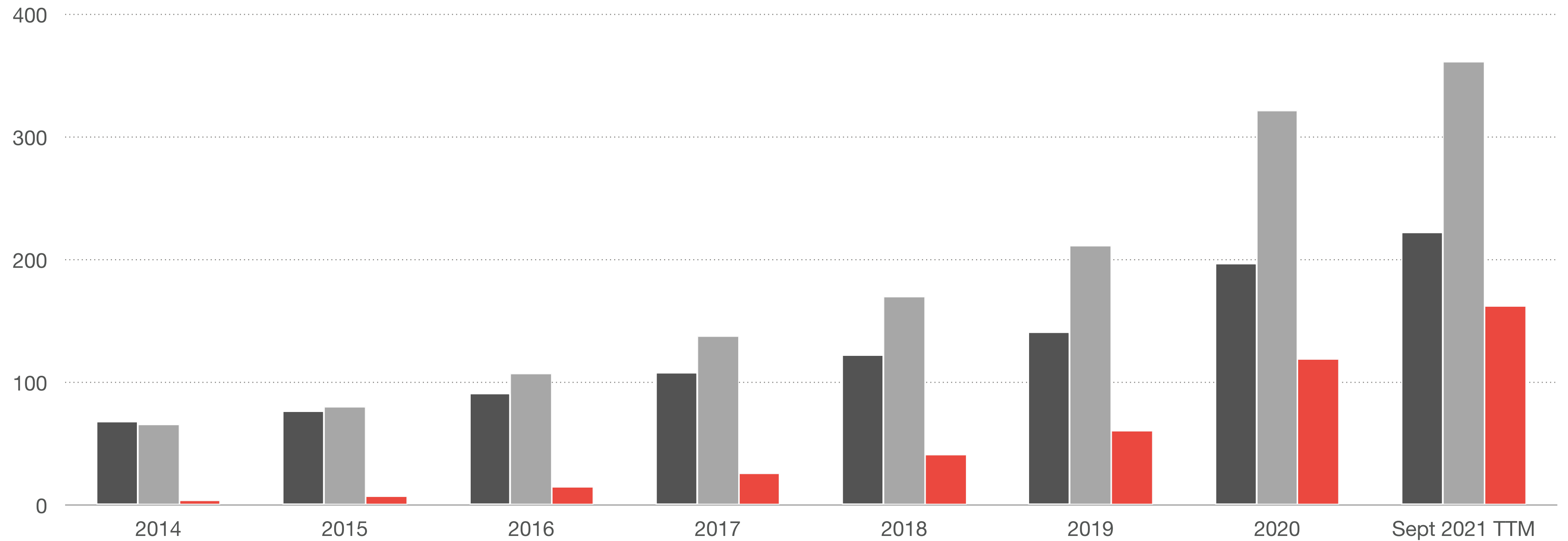


# And new ways to unbundle

60% of Amazon is now Marketplace - and Shopify is now 45% as large as Marketplace

Ecommerce GMV (\$bn)

- Amazon 1P
- Amazon Marketplace (e)
- Shopify



# New gatekeepers

“We personalise ads; you track your users; they violate fundamental human rights”

Smartphones are not a neutral platform...

And this has a big impact on D2C brands

Conflict between privacy and competition regulators

**Ad**

## Personalized Ads

Personalized ads in Apple apps such as the App Store and Apple News help you discover apps, products, and services that are relevant to you. We protect your privacy by using device-generated identifiers and not linking advertising information to your Apple ID.

Turning on Personalized Ads increases the relevance of ads shown by letting us use data like account information, app and content purchases, and where available, the types of News stories you read.

Apple does not track you or share your personal information with any third parties.

[Learn More](#)

**Turn On Personalized Ads**

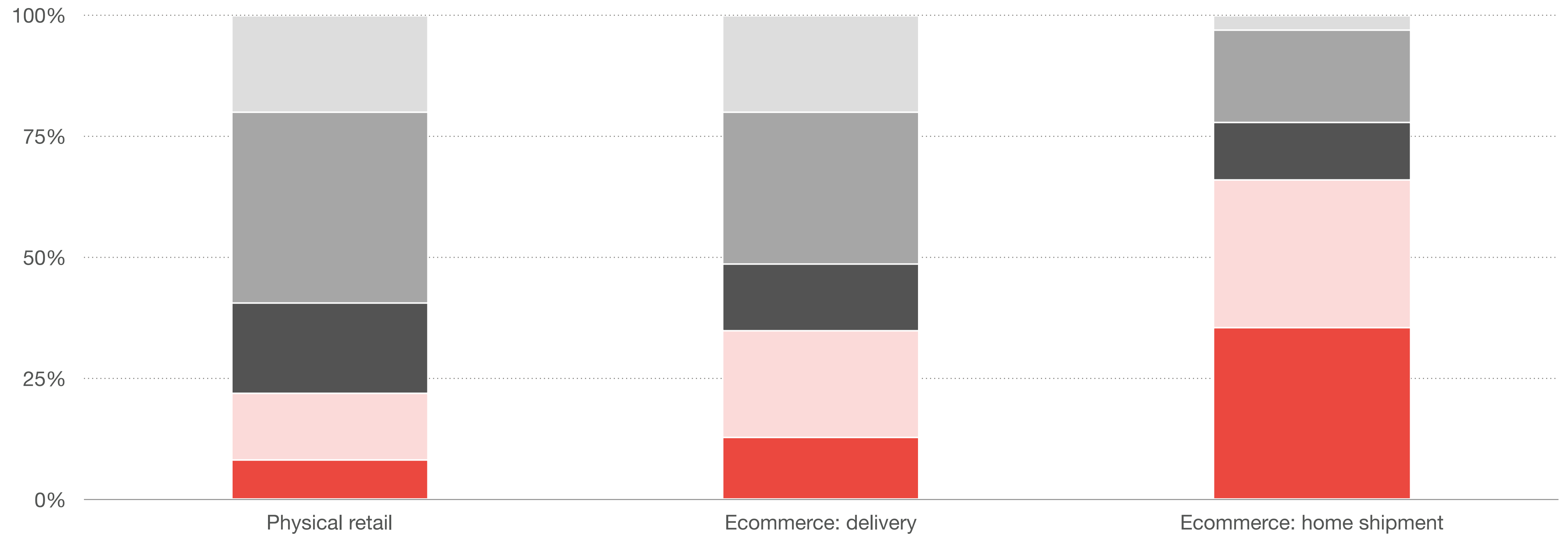
[Turn Off Personalized Ads](#)

# Because changing the channel changes what's bought

Smaller brands have dramatically larger share online

US CPG sales by brand size, 2020

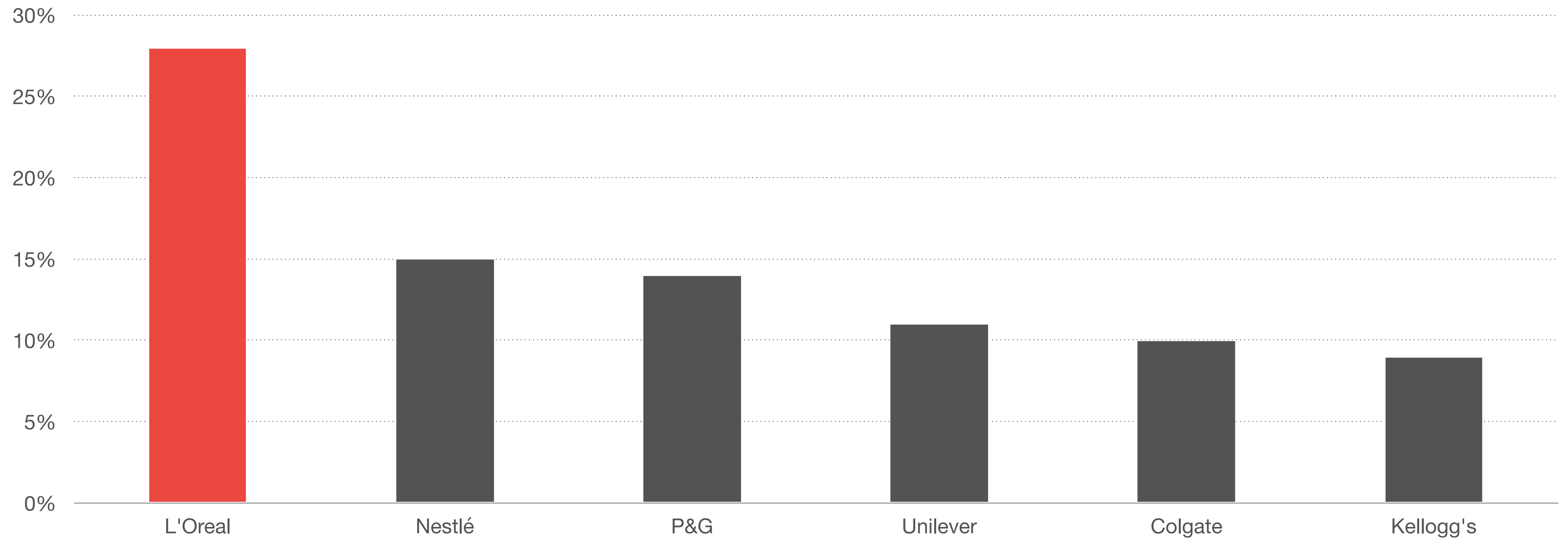
- Private label
- Large brands
- Medium
- Small
- Extra small



# Brands go digital

B2B businesses learning new channels

**Ecommerce as % sales, 2021**

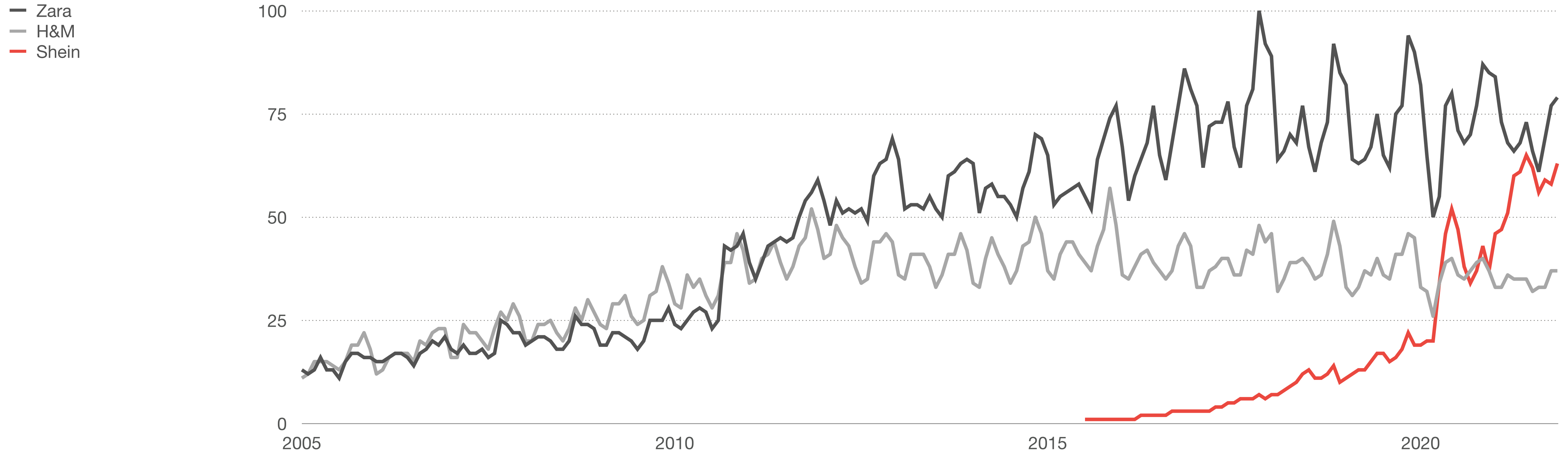


Source: Companies

# New experiences break in

Shein breaks in to fast fashion with a new UX and new data models (and a massive acquisition budget)

Worldwide search interest

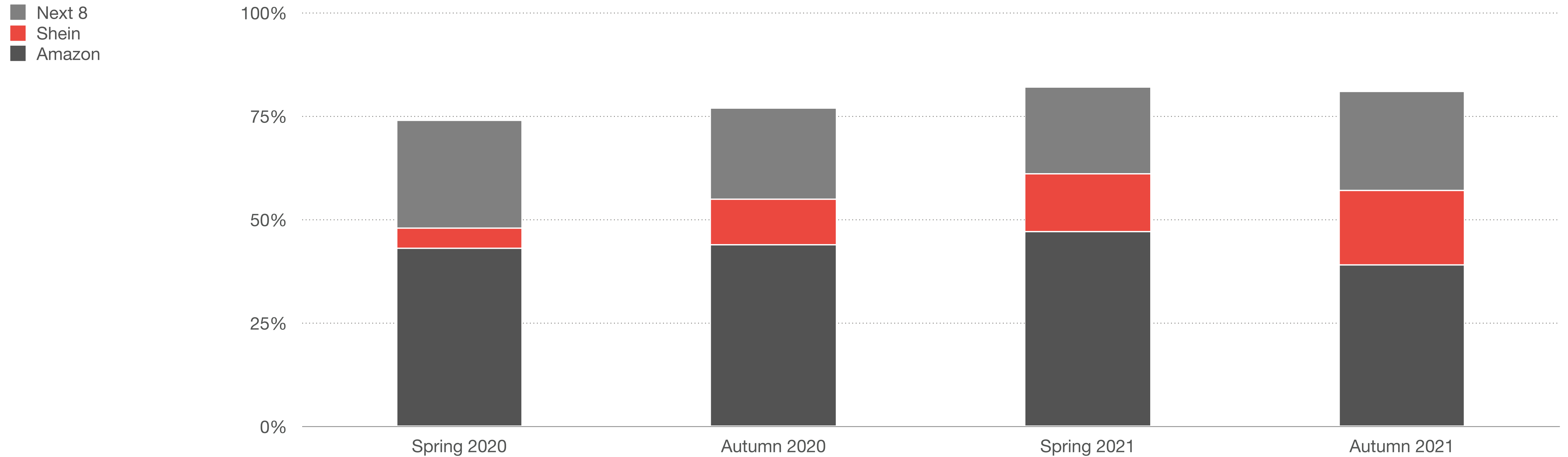




# Shein captures US mindshare

Now a major teenage online shopping brand

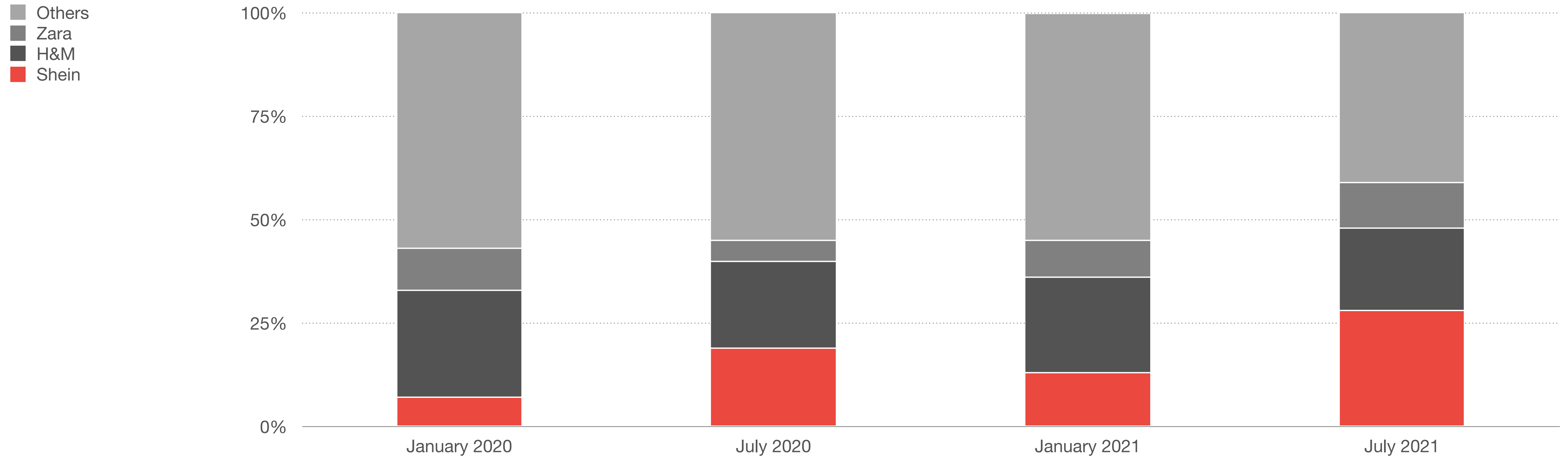
Female US teenagers' top 10 favourite online shopping brands



# Shein now leads US fast fashion?

On some estimates, Shein is now the largest US fast fashion retailer

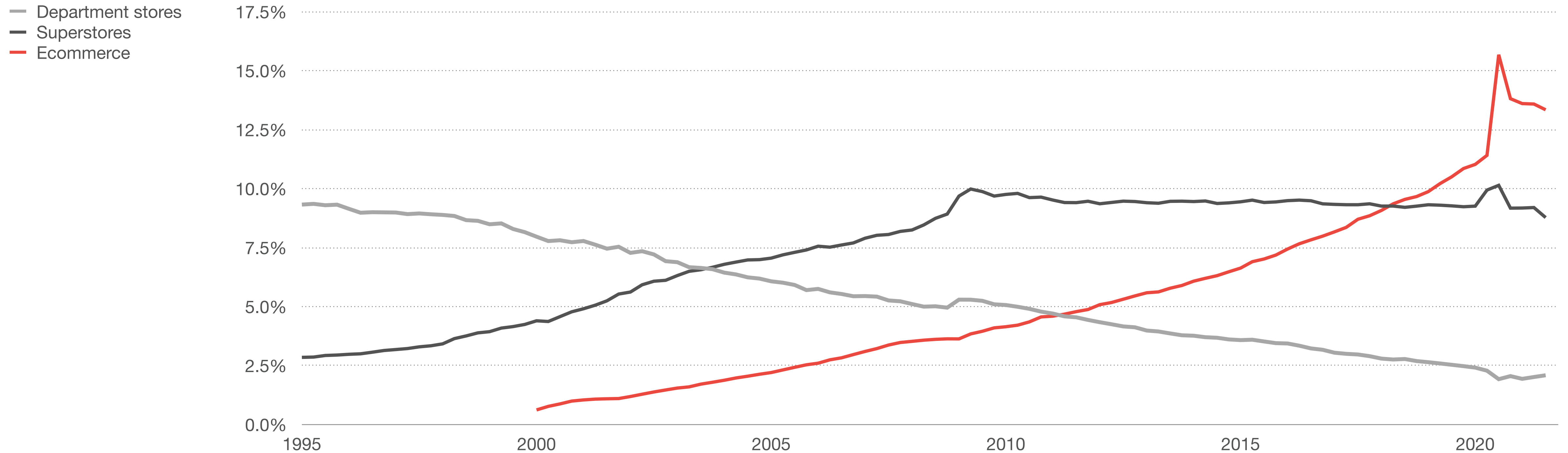
US fast fashion market share



# This has all happened before

Department stores were Amazon, once - this is another generational change

### Share of US retail sales





Is this about good tech?  
Or good retailing?





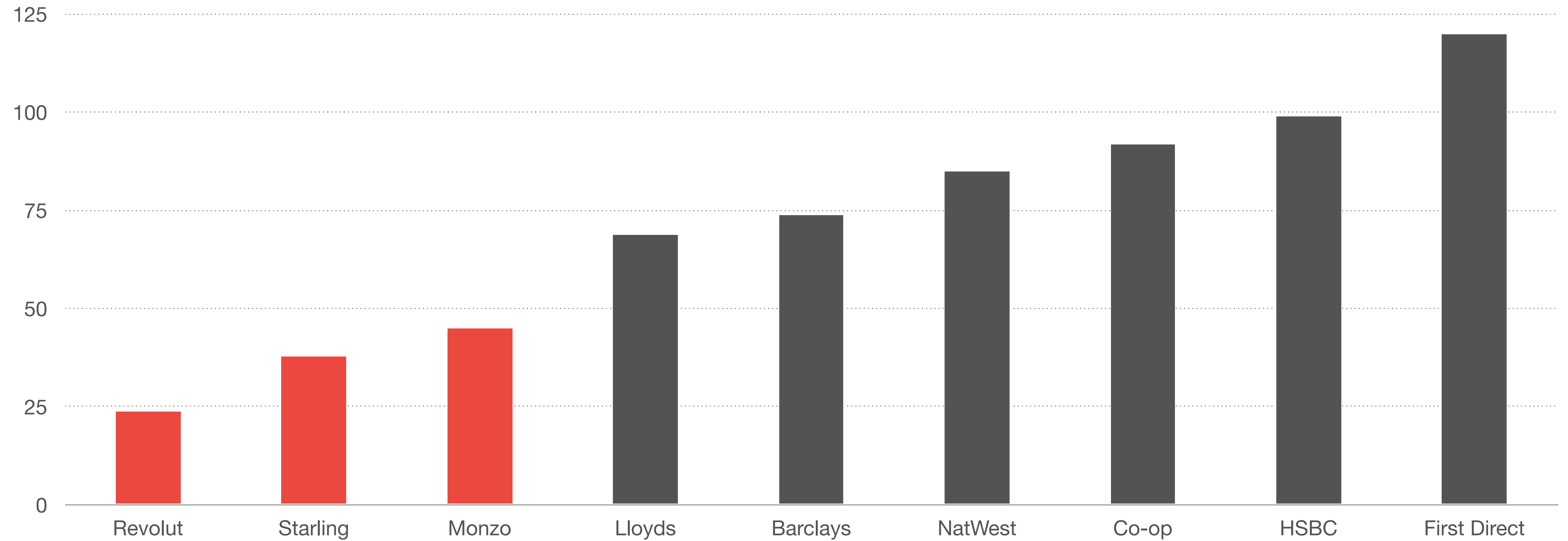
Questions from 1995?  
Or questions from 1900?



# Is this tech?

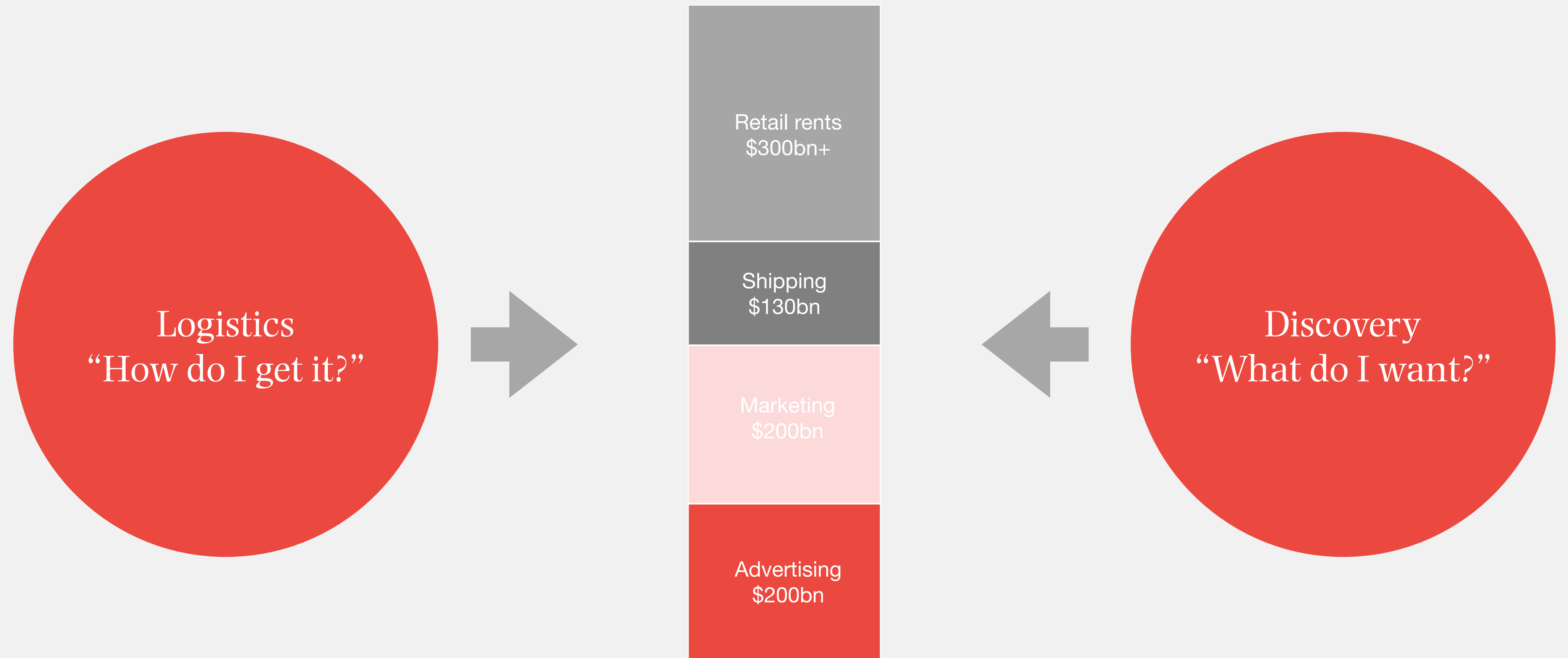
Is a good 'digital' experience a digital problem, or a company problem?

Taps to open a new UK bank account online, 2020



# How do you serve your customers?

US brands & retailers spend \$7-800bn to reach their customers - rent is the new CAC



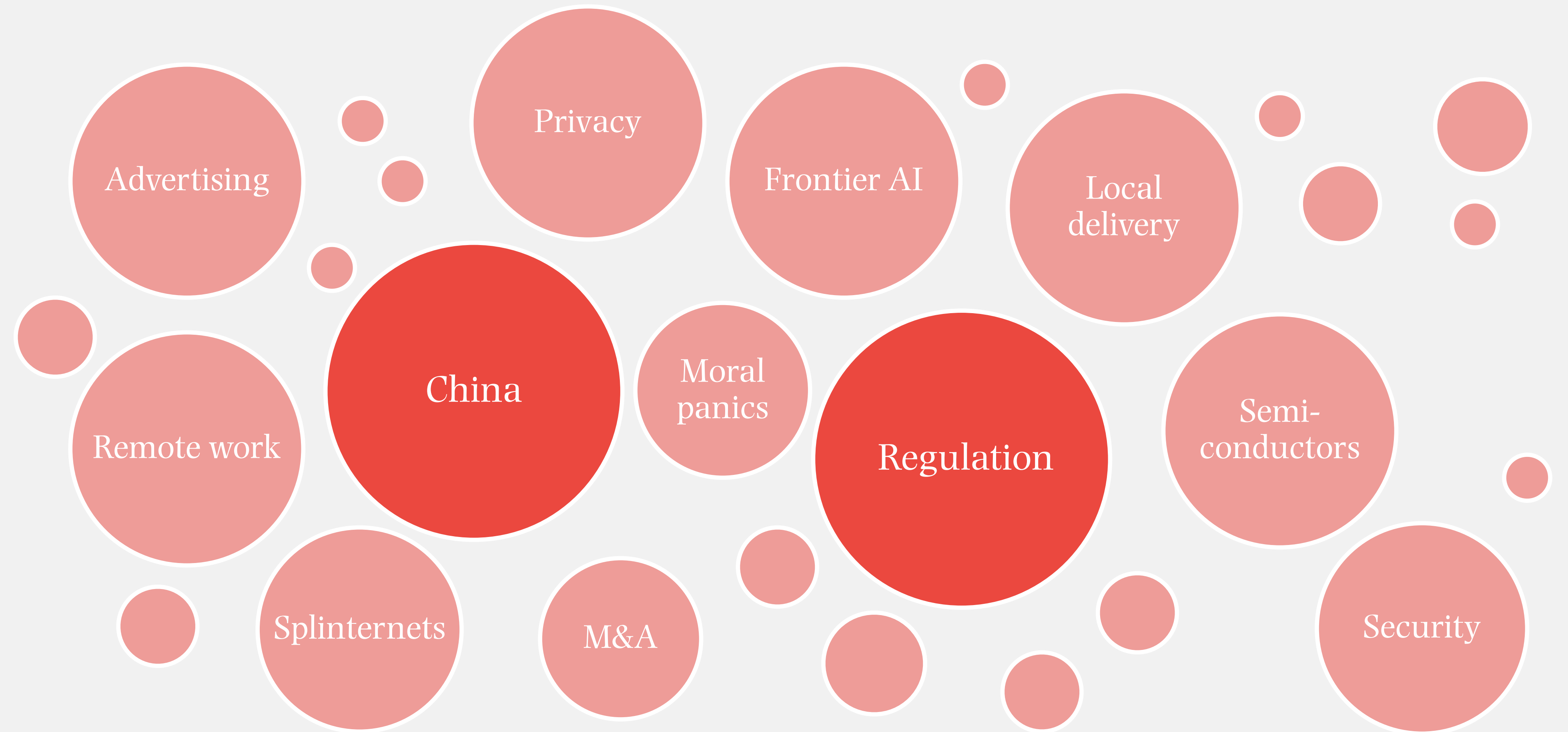
# Conclusion

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# All the things I left out

When software eats the world, everything becomes a software question



# Past, future, present

While tech builds the future, industries in its wake try to adjust



Tech dreams  
for 2030



Building tech  
startups today

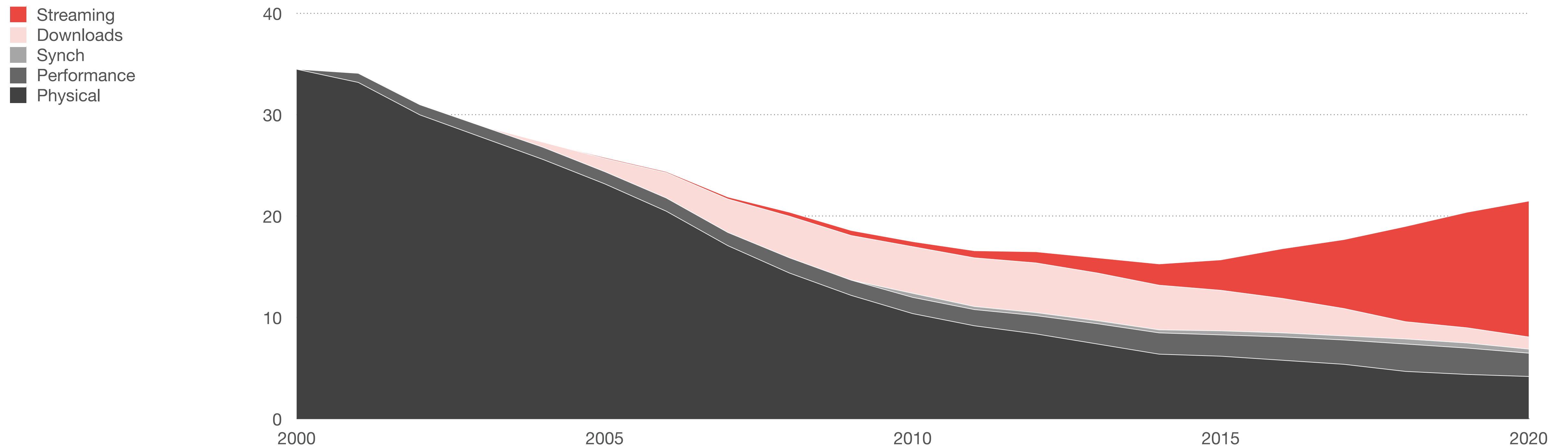


Old economy  
adjusts to tech  
disruption

# The fall and rise of music

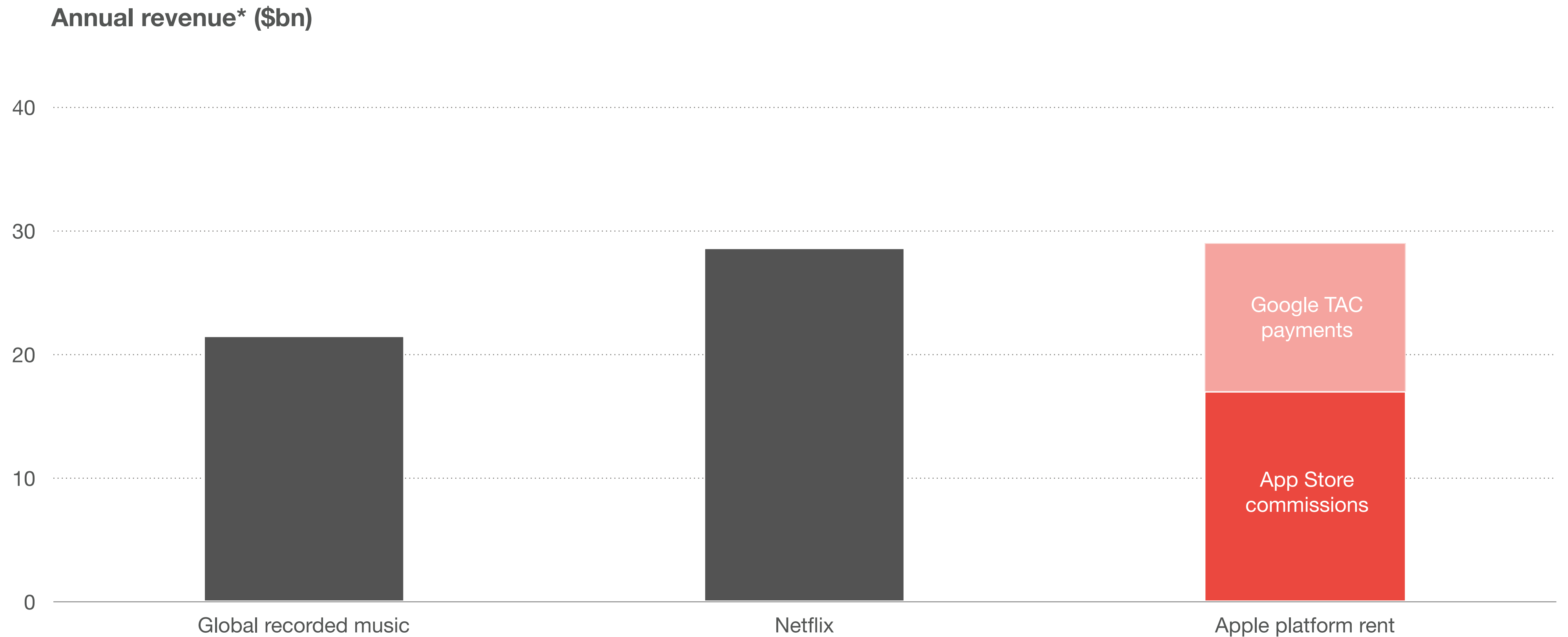
Music was one of the first industries to be overturned by the internet - how's it doing?

Global recorded music revenue (\$bn, 2020 dollars)



# The scale of platform rents

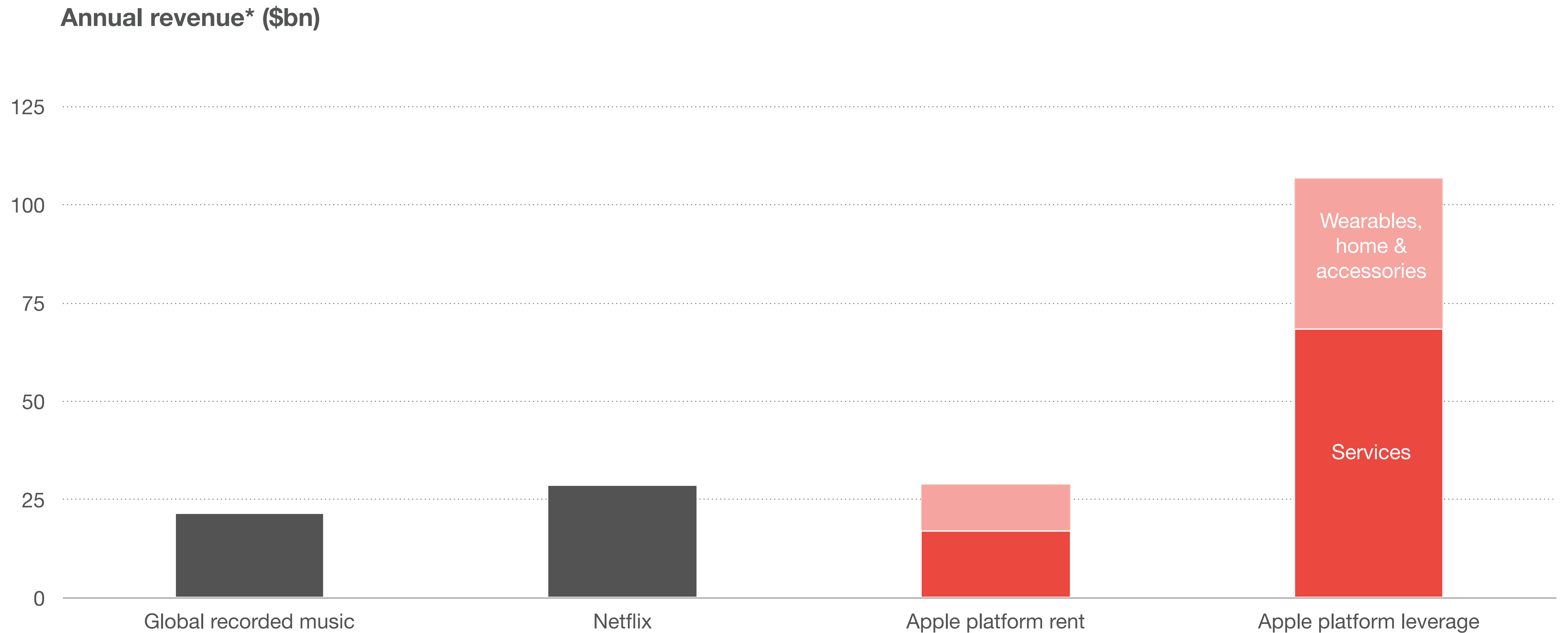
Apple makes more from platform rents than the entire global music industry, or Netflix



Source: IFPI, Netflix, Apple, DoJ  
\*2020 for music, September 2021 TTM for others

# Platform leverage

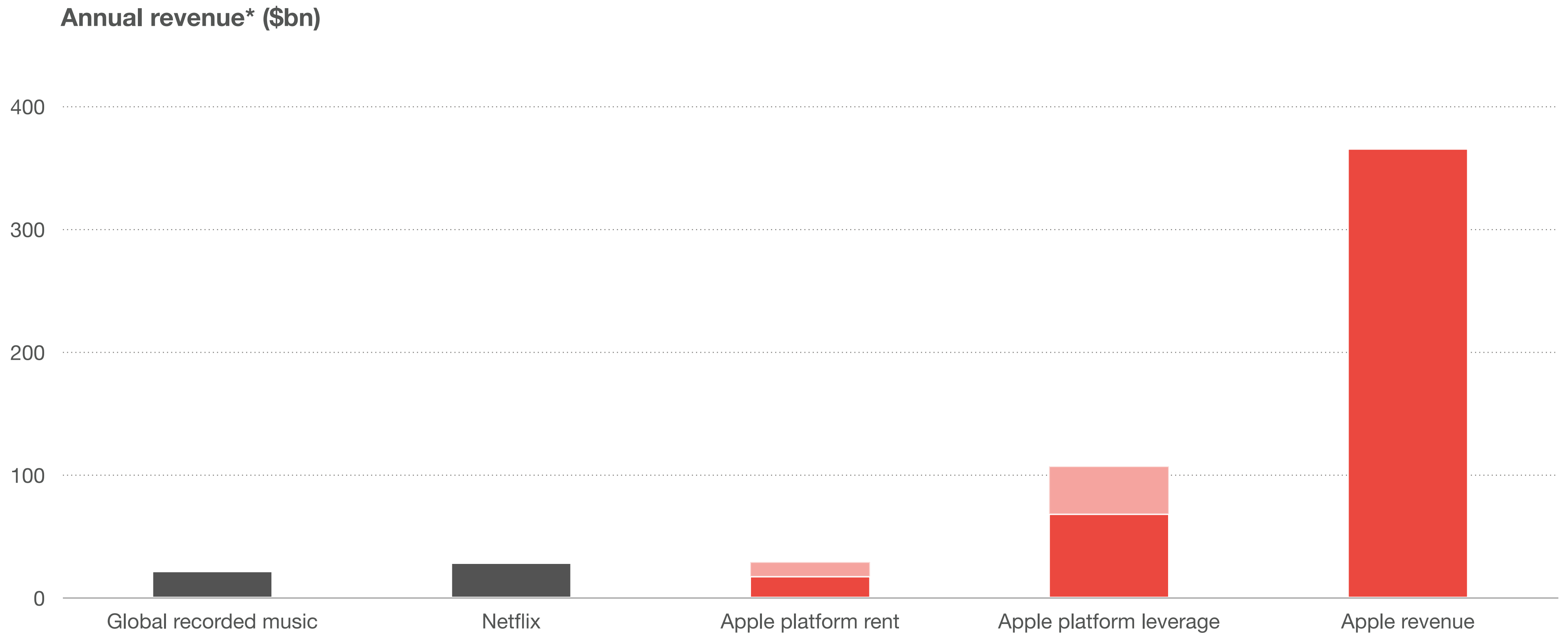
Over \$100bn in revenue from leveraging the platform and installed base



Source: IFPI, Netflix, Apple, DoJ  
\*2020 for music, September 2021 TTM for others

# How much does Apple care about music or TV?

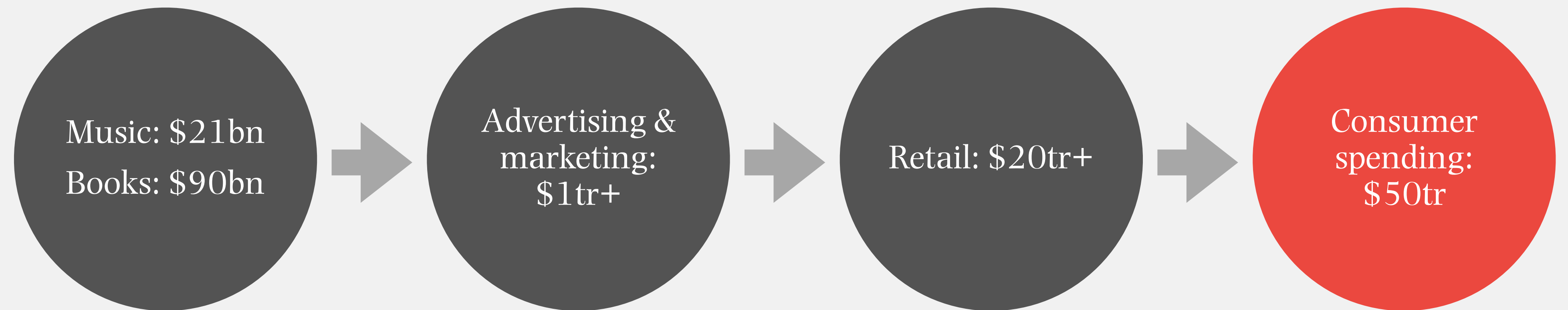
Total Apple revenue is close to 20x recorded music



Source: IFPI, Netflix, Apple, DoJ  
\*2020 for music, September 2021 TTM for others

# Moving to bigger opportunities

Tech has gone from selling accounting tools to big companies to replacing those companies

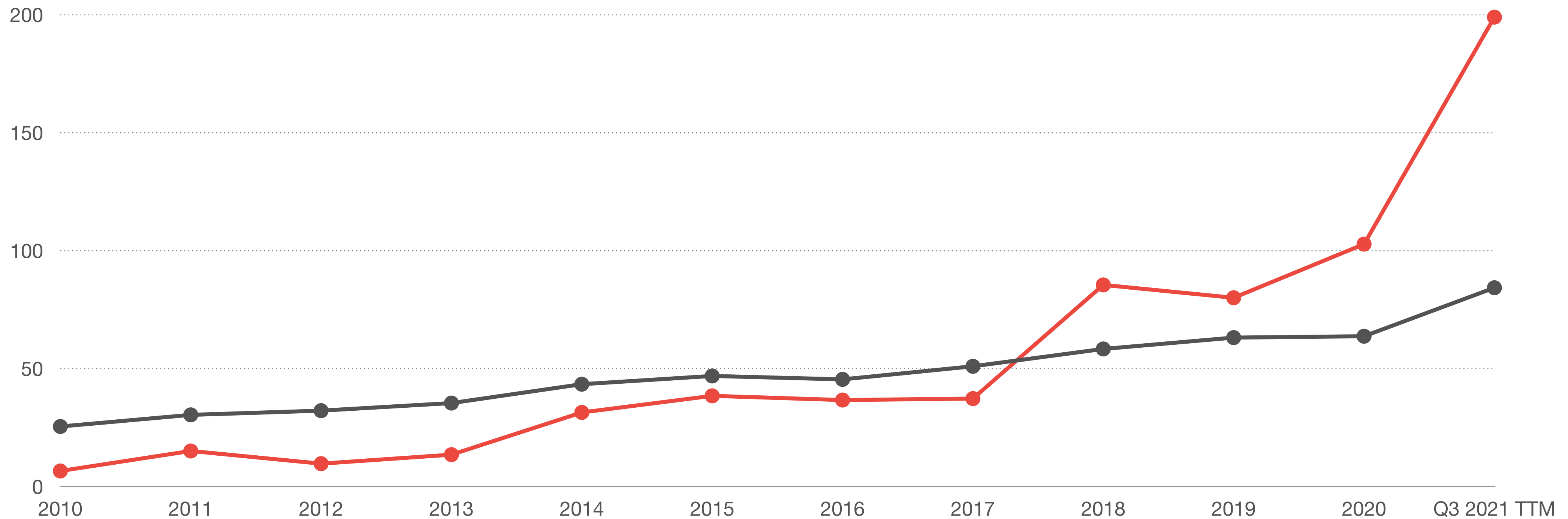


# Unprecedented investment in tech

A firehose of money into the tech startup ecosystem

US VC deal activity (\$bn)

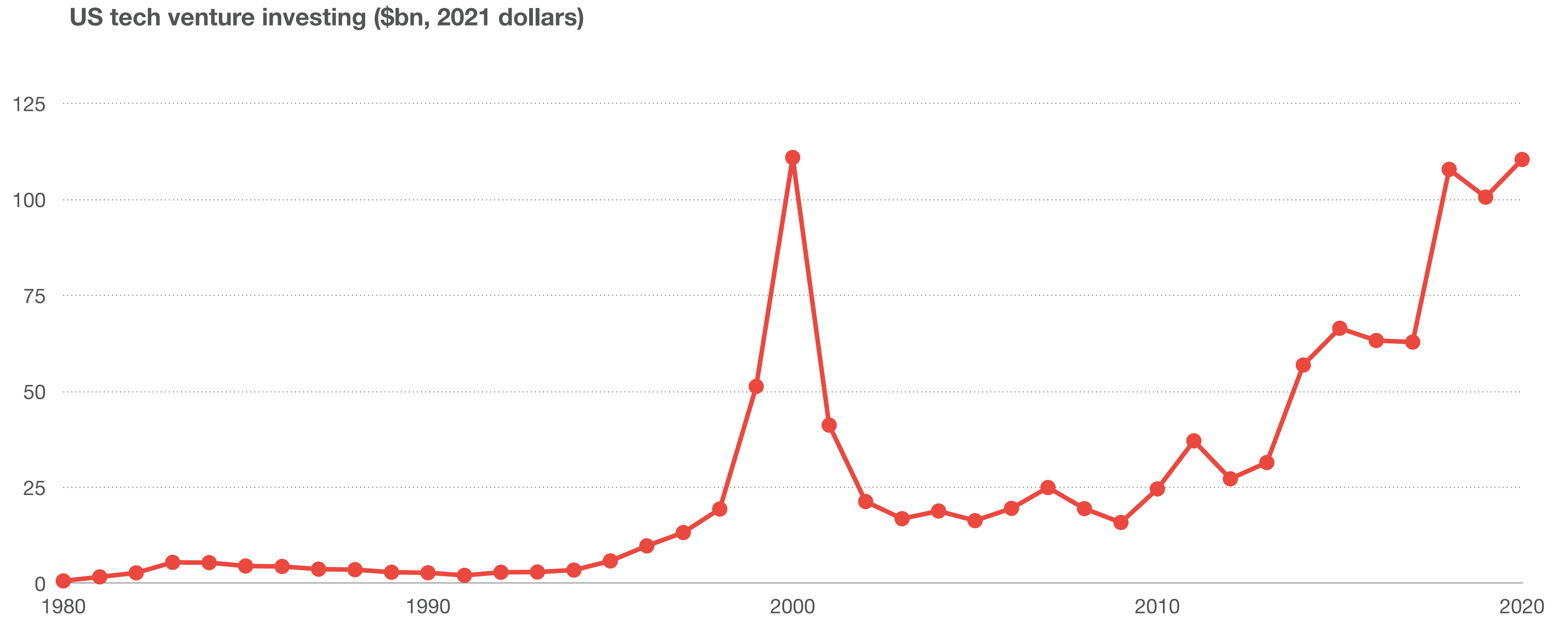
- Under \$50m
- Over \$50m



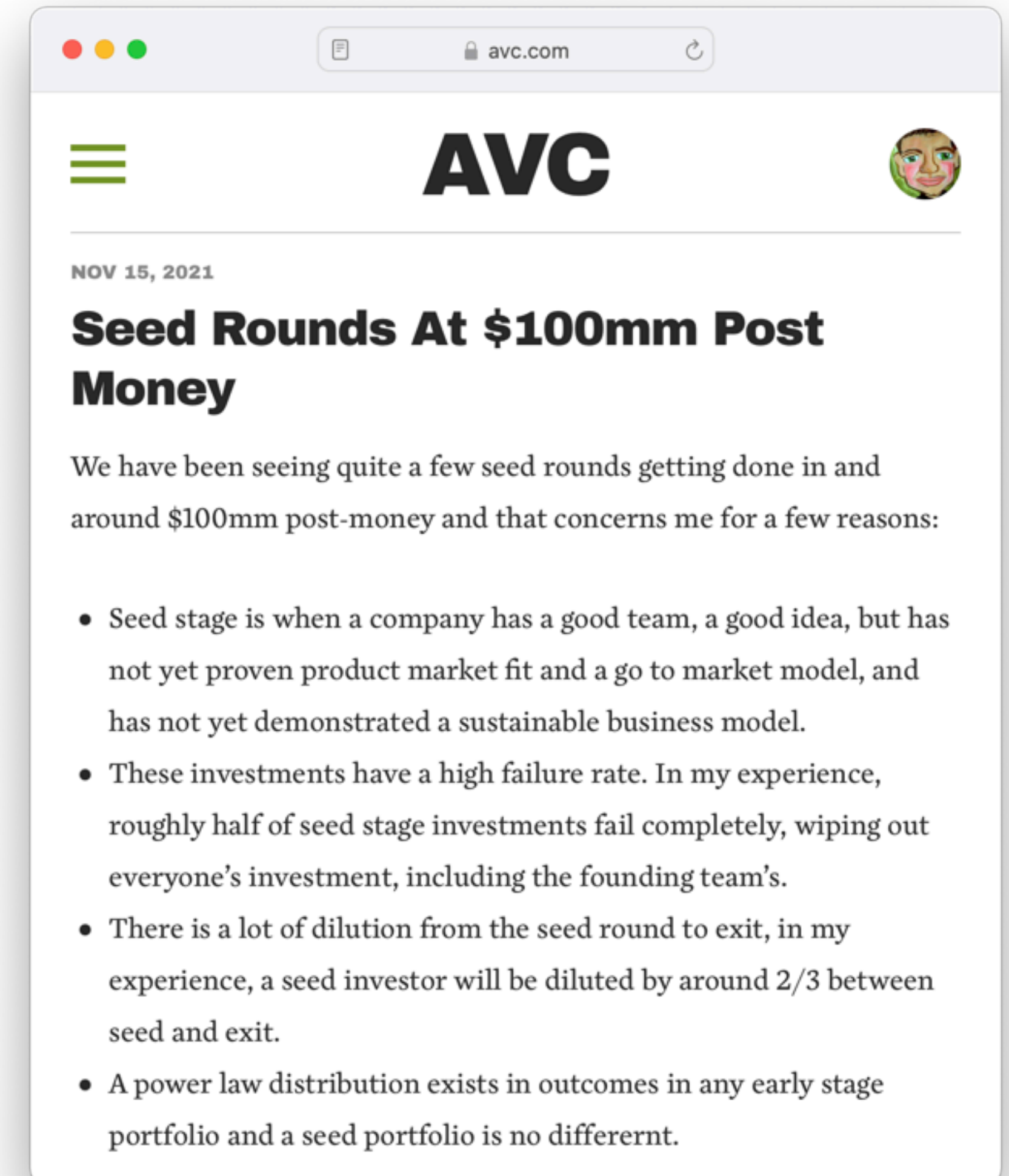


# (Well, almost unprecedented)

Tech investing now matches levels seen in the bubble, but based on reality rather than promise

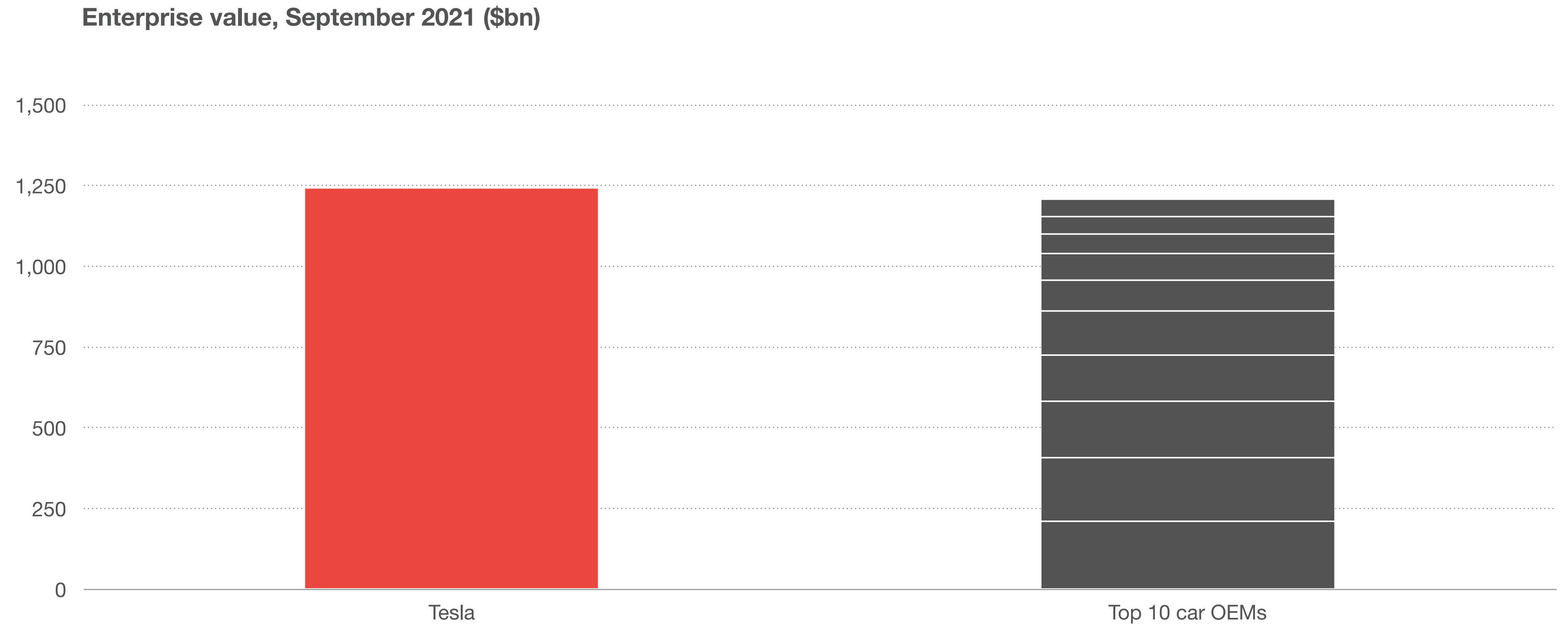


# Hot money



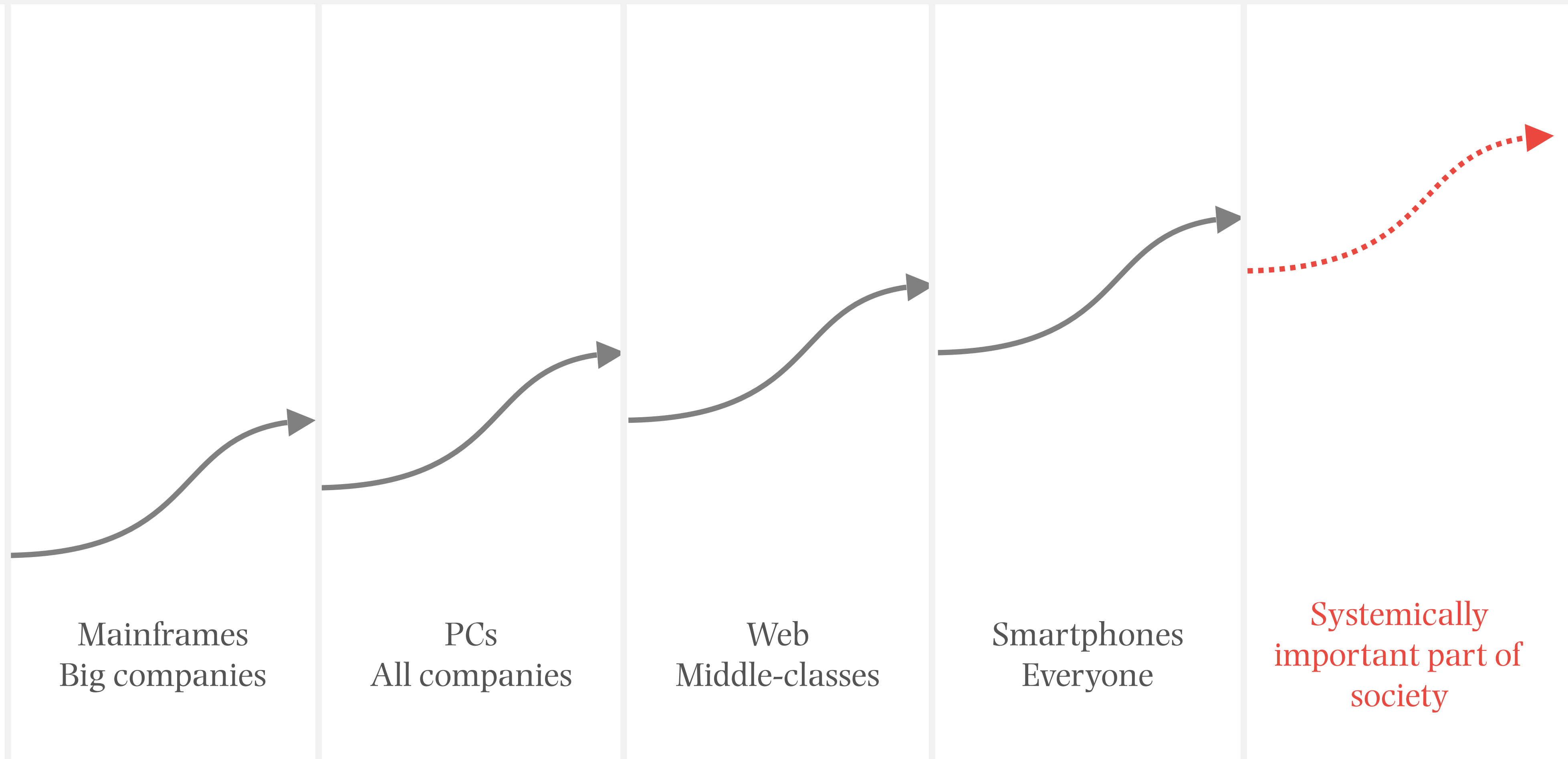
# And some excitement

Tesla's current valuation presumes it will capture more value than the entire global car industry



# First 50 years, second 50 years

Tech used to sell accounting tools to big companies - now it's part of our life





# The last time this happened

GM, Ford and Chrysler were 20% of Fortune 500 earnings in the late 1950s

But who made more from the deployment of cars, and who made more from car-commerce - Detroit, or retailers?

Source: Sears, Roebuck





# Thank you

**Benedict Evans**

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

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